Volksbanken Raiffeisenbanken
cooperative financial network

2019
Annual Report

DZ BANK Group

Contents

Uwe Fröhlich (left) and Dr. Cornelius Riese, Co-Chief Executive Officers

Dear Shareholders,

The DZ BANK Group can look back on a successful 2019. At €2.7 billion, our profit before taxes comfortably exceeded our expectations. This very good figure is a reflection of the positive operating performance of all entities in our banking group. Thanks to the trust placed in us by our customers, many of our business lines were able to achieve significant growth.

Our results were also heavily influenced by one-off items. At R+V Versicherung, gains and losses on investments held by insurance companies amounted to a very high net gain thanks to favorable interest rates and price rises in the capital markets. DZ HYP's government bond portfolio benefited from significant reversals of impairment losses. Moreover, we generated extraordinary income from transactions aimed at sharpening the focus of our business activities, in particular the disposal of parts of DVB Bank and the sale of non-German companies of Bausparkasse Schwäbisch Hall and Union Investment.

At the same time, we carried out strategic capital investment in our growth. Targeted acquisitions strengthened both Union Investment and the depositary business at DZ BANK. We completed major transformation projects as scheduled in 2019, as part of our efforts to hone our strategic profile. For example, we leveraged the remaining synergies resulting from the merger of DZ BANK and WGZ BANK and, with the migration of the IT systems, completed the technical aspects of the merger of our real estate banks to form DZ HYP.

The constant evolution of our financial services group is also reflected in the financial reporting. For the first time, we are reporting the results of DZ BANK central institution and corporate bank separately from those of the holding function within DZ BANK AG, thereby increasing the transparency of our results.

The key results of the DZ BANK Group in detail: Net interest income came to €2.74 billion (2018: €2.86 billion). Whereas DZ BANK (central institution and corporate bank), DZ HYP, and TeamBank saw sharp rises in net interest income owing to a larger volume of business, Bausparkasse Schwäbisch Hall had to recognize further extensive provisions for interest-rate bonuses as a consequence of the persistently low interest rates. Net fee and commission income was up slightly at €1.98 billion (2018: €1.96 billion), with Union Investment, in particular, again delivering a very strong business performance. Gains and losses on trading activities advanced from a net gain of €285 million in 2018 to a net gain of €472 million in the year under review thanks to brisk capital markets business at DZ BANK (central institution and corporate bank). There had also been negative one-off items in the previous year. Gains and losses on investments amounted to a net gain of €182 million (2018: €24 million), reflecting the aforementioned sale of parts of the business. Other gains and losses on valuation of financial instruments improved from a net loss of €186 million to a net gain of €255 million owing to valuation effects in DZ HYP's bond portfolio. Net income from insurance business amounted to €1.23 billion, compared with €490 million in 2018. The increase was predominantly attributable to the improvement in gains and losses on investments held by insurance companies. Premiums earned in R+V Versicherung's operating business also went up. Loss allowances rose to €329 million (2018: €21 million) but were still below normal levels. Additions were primarily required in DVB Bank's maritime portfolio. Despite capital expenditure aimed at growth, administrative expenses were almost unchanged at €4.07 billion as a result of the leveraging of synergies from the merger and disciplined management of costs. Other net operating income amounted to €250 million (2018: net expense of €109 million) and included income from the disposal of parts of the business.

The dedication and hard work of our employees played a huge part in these very satisfying results. We would like to express our great appreciation and thanks to them.

DZ BANK's capital situation remains very stable. The common equity Tier 1 capital ratio increased to 14.4 percent as at December 31, 2019 (December 31, 2018: 13.7 percent) and the leverage ratio to 4.9 percent (December 31, 2018: 4.3 percent). This was due to profit retention, careful management of risk-weighted assets and, in particular, the successful placement of an AT1 bond with a volume of €1.4 billion. Cooperative banks submitted subscription requests in an amount of €2.5 billion, underlining DZ BANK's strong appeal as an issuer and the high degree of cohesion within the cooperative financial network.

Diligent capital management will remain a high priority going forward, particularly in view of our planned growth. It also means we are taking our owners' legitimate interests into consideration. This is the basis for the dividend of 18 cents that we are proposing to the Annual General Meeting, which is the same as in previous years.

The level of interest in our products and services, for example in the bond business for institutional clients, has remained strong in the first few months of 2020. This gives us cause for optimism. At the same time, the outlook is clouded by geopolitical risks. These include global trade disputes, which have still not been fully resolved, and the implementation of Brexit. In this environment, a slower rate of growth is the best that can be hoped for, even for the German economy. The capital markets are likely to remain very volatile. This particularly affects DZ BANK because it is a major institutional investor within the cooperative financial network. Against this backdrop, we anticipate that our profit before taxes will be at the lower end of our long-term target range of €1.5 billion to €2 billion.

Despite the challenging conditions, we see significant opportunities for growth in our business lines. We want to capitalize on these opportunities and increase our market share. In corporate banking, for example, we have stepped up our joint marketing with the cooperative banks aimed at small and medium-sized enterprises and in our international business.

The sustainable use of resources is not only a key part of our responsibility as a corporate citizen but also creates business opportunities. Sustainability emerges as a very important subject in many of our meetings with customers. We are already one of the leading market players among the German syndicate banks when it comes to issuing sustainable bonds, and Union Investment is a pioneer in the sustainability segment, too. Furthermore, we are systematically incorporating sustainability factors as we move our banking group forward and are strengthening our range of products and services for sustainable finance. The positive assessment by specialist sustainability rating agencies supports us in this approach.

We have made significant progress with implementing our 'Verbund First 4.0' strategic program. At DZ BANK AG, we increased our income in all business lines (Capital Markets, Corporate Banking, and Transaction Banking). At the same time, we are working constantly on making our processes more efficient, for example by digitalizing the entire lending process. We are focusing on areas of potential for the cross-functional use of services and technologies within the DZ BANK Group.

As well as continuing to develop our operating business, we are also investing heavily in new technologies. Working with market partners, we have launched a flagship project, FinLedger, for the digital, blockchain-based execution of promissory notes. We are running various AI and smart data initiatives, for example at R+V and TeamBank. In our internal processes, we are deploying robotic process automation, cloud solutions, and other innovative technologies. These give us the flexibility to increase the benefits for customers and improve quality and the use of resources. Ever shorter innovation cycles require us to adapt to new developments and, at the same time, make the right decisions about which key technologies to focus on that will benefit our customers and us in the long term.

In the future, it will be more important than ever to intensify our collaboration – including in the customer business – and to better integrate the range of products and services within the cooperative financial network, for the benefit of our customers and our organization. In any case, we have everything in place for further healthy growth: the trust of our customers, financial strength, and operational effectiveness.

Kind regards,

Uwe Fröhlich	Dr. Cornelius Riese
Co-Chief Executive Officer	Co-Chief Executive Officer

Group management report

Note

The figures in this report are rounded to the nearest whole number. This may give rise to small discrepancies between the totals shown in the tables and diagrams and totals calculated from the individual values shown.

I DZ BANK Group fundamentals

1 Business model and strategic focus

The strategic focus in the DZ BANK Group follows the guiding principle of fulfilling the role of a network-oriented central institution and financial services group. Business activities are centered on the local cooperative banks and their customers. The objective of this strategic approach is to consolidate the positioning of the cooperative financial network as one of the leading financial services providers in Germany on a long-term basis.

The entities in the DZ BANK Group work with one another and with the cooperative banks and Fiducia & GAD IT AG, Karlsruhe and Münster, (Fiducia & GAD) under the leadership of the Bundesverband der Deutschen Volksbanken und Raiffeisenbanken e.V., Berlin, (BVR) [National Association of German Cooperative Banks] to shape their future. The strategy agenda entitled 'Shaping the future cooperatively' provides a framework within which the companies of the cooperative financial network are implementing the initiatives in the strategic KundenFokus (customer focus) project with the aim of establishing an omnichannel model.

1.1 DZ BANK – central institution and corporate bank

Following the merger of DZ BANK AG Deutsche Zentral-Genossenschaftsbank, Frankfurt am Main, (DZ BANK) with the former WGZ BANK in 2016, DZ BANK has been refining its governance structure along the lines of a holding company model. To this end, it set up a Central Advisory Council in 2018, enabling the cooperative banks to participate in and influence strategic decisions to a greater extent. Furthermore, responsibility for the holding company activities and for the central institution and corporate bank activities within DZ BANK were separated from each other. To this end, the DZ BANK AG operating segment was split into the DZ BANK – central institution and corporate bank operating segment and DZ BANK – holding function[1]. They are reported separately in these financial statements for the first time. The strategic focus of DZ BANK, as described below, essentially relates to the activities of DZ BANK – central institution and corporate bank.

In 2018, DZ BANK launched 'Verbund First 4.0', a strategic program designed to ensure the bank's resilience for the future. The program is aimed at improvements in three key areas: market offering, control and production processes, and corporate culture. Under the program, DZ BANK is working on various action plans based on 28 defined action areas.

DZ BANK is applying its strategic focus in the various business lines, as described below.

1.1.1 Cooperative Banks/Verbund

The Cooperative Banks/Verbund division is responsible for providing support for the German cooperative banks, which are both a customer group and the shareholders of DZ BANK. The Regionaldirektoren [regional directors] of DZ BANK are the first port of call and customer relationship manager for the cooperative banks, with the aim of assisting them with their business activities in the regional markets.

DZ BANK offers the cooperative banks consultancy and other services at every stage of the strategic bank management process and advises them on regulatory matters. In addition, DZ BANK assists the local cooperative banks with treasury and controlling aspects of bank management, such as planning and risk management, as well as with optimization for strategic bank management purposes and with own-account investing activities. DZ BANK offers the cooperative banks systems such as GENO-SAVE and EGon that help them to meet requirements in the areas of own-account investing, reporting, and accounting.

1.1.2 Corporate Banking

In the corporate banking market, DZ BANK supports the marketing of the local cooperative banks. This support concept is geared to the needs of corporate customers and the individual market situation of the cooperative banks and is closely integrated with the activities of the cooperative financial network.

[1] DZ BANK – holding function is not an operating segment within the meaning of IFRS 8.5.

In 2019, DZ BANK modified its organizational structure in the Corporate Banking business line in order to ensure targeted marketing. Four regional divisions now look after not only DZ BANK's direct customers but also customers in the joint business with the cooperative banks. As a result of the activities to update corporate banking, customer relationship management for multinationals, the healthcare sector, and cooperative financial network customers has been grouped together in the Central Corporate Banking division.

Under the 'Verbund First 4.0' strategic program, DZ BANK has defined four action areas for corporate banking: corporate customer market approach for direct business, joint lending business with the cooperative banks, international business, and development lending. It has also developed action plans for these areas.

The existing customer relationship management model has been revised both in direct business and in joint business with the cooperative banks, product specialists have been assigned to specific regions, and product delivery capability has been adjusted. Existing processes in corporate banking have also been updated, for example the 'GP direkt' process for setting up new customers was overhauled in 2019.

In April 2019, DZ BANK launched VR International, a digital platform for the cooperative banks and their corporate customers that makes country-specific and product information for international business available on the websites of the cooperative banks and in an app. A guided process directs customer inquiries straight to a point of contact in the relevant cooperative bank.

DZ BANK maintains international branches and representative offices to enable the corporate customers of the cooperative financial network to access major markets outside Germany. It has operated internationally for many years, particularly in the areas of trade finance, export finance, and the local provision of banking products and services in the local currency. In 2019, it celebrated the 40th anniversary of its international branch in Hong Kong and the 30th anniversary of its representative office in Moscow. Also last year, DZ BANK signed cooperation agreements with Brazil's Banco Bradesco S. A., Poland's PKO Bank Polski, and Belarusbank in order to widen its market coverage. It has already entered into similar agreements with banks in China, India, and Indonesia.

In the development lending business, DZ BANK provides the cooperative banks, their corporate customers, the group entities, and third-party banks with advice on public-sector development loans, subsidies, and guarantees. In this context, it primarily works with Kreditanstalt für Wiederaufbau (KfW) [Germany's KfW development bank], the federal states' own development banks, and Landwirtschaftliche Rentenbank.

1.1.3 Retail Banking

In the Retail Banking business line, DZ BANK offers platform- and process-driven services for the cooperative banks' and partner banks' securities business with retail customers, focusing on personal investments. As well as securities, this includes liability products, advisory services, market data, research, and trading/advisory/e-business platforms.

DZ BANK enables its customers to benefit not only from conventional banking but also from digital access to their bank via mobile login, online tools, and the DZ BANK derivatives portal.

In 2019, DZ BANK launched the online platform meinGIS, an enhancement of the GIS market data application that had previously been used. The platform was introduced as part of the 'Verbund First 4.0' strategic program and is intended to assist the local cooperative banks with the provision of securities investment advice.

1.1.4 Capital Markets

Alongside advisory and sales services in relation to investment and risk management products covering the interest-rate, credit, equities, and currency asset classes, DZ BANK also offers advisory and sales services in fixed-income and equities business and in secondary and primary market business to its institutional clients in Germany and abroad, to the cooperative banks in their own-account investing activities, and to their corporate customers. It also offers research services.

In 2019, DZ BANK undertook a range of activities in the Capital Markets business line as part of the 'Verbund First 4.0' strategic program. For example, it rolled out an information and analysis platform for private placements. Moreover, local cooperative banks can use a web portal that gives them access to information on their customers' interest-rate and currency management transactions.

On behalf of the cooperative financial network, the Group Treasury division at DZ BANK carries out the cash-pooling function and ensures access to money markets and capital markets as well as to liquidity provided by central banks. In addition, Treasury acts as the product portfolio manager for secured and unsecured money market business, currency swaps and forwards, and the issue of short-term commercial paper.

1.1.5 Transaction Banking

In the Transaction Banking business line, DZ BANK provides its customers with payments processing, card processing, and capital markets services. It also offers depositary and advisory services. In addition, DZ BANK makes platforms available in order to improve the competitiveness of the companies within the cooperative financial network with regard to transaction banking.

Under the 'Verbund First 4.0' strategic program, DZ BANK is further expanding its instant payments infrastructure for the cooperative financial network with the aim of establishing it as a standard payments processing technology. It has been possible to receive instant payments since November 2018. And since May 2019, the cooperative financial network's customers have been able to initiate instant payments too.

To help Germany's small and medium-sized enterprises (SMEs) to internationalize, DZ BANK has expanded its range of cash management and international payments processing services. This should not only raise awareness of the cooperative financial network's capabilities in this regard but also increase market share in international business going forward.

DZ BANK also gained new customers in the depositary business by using new technologies and stepping up sales activities.

In capital markets business, DZ BANK is responsible for the regulatory reporting of its own trading activities and those of the cooperative banks. Moreover, it has formed a multi-institutional team with DekaBank Deutsche Girozentrale, dwpbank Deutsche WertpapierService Bank AG, and Landesbank Hessen-Thüringen Girozentrale to develop finledger, a blockchain platform for the digital execution of promissory note transactions. The first transactions were executed on the platform in 2019.

In view of changes to the regulatory environment for banking infrastructure and payments processing infrastructure, as well as the arrival of new competitors in the market, DZ BANK plays an active role in both national and international payment systems initiatives. In Germany, for example, it is participating in the #DK initiative of the Digitale Kreditwirtschaft (DK) [German Banking Industry Committee] and, in the European market, in the European Payments Initiative (EPI). As part of these initiatives, DZ BANK and the other banks involved are developing a cross-channel payment solution that builds on the reach of the current account to ensure that the payments processing business is fit for the future.

In 2019, DZ BANK began to design and implement a payment system for Apple Pay. The related services are to be offered to the customers of the local cooperative banks as soon as possible.

Furthermore, the focus of work to establish supplementary payments processing products is being sharpened by expanding existing value-added solutions and integrating payment solutions for other areas of customers' lives, for example by connecting to third-party providers' platforms.

1.2 BSH

Bausparkasse Schwäbisch Hall AG, Schwäbisch Hall, (Bausparkasse Schwäbisch Hall; subgroup abbreviated to BSH) is the consumer home finance provider in the DZ BANK Group and offers solutions that enable customers to build up private savings, own their own home, or obtain home finance. The strategic objective is to safeguard BSH's position as market leader with its profitable building society operations, working in close collaboration with the cooperative banks on a decentralized basis.

Alongside home savings, another core pillar of the business is home finance, which allows BSH to further diversify its sources of income. The home finance business includes building loans arranged directly by BSH and its activities as an intermediary on behalf of cooperative banks in connection with real estate loans.

In 2019, BSH continued to pursue its strategy of digitalizing its value chain. This applies to the transformation of BSH's core business, in which existing processes and channels to customers, the bank, and field sales are being updated, and to the establishment of new business models. As part of this strategy, BSH teamed up with Hypoport back in 2018 to create Baufinex, an online marketplace for home finance. The marketplace is designed for independent brokers and brokerage firms and is aimed at generating further growth in the home finance market together with the cooperative banks. BSH has also relaunched *www.wohnglück.de*, a content platform relating to homes and house-building that consciously focuses on complementary, non-financial aspects.

To expand its own funding base, BSH began issuing Pfandbriefe in 2019 as a way of tapping into an additional source of funding.

BSH also remains active in its international business, focusing on maintaining the existing approach to business through investee companies in Slovakia, Hungary, and China. In the first half of 2019, it sold its 45 percent stake in Czech building society Českomoravská stavebni spořitelna (ČMSS) to ČSOB, the Czech arm of the Belgian KBC Group. This meant that ČSOB became the sole shareholder in ČMSS.

1.3 DVB

DVB Bank SE, Frankfurt am Main, (DVB Bank; subgroup abbreviated to DVB) is a specialist niche provider in the area of international transport finance, focusing on shipping finance.

The restructuring of DVB began in 2017 and further progress was made with scaling back its business activities in 2019. On February 26, 2019, DVB sold all of the shares in LogPay Financial Services GmbH to Volkswagen Financial Services AG.

On May 6, 2019, it was announced that the acquisition of DVB's land transport finance portfolio by Landesbank Hessen-Thüringen, which had been made public on December 21, 2018, had been completed. The employees and the entire customer credit portfolio in the land transport finance business were transferred to Landesbank Hessen-Thüringen.

The acquisition of DVB's aircraft finance business by MUFG Bank, Ltd., which had been announced by MUFG Bank, Ltd. and BOT Lease Co., Ltd. on March 1, 2019, was completed on November 18, 2019. As part of this transaction, the customer credit portfolio of DVB, the affected employees, and parts of the company's infrastructure were transferred to MUFG Bank.

DVB's remaining business, shipping finance, is being run off while preserving as much value as possible.

1.4 DZ HYP

DZ HYP AG, Hamburg and Münster, (DZ HYP), the cooperative specialist for real estate finance and local authority funding, supports the local cooperative banks in their regional markets. The bank serves commercial real estate investors, the housing sector, public-sector customers, and retail customers. DZ HYP's sales activities in its business lines are based on long-term customer relationships in its direct and cooperative network business and on products and services that are defined with a view to their risk and reward.

DZ HYP has locations across Germany: its two headquarters in Hamburg and Münster, six regional centers, and a further six regional offices. It also supports (primarily institutional) clients from Germany in the French, Dutch, UK, and Austrian markets.

All of DZ HYP's non-strategic portfolios – especially the portfolio of mortgage-backed securities and the non-strategic part of the governments/banks securities portfolio – have been brought together in a wind-down portfolio with the primary aim of winding down the portfolios while preserving value.

In November 2019, DZ HYP completed the migration required after the merger of the former DG HYP with the former WL BANK.

1.5 DZ PRIVATBANK

DZ PRIVATBANK S. A., Luxembourg, together with its eight branches in Germany, its two subsidiaries DZ PRIVATBANK (Schweiz) AG, Zurich, (DZ PRIVATBANK Schweiz) and IPConcept (Luxemburg) S. A. (IPC LU), and IPConcept

(Schweiz) AG (IPC CH), is the international provider of private banking, fund services, and lending in all currencies in the cooperative financial network.

DZ PRIVATBANK's products and services encompass not only investment and financing solutions for high-net-worth individuals, business people, foundations, and semi-institutional customers but also bespoke service packages for professional fund initiators and flexible loan products denominated in euros and other currencies for retail and corporate customers.

Based on its national and international expertise in personal investment, funds, and financing, DZ PRIVATBANK aims to achieve a sustained increase in the market share of the German cooperative banks and an enduring improvement in the value they are able to add, especially in the private banking and SME customer segments.

To this end, it has defined the following focus areas for sales growth: portfolio management (asset management) and third-party fund business, including in the area of alternative investment funds, and euro-denominated variable LuxCredit financing. This focus should, above all, enable further expansion of fee and commission business in a market environment that remains very competitive and should counteract the decline in income from interest-bearing business as a result of the continued expansionary monetary policy of the European Central Bank (ECB).

1.6 R+V

R+V Versicherung AG, Wiesbaden, (R+V Versicherung; subgroup abbreviated to R+V) is the cooperative provider of insurance and pension products. It operates in the non-life, life, health, and reinsurance sectors.

Under its 'Wachstum durch Wandel' (growth through change) strategic program, R+V is focusing on improving the management of productivity and costs, increasing its enterprise value and, in particular, gaining market share by exploiting existing potential within the cooperative financial network, expanding cross-selling, and digitalizing its business.

In September 2019, R+V announced that Sparda-Bank Baden-Württemberg was the first Sparda bank in Germany to decide to forge an exclusive alliance with R+V for the sale of pension products.

R+V also strengthened its partnerships within the DZ BANK Group and, at the start of 2019, teamed up with Union Asset Management Holding AG, Frankfurt am Main, (Union Asset Management Holding; subgroup abbreviated to UMH) to present R+V-Direktversicherung UniRendite, an occupational pension solution. The product combines a guaranteed insurance benefit payment with additional potential for returns on fund investments.

As part of the digitalization of its business, R+V launched a digital insurance manager tool in May 2019. This gives customers of the local cooperative banks the option to use a mobile app to manage their insurance policies with R+V and other insurers. The technology, which was developed by R+V's strategic partner Friendsurance, also makes it possible to provide users, if required, with suggestions about updating their insurance cover on the basis of an analysis of their account transactions in online banking.

Transport insurance provider KRAVAG, which is part of the R+V Group, teamed up with SVG Bundes-Zentralgenossenschaft Straßenverkehr eG, Frankfurt am Main, (SVG) [German Central Cooperative for Road Transport] and Bundesverband Güterkraftverkehr Logistik und Entsorgung e. V., Frankfurt am Main, (BGL) [German Road Haulage, Logistics, and Waste Disposal Association] to develop the Wedolo logistics platform, which also went live last year. The platform is particularly aimed at small and medium-sized transport and logistics firms and offers digital services such as linked access to their SVG, BGL, and KRAVAG accounts, access to Timocom's freight exchange, and a tool for preparing invoices that includes an interface for advance financing.

1.7 TeamBank

TeamBank AG Nürnberg, Nuremberg, (TeamBank) is the provider of liquidity management products in the cooperative financial network. In Germany, it offers its easyCredit family of consumer finance products. In Austria, it collaborates with the cooperative banks to offer 'Der faire Credit', a consumer finance product. The product range also includes 'Ratenkauf by easyCredit', which is an installment purchase solution that can be used both online and in-store.

As part of its strategic development, TeamBank aims to step up collaboration with the cooperative banks in its core business and generate growth in all business lines.

In this regard, TeamBank is also focusing on digitalizing its product range. Since mid-2019, it has been offering its customers easyCredit-Finanzreserve, which gives them a financial buffer of up to €15,000, including for SEPA instant payments. TeamBank has been one of the participants in the ECB's TIPS clearing system (TARGET Instant Payments and Settlement) since its official start on November 30, 2018. It is also connected to the RT1 payments system of the Euro Banking Association (EBA CLEARING). TeamBank believes that direct integration with these two clearing systems is essential in order to offer SEPA instant payments in connection with the easyCredit ecosystem to as many customers as possible.

1.8 UMH

UMH is the asset manager in the cooperative financial network and offers investment solutions for retail and institutional clients. In both areas of business, it is aiming for further expansion of the volume of assets under management.

In the retail business, the products and services for UMH's customers are aimed at building up savings, investing and optimizing assets, and providing for old age. As well as fund solutions, UMH offers platforms such as the MeinInvest digital investment tool to the cooperative banks and their customers. MeinInvest is an asset management solution that the local cooperative banks can make available to their customers on their own websites. Its design can be adapted to their own bank branding. The underlying algorithm uses the data entered by the customer to suggest suitable fund investments in different risk categories.

To expand its range of sustainability products, UMH integrated a sustainability-oriented equity fund into its Riester pension product family in July 2019. Since then, UniProfiRente Select has enabled investors to choose whether they wish to add an opportunity component, in the shape of the sustainability-oriented fund UniNachhaltig Aktien Global, as an alternative to the options previously offered.

In the institutional client business, UMH is the central asset manager for the cooperative financial network. It also provides asset management for German and international institutional clients outside the cooperative sector. It offers special funds, institutional mutual funds, asset management, advisory services, capital preservation strategies, and quantitative asset management strategies.

1.9 VR Smart Finanz

VR Smart Finanz AG, Eschborn, (VR Smart Finanz) launched a program in 2017 to transform itself into the digital provider of finance for the self-employed and small businesses in the cooperative financial network. Since then, it has been focusing on lending, hire purchase, and leasing solutions up to €750,000 and on digital services for the cooperative banks' customers in the small business, self-employed, and lower SME segments.

At the end of 2017, VR Smart Finanz announced that it would dispose of its non-strategic business activities as part of the transformation. In the first half of 2019, the sale of the centralized settlement business and of subsidiaries BFL Leasing and VR Immobilien Leasing were completed. The factoring business is to be hived off to DZ BANK AG as an independent subsidiary in the first half of 2020.

Under its updated strategy, VR Smart Finanz is focusing on automated finance solutions and on the development of digital services. At the end of 2018, for example, it launched the accounting software VR Smart Guide and the Bonitätsmanager (credit status manager). VR Smart Finanz and the cooperative banks together offer an online banking tool, VR Smart Online, to their partners to complement the digital and hybrid digital/personal sales channels. The tool enables the cooperative banks to make integrated, automated decisions about financing of up to €250,000 in real time.

2 Management of the DZ BANK Group

2.1 Management units

The DZ BANK Group comprises DZ BANK as the parent company, the DZ BANK Group's fully consolidated subsidiaries in which DZ BANK directly or indirectly exercises control, and other long-term equity investments that are not fully consolidated.

All entities in the DZ BANK Group are integrated into groupwide management. In the case of subgroups, the disclosures in the group management report on management units relate to the entire subgroup comprising the parent company of the subgroup plus its subsidiaries and second-tier subsidiaries. The management units are managed by the parent company in the subgroup, which is responsible for compliance with management directions in the subsidiaries and second-tier subsidiaries. The following management units form the core of the financial services group:

- BSH
- R+V
- UMH
- TeamBank
- DZ BANK – central institution and corporate bank (DZ BANK – CICB)
- DZ HYP
- DZ PRIVATBANK
- VR Smart Finanz
- DVB

The management units are each managed as a separate operating segment. DZ BANK – holding function is also presented separately, although it does not constitute an operating segment within the meaning of IFRS 8.5.

From the reporting year, the previous DZ BANK management unit has been broken down into central institution and corporate bank (DZ BANK – CICB) and the group management function (DZ BANK – holding function) because of changes to the internal business management structure and the associated modification of the internal financial reporting system. The related reorganization of the management units in the internal financial reporting system has been adopted for the presentation of the operating segments. The DZ BANK – CICB operating segment comprises both the cooperative central institution function, which supports the operating activities of the local cooperative banks, and the corporate bank function. DZ BANK – holding function is used to pool a range of responsibilities, notably tasks carried out on behalf of the DZ BANK Group in relation to commercial law, tax, and prudential supervision.

All risks at DZ BANK, and therefore arising in connection with the CICB segment and the holding function, are determined, reported and, managed for DZ BANK on an integrated basis. The aim of this approach is to satisfy the regulatory requirements under Basel Pillar 1 and Pillar 2 whereby DZ BANK must be treated as one bank overall. This also meets the German Minimum Requirements for Risk Management for Banks and Financial Services Institutions (MaRisk BA), which is a generally accepted framework for risk management that DZ BANK is under an obligation to apply. The operating segments presented in the combined opportunity and risk report (chapter VI) are not inconsistent with the operating segments in the consolidated financial statements, because the CICB segment accounts for the main risks at DZ BANK. These risks are credit risk, market risk, equity investment risk, and most of the business risk, reputational risk, and operational risk.

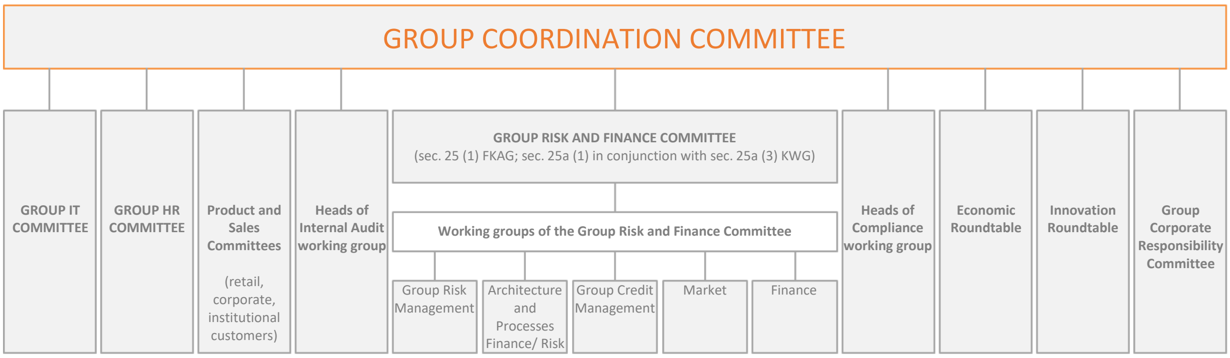
The terms DZ BANK Group and DZ BANK financial conglomerate are synonymous and refer to all the management units together. The context dictates the choice of term. For example, in the case of disclosures relating to economic management, the focus is on the DZ BANK Group, whereas in the case of regulatory issues relating to all the management units in the DZ BANK Group, the term DZ BANK financial conglomerate is used.

The DZ BANK financial conglomerate largely comprises the DZ BANK banking group and R+V. DZ BANK acts as the financial conglomerate's parent company.

2.2 Governance

Governance in the DZ BANK Group is characterized by the general management approach of the DZ BANK Group, appointments to key posts in the subsidiaries, and the committee structure.

FIG. 1 – MANAGEMENT COMMITTEES IN THE DZ BANK GROUP



2.2.1 General management approach

The general management approach consists of a combination of centralized and decentralized management tools. It is aligned with the business model and risks of the DZ BANK Group as a diversified financial services group that is integrated into the Volksbanken Raiffeisenbanken cooperative financial network and that provides this network with a comprehensive range of financial products.

The DZ BANK Group is a financial services group comprising entities whose task as product specialists is to supply the Volksbanken Raiffeisenbanken cooperative financial network with an entire range of financial services. Because of the particular nature of the DZ BANK Group, it is managed both centrally and locally with clearly defined interfaces and taking into account business policy requirements.

2.2.2 Appointments to key posts in the subsidiaries

For the purposes of managing the subsidiaries through appointments to key posts, a representative of DZ BANK is appointed in each case as the chairman of the supervisory body and generally also as the chairman of any associated committees (risk and investment committee, audit committee, human resources committee).

2.2.3 Corporate management committees

Figure 1 provides an overview of the committees of particular importance in the management of the DZ BANK Group.

The **Group Coordination Committee** is the highest-level management and coordination committee in the DZ BANK Group. The objectives of this committee are to strengthen the competitiveness of the DZ BANK Group and to coordinate fundamental product and sales issues. The committee also aims to ensure coordination between the key entities in the DZ BANK Group to achieve consistent management of opportunities and risks, allocate capital, deal with strategic issues, and leverage synergies. The members of this committee comprise the Board of Managing Directors of DZ BANK and the chief executive officers of BSH, DZ HYP, DZ PRIVATBANK, R+V, TeamBank, UMH, and VR Smart Finanz.

Various committees consisting of representatives from all strategic business lines and group functions assist the Group Coordination Committee’s decision-making by preparing proposals. These are the following committees: the Group Risk and Finance Committee, the Group IT Committee, the Group HR Committee, the product and sales committees for retail customers, corporate customers, and institutional customers, the Heads of Internal Audit working group, the Heads of Compliance working group, the Economic Roundtable, the Innovation Roundtable and the Group Corporate Responsibility Committee.

The **Group Risk and Finance Committee** is the central committee in the DZ BANK Group responsible for proper operational organization and, in particular, risk management in accordance with section 25 (1) of the German Supervision of Financial Conglomerates Act (FKAG) and section 25a (1) in conjunction with section 25a (3) of the German Banking Act (KWG). It assists DZ BANK with groupwide financial and liquidity management and provides support for risk capital management throughout the group. The Group Risk and Finance Committee also assists the Group Coordination Committee in matters of principle. The members of this committee include the relevant executives at DZ BANK responsible for finance, risk, and treasury. The committee members also include representatives of the executives of various group companies. The Group Risk and Finance Committee has set up the following working groups to prepare proposals for decision-making and to implement management action plans relating to financial and risk management at group level:

- The **Group Risk Management working group** supports the Group Risk and Finance Committee in all matters concerning risk and the management of risk capital and market risk in the DZ BANK Group, and in matters relating to external risk reporting. At DZ BANK level, the monitoring and control of the aggregate risks to the bank is coordinated by the **Risk Committee**. The Risk Committee makes recommendations to the entire Board of Managing Directors in matters relating to risk management, risk methodology, risk policies, risk processes, and the management of operational risk.

- The **Architecture and Processes Finance/Risk working group** assists the Group Risk and Finance Committee with the further development of the integrated finance and risk architecture in the DZ BANK Group. In terms of the corporate management of the DZ BANK Group, this committee works on refining the blueprint for the business, process, and data architecture, ensuring a coordinated roadmap and a transparent project portfolio, and establishing overarching data governance.
  The management of credit risk throughout the group is the responsibility of the **Group Credit Management working group** of the Group Risk and Finance Committee. This working group monitors compliance with the rules in the group credit risk policy in connection with its involvement in drawing up group credit standards and related monitoring processes as the basis for groupwide management of counterparty risk. In particular, this covers all measures relating to the monitoring and management of the limit allocation at individual counterparty level. The working group also participates in the further development and harmonization of the credit management organization and processes, and it discusses and continually develops the group credit risk strategy, group credit risk management, and group credit standards. It thus assists the Group Risk and Finance Committee with the groupwide harmonization of credit-related processes with due regard to their economic necessity. The monitoring and control of DZ BANK's overall portfolio for credit risk is coordinated by the **Credit Committee**. This committee normally meets every two weeks and makes decisions on material lending exposures at DZ BANK, taking into account the credit risk strategy of both the bank and the group. The Credit Committee is also responsible for managing credit risk at DZ BANK and country risk throughout the DZ BANK Group.

- The Group Risk and Finance Committee's **Market working group** is responsible for providing implementation support throughout the group in the following areas: liquidity management, funding activities, balance sheet structure management, and capital management. This body also focuses on coordinating and dovetailing funding strategies and liquidity reserve policies, as well as on planning the funding within the DZ BANK Group. In addition, the Market working group is responsible for refining the management of centrally measured market risk. At DZ BANK level, the **Treasury and Capital Committee** is the central body responsible for the operational implementation of the strategic requirements in the following areas to ensure integrated resource management: capital management, balance sheet and balance sheet structure management, liquidity and liquidity risk management, and income statement and profitability management. This committee also discusses overarching issues and current regulatory matters with the aim of identifying those requiring management action.

- The **Finance working group** advises the Group Risk and Finance Committee on matters concerning the consolidated financial statements, tax law at group level, regulatory law at group level, group controlling, and the management of financial resources. It discusses new statutory requirements and works out possible implementation options. The objective of the Finance working group is to continually update the uniform management framework used throughout the group (definitions, nomenclature, methodologies), particularly taking into account requests made by the supervisory authorities.

The **Group IT Committee**, comprising the members of the boards of managing directors of the main group entities with responsibility for IT, supports the Group Coordination Committee in matters relating to IT strategy. This committee manages all overarching IT activities in the DZ BANK Group. In particular, the Group IT Committee makes decisions on collaboration issues, identifies and realizes synergies, and initiates joint projects.

The members of the **Group HR Committee** comprise the members of the boards of managing directors with responsibility for HR and the HR directors from the main entities in the DZ BANK Group. This committee helps the Group Coordination Committee address HR issues of strategic relevance. The Group HR Committee initiates and coordinates activities relating to overarching HR issues while at the same time exploiting potential synergies. It also coordinates the groupwide implementation of regulatory requirements concerning HR systems and facilitates the sharing of HR policy information within the DZ BANK Group.

The **product and sales committees** perform insight, coordination, and bundling functions relating to the range of products and services provided by the DZ BANK Group.

- The **retail customers** product and sales committee coordinates products and services, and the marketing activities of its members where there are overarching interests affecting the whole of the group. The common objective is to generate profitable growth in market share for the cooperative banks and the entities in the DZ BANK Group with a focus on customer loyalty and customer acquisition by providing needs-based solutions (products and processes) as part of a holistic advisory approach across all sales channels (omnichannel approach).

- The **corporate customers** product and sales committee is responsible for coordinating the strategies, planning, projects, and sales activities in the DZ BANK Group's corporate banking business if overarching interests are involved. The objective is closer integration in both the joint lending business with the cooperative banks and the direct corporate customer business of the entities in the DZ BANK Group.

- The aim of the **institutional clients** product and sales committee is to help strengthen the position of the DZ BANK Group in the institutional clients market.

The DZ BANK Group **Heads of Internal Audit working group**, which is led by DZ BANK, coordinates group-relevant audit issues and the planning of cross-company audits and activities based on a jointly developed framework approved by the relevant members of the Board of Managing Directors. This working group also serves as a platform for sharing specialist information across the group – especially information on current trends in internal audit – and for refining group audit activities. On behalf of this working group, the Head of Group Audit reports to the member of the Board of Managing Directors responsible for group audit and, where appropriate, to the Group Coordination Committee.

The **Heads of Compliance working group**, whose members comprise the heads of compliance in the management units and at ReiseBank AG, Frankfurt am Main (ReiseBank) and GENO Broker GmbH, assists DZ BANK with compliance management across the group if this is legally required. It also advises the DZ BANK Group's Group Coordination Committee on fundamental compliance-related issues. One of the primary tasks of the Heads of Compliance working group is to draw up a compliance standard for the DZ BANK Group; in addition, it serves as a platform enabling specialists to share information across the group. When fulfilling its responsibilities, the Heads of Compliance working group must respect the individual responsibility of the heads of compliance in the group entities and ensure specific regulatory requirements are observed. The working group reports to the member of the DZ BANK Board of Managing Directors responsible for compliance and, where appropriate, to the Group Coordination Committee.

The **Economic Roundtable**, the members of which comprise the economists from the main group companies, helps the Group Coordination Committee to assess economic and capital market trends, providing a uniform basis for consistent planning scenarios throughout the group, and to prepare risk scenarios required by regulators.

The members of the **Innovation Roundtable** comprise specialists, executive managers, and innovation managers from the various divisions of DZ BANK and the group companies. The Innovation Roundtable is therefore the Group Coordination Committee's key point of contact for information on innovations and trends relevant to the group. The objectives of the Innovation Roundtable are to systematically examine innovative topics with group relevance on an ongoing basis, to bring together the divisions involved in innovation projects and to ensure that innovation activities in the DZ BANK Group are transparent.

The **Group Corporate Responsibility Committee**, which is coordinated by DZ BANK and whose members include the sustainability coordinators in the management units and at ReiseBank, is a platform for sharing specialist information throughout the group about the latest sustainability-related trends and activities. The committee identifies key issues relevant to the whole of the group and initiates joint projects. The head of the Group Corporate Responsibility Committee reports to the DZ BANK Co-Chief Executive Officer responsible for sustainability. He or she also reports annually and on an ad hoc basis to the Group Coordination Committee.

2.3 Key performance indicators

The DZ BANK Group's KPIs for profitability, volume, productivity, liquidity adequacy, and capital adequacy, as well as the regulatory return on risk-adjusted capital (RORAC), are presented below.

- **Profitability figures in accordance with International Financial Reporting Standards (IFRS):**
  The profitability figures (primarily loss allowances for loans and advances, profit/loss before taxes, net profit/loss) are presented in chapter II, sections 3.1 and 3.2 of this group management report as well as in note 33 of the notes to the consolidated financial statements.

- **IFRS volume figures:**
  The main volume-related KPIs include equity and total assets. These are set out in chapter II, section 3.2 (figure 3) and section 4 of the group management report, in the consolidated financial statements (balance sheet as at December 31, 2019), and in note 33 of the notes to the consolidated financial statements.

- **Productivity:**
  The KPI for productivity is the cost/income ratio. This KPI is described in chapter II, sections 3.1 and 3.2 of this group management report and in note 33 of the notes to the consolidated financial statements.

- **Liquidity adequacy:**
  Appropriate levels of liquidity reserves in relation to the risks associated with future payment obligations are demonstrated using the ratios for economic and regulatory liquidity adequacy presented in chapter VI, section 6.2 and section 6.3 of this group management report. The minimum liquidity surplus reflects economic liquidity adequacy. Regulatory liquidity adequacy is expressed in terms of the liquidity coverage ratio (LCR).

- **Capital adequacy:**
  The KPIs and the calculation method for economic capital adequacy are described in chapter VI, section 7.2 of this group management report. The KPIs for regulatory capital adequacy (coverage ratio for the financial conglomerate, total capital ratio, Tier 1 capital ratio, common equity Tier 1 capital ratio, and leverage ratio) are included in chapter VI, section 7.3.

- **Regulatory RORAC:**
  Regulatory RORAC is a risk-adjusted performance measure. In the year under review, it reflected the relationship between profit before taxes and the average own funds for the year (calculated as an average of the figure for the four quarters) in accordance with the own funds/solvency capital requirement. It therefore shows the return on the regulatory risk capital employed. This is described in chapter II, section 3.2 of this group management report and in note 33 of the notes to the consolidated financial statements.

Forecasts for core KPIs in the DZ BANK Group are set out in the Outlook section of the group management report.

2.4 Management process

In the annual strategic planning process, the entities in the DZ BANK Group produce a business strategy (objectives, strategic direction, and action plan), a finance and capital requirements plan, and risk strategies derived from the business strategy.

The planning by the management units is then validated and the plans are also discussed in strategy meetings. When the individual entity planning has been completed, the process then moves on to consolidated group planning, which aims to facilitate active management of the DZ BANK Group's economic and regulatory capital adequacy.

The action plans to attain the targets are discussed in a number of ways, notably in quarterly meetings with the subsidiaries and in steering committees with DZ BANK's divisions.

At DZ BANK level, the main divisions involved in the strategic planning process are Strategy & Corporate Development, Group Risk Controlling, Group Finance, Bank Finance, and Research and Economics. The planning coordinators in the front-office divisions of DZ BANK and the subsidiaries are also incorporated into the process. The Strategy & Corporate Development division is responsible for overall coordination of the strategic planning process.

II Business report

1 Economic conditions

Economic growth in 2019 was weaker than in the previous year. Average inflation-adjusted gross domestic product (GDP) in Germany rose by 0.6 percent year on year. This contrasts with the growth rate of 1.5 percent in 2018.

Domestic economic output in the first quarter of 2019 was up by 0.5 percent compared with the preceding quarter. This was followed by a contraction in GDP of 0.2 percent in the second quarter, primarily because of an adverse impact from foreign trade. German economic output then went up by 0.2 percent in the third quarter before stagnating in the fourth quarter of the reporting year.

Once again, higher consumer and government spending compared with the previous year provided a boost to the German economy in the reporting year. Consumer demand rose by 1.6 percent year on year, aided by an unemployment rate of 5.0 percent and no improvement in the returns available on consumer investments, which remained extremely low compared with those over the previous 10 years. The expansion in construction investment continued to accelerate with growth of 3.8 percent in 2019 (2018: 2.5 percent). Trade disputes during the year led to a negative trade balance, resulting in an adverse impact on the economy as a whole. This gave rise to ongoing uncertainty, as a consequence of which spending on capital equipment by businesses only saw a marginal increase of 0.4 percent in the reporting year (2018: 4.4 percent).

Despite the weaker economic growth, the surplus in German public finances continued to increase, primarily because of the further rise in tax receipts. Germany thus benefited from a budget surplus of 1.5 percent of GDP for the reporting year.

In the year under review, economic output in the eurozone grew by 1.2 percent year on year, the economic recovery being sustained in the first quarter of 2019 with a growth rate of 0.4 percent (compared with the previous quarter). In the second and third quarters, the economy grew at a rate of 0.2 percent and 0.3 percent respectively, falling to a rate of 0.1 percent in the final quarter of 2019.

In the eurozone too, consumer spending again made a positive contribution to economic growth in the reporting year. Geopolitical crises, various conflicts, and above all the uncertainty arising from the Brexit negotiations and from current US trade policy did have some impact on the economic climate during the year. The growth in spending by businesses on capital equipment was correspondingly subdued. Foreign trade also acted as a drag on economic expansion because of declining export growth in the eurozone.

In the United States, economic output in the reporting year went up by 2.3 percent. The growth rate therefore fell back by 0.6 percentage points compared with the 2.9 percent rate of expansion achieved in 2018. Overall, the principal driver behind the growth in the US economy was consumer spending, which was bolstered by further improvements in the labor market, specifically a lower unemployment rate and a rise in recruitment. However, the rates of expansion for investment by businesses in plant and machinery, and also for residential construction, declined.

Economic growth slowed in the key emerging markets in 2019. In China, growth rates continued to fall as the nation's economy was adversely impacted by the trade dispute with the US. India was also unable to sustain the growth rates achieved in previous years. In Latin America, countries such as Argentina and Venezuela are suffering prolonged and rampant economic crises. Low commodity prices are hitting the economies in these countries, and also the Russian economy, for example. Overall, growth in global economic output in 2019 fell to its lowest level since 2009, a year badly affected by the financial crisis.

2 The banking industry amid continued efforts to stabilize the economy of the eurozone

Key trends in the year under review were the slowdown in the global economy, the maintenance of expansionary monetary policy at the ECB, uncertainty in connection with the Brexit negotiations, and growing political concerns around the globe. In Europe, the focus was on efforts to further stabilize economic conditions in the eurozone and to bring about a shift toward joint European economic policy following the recent return in some countries of a trend toward economic policy driven first and foremost by national interests.

The policy of 'America first' introduced by the US government with the imposition of customs duties on products from China, Canada, Mexico, and even the EU was maintained in the reporting year, with Chinese goods bearing the brunt of the punitive tariffs. The US government changed its stance toward Mexico and Canada in May 2019, when it abolished the special tariffs that it had introduced in 2018. After months of negotiations, US President Donald Trump and Chinese Vice Premier Liu He signed a trade agreement on January 15, 2020. Under this deal, there will be no further punitive tariffs for the time being. China has also given assurances that it will significantly increase its demand for US export goods, and also for services. In December 2019, the US president indicated that he was in favor of introducing special customs tariffs on French goods in response to the 'digital tax' introduced by France in the reporting year, which particularly affects US internet companies. A proposal for the imposition of tariffs of up to 25 percent on car imports from the EU, first mooted by the US government in April 2019, is still being floated. This demonstrates that the developments in the trade disputes described above are somewhat erratic overall, creating uncertainty for global trade. The Bundesverband der Industrie (BDI) [Federation of German Industries] is of the view that the international disputes are unsettling companies and are having an adverse impact on the German economy with its focus on foreign trade. These uncertainties are not only taking their toll on the real economy but also affecting the financial markets.

The United Kingdom's arrangements for leaving the EU are still unknown. Theresa May resigned as her party's leader in spring 2019, with Boris Johnson emerging as the winner in the subsequent ballot for a new leader. On July 24, 2019, May stepped down as prime minister of the UK and Johnson took over from her. From that point, Johnson worked toward a rapid withdrawal of the UK from the EU. As he did not enjoy a parliamentary majority, he called an early general election, which was held on December 12, 2019. The Conservative Party led by Johnson emerged victorious, with a majority of 80 seats. With the backing of this majority, Johnson pressed ahead with his efforts to bring about a swift UK exit from the EU and signed an agreement with the presidents of the European Commission and European Council on January 24, 2020 taking the UK out of the EU on January 31, 2020.

In view of past crises in the eurozone, the countries of the EU continued to work on overhauling and strengthening the European Monetary Union (EMU) in the reporting year. For example, a fundamental agreement on strengthening the European Stability Mechanism (ESM) has been reached, in particular with regard to the backstop for the European Single Resolution Fund (SRF). However, plans drawn up in the summer of 2019 for amendments to agreements were not approved when the Eurogroup met in December 2019.

This meeting of the Eurogroup also failed to reach agreement on the controversial European deposit insurance scheme (EDIS), which has been under discussion for a number of years. This was welcomed by the Bundesverband der Deutschen Volksbanken und Raiffeisenbanken e.V. (BVR) [National Association of German Cooperative Banks].

In 2019, some EU countries came no closer to meeting the target for reducing new and overall indebtedness in compliance with the stability criteria specified in the Fiscal Compact agreed by the EU member states at the beginning of 2012. In the Fiscal Compact, the signatory countries committed to reducing their debt (as a proportion of GDP) each year by one twentieth of the difference between the debt level and the Maastricht limit of 60 percent of GDP. In November 2019, the European Commission declared that the draft budgets produced by Belgium, Spain, France, Italy, Finland, Portugal, Slovenia, and Slovakia for 2020 breached the rules of the Stability and Growth Pact. At the end of the third quarter of 2019, the total borrowing of the 19 eurozone countries equated to 86.1 percent of their GDP, a decrease of 1.0 percentage points compared with the figure of 87.1 percent as at September 30, 2018.

Greece's public debt as a percentage of GDP stood at 178.2 percent in the third quarter of 2019 (third quarter of 2018: 182.3 percent) and the country continued on its path of economic recovery in 2019 compared with the prior year. In the country's parliamentary elections in July 2019, the conservative Nea Dimokratia (ND) party secured an absolute majority. The policies of the ND encompass reforms to stimulate growth, such as cuts in both direct and indirect taxes as well as in social security contributions.

Italy remained beset with economic and fiscal challenges in 2019. Its public debt as a percentage of GDP stood at 137.3 percent in the third quarter of 2019 (third quarter of 2018: 136.1 percent), which is the highest in the eurozone after that of Greece. Italy's economy continues to underperform those of the other member states. The banking sector is also being weighed down by the proportion of non-performing loans on the balance sheets of Italy's banks, even though this proportion is falling.

Portugal's public debt as a percentage of GDP stood at 120.5 percent in the third quarter of 2019 (third quarter of 2018: 125.5 percent) and the country made further progress on stabilizing its economy during the reporting year. Its GDP grew by 2.0 percent year on year in 2019. The rate of expansion in economic output in the previous year was 2.4 percent. The Portuguese economy was boosted in particular by steady consumer demand and a fall in unemployment. Although the banking sector continues to have significant legacy issues in the form of non-performing loans, their volume has recently declined.

In Spain, public debt as a percentage of GDP was 97.9 percent in the third quarter of 2019 (third quarter of 2018: 98.9 percent). Spain was once again able to achieve growth in its economy in the reporting year, GDP rising by 2.0 percent year on year. The rate of expansion in economic output in the previous year was 2.4 percent. At the beginning of 2019, the minority government headed up by the socialist Prime Minister Pedro Sánchez collapsed after just eight months as a result of the budget dispute. In February 2019, a snap election was called for April 28, 2019, in which the PSOE, the socialist workers' party, won the most seats. However, the sitting Prime Minister, Pedro Sánchez, failed in his attempt to form a government and called yet another election, which was held on November 10, 2019. This time, the socialists suffered losses but nevertheless remained the strongest grouping, garnering 28 percent of votes. Sánchez was able to form a new minority government on January 7, 2020. The political instability continues to hamper the reforms needed by the country.

France's public debt as a percentage of GDP stood at 100.5 percent in the third quarter of 2019 (third quarter of 2018: 99.4 percent). The French President Emmanuel Macron has proposed a range of pro-business reforms and has already pushed through a law designed to make the labor market more flexible. The reforms proposed by the French government came up against public resistance in December 2019, when labor unions organized strikes in protest against the planned pensions overhaul. The government's policies continue to face public opposition. Despite these protests, consumer spending remains one of the main growth drivers. Nonetheless, the budget deficit, combined with a slowing economy, is hindering efforts to reduce government debt.

The trends in the eurozone described above show that the ECB with its policy of quantitative easing has created the necessary time for the EMU countries burdened with significant debt to reduce their fundamental budget deficits. Nonetheless, the countries specified above have for the most part made only limited efforts to reduce their high levels of indebtedness and bring in the necessary structural reforms. The benefit from the current low level of interest rates is reducing the impact from the debt burden and having the effect of decreasing various EMU countries' efforts to implement austerity measures.

The ECB's present policy of zero and negative interest rates is making it harder for savers to build up capital and, therefore, to ensure they have adequate provision for old age. Although the weakness of the euro resulting from low interest rates is boosting companies' exports, it is also diminishing their efforts to lower costs and improve productivity. The ECB's policy of maintaining extremely low interest rates boosts the risk of misallocations and even the formation of bubbles in real estate and equities markets, which could jeopardize the stability of financial markets.

At the meeting of the ECB on September 12, 2019, it was decided to lower the rate for the deposit facility by 10 basis points to minus 0.50 percent. Banks are therefore paying a higher negative interest rate on their deposits with the ECB. To mitigate the adverse impact on banks, the ECB introduced a two-tier system for remunerating excess reserve holdings, under which some of banks' excess liquidity is exempted from the negative deposit rate. The main refinancing rate remained the same at 0.00 percent, while the rate for the marginal lending facility was also unchanged at 0.25 percent. The ECB Governing Council let it be known that the ECB's key interest rates would remain at their current or a lower level until the inflation outlook clearly approaches a level that is sufficiently close to, but below, 2 percent. The Council also decided that net purchases under the asset purchase program would be restarted from November 1 with a monthly volume of €20.0 billion. On November 1, 2019, Christine Lagarde took over from Mario Draghi as president of the ECB. In a statement made on December 12, 2019, she announced that she would not be deviating from her predecessor's expansionary monetary policy for the time being.

Having already cut interest rates on July 31, 2019, the US Federal Reserve (Fed) announced a further cut of 25 basis points in its key interest rate on October 30, 2019, which means that the federal funds rate is in the range of 1.5 to 1.75 percent.

There was a significant difference in financial performance between Germany's two largest banks in 2019. Whereas one reported a net profit, albeit lower than before due to the challenging market conditions, the other recorded a loss in the billions of euros. The loss allowances for loans and advances recognized by the major banks were higher than in 2018. The major banks presented a mixed picture regarding administrative expenses, ranging from a 2 percent decrease to a 1 percent increase.

3 Financial performance

3.1 Financial performance at a glance

Despite the continuation of extremely low interest rates and thus challenging market conditions, and despite the one-off items described in this section, the DZ BANK Group was able to increase its profit before taxes by 98.0 percent year on year in 2019.

The year-on-year changes in the key figures that made up the net profit generated by the DZ BANK Group in 2019 were as described below.

FIG. 2 – INCOME STATEMENT

€ million	2019	2018	Change (%)
Net interest income	2,738	2,858 [1]	-4.2
of which: net income from long-term equity investments [2]	59	63	-6.3
Net fee and commission income	1,975	1,955	+1.0
Gains and losses on trading activities	472	285	+65.6
Gains and losses on investments	182	24 [1]	>100.0
Other gains and losses on valuation of financial instruments	255	-186 [1]	>100.0
Gains and losses from the derecognition of financial assets measured at amortized cost	15	133 [1]	-88.7
Net income from insurance business	1,228	490	>100.0
Loss allowances	-329	-21	>100.0
Administrative expenses	-4,074	-4,059	+0.4
Staff expenses	-1,878	-1,843	+1.9
Other administrative expenses [3]	-2,196	-2,216	-0.9
Other net operating income	250	-109	>100.0
Profit before taxes	2,712	1,370	+98.0
Income taxes	-839	-452	-85.6
Net profit	1,873	918	>100.0

1 Amount restated (see note 2 in the notes to the consolidated financial statements).
2 Total of current income and expense from income from other shareholdings, current income and expense from investments in subsidiaries, current income and expense from investments in associates, income/loss from using the equity method, and income from profit-pooling, profit-transfer, and partial profit-transfer agreements (see note 34 in the notes to the consolidated financial statements).
3 General and administrative expenses plus depreciation/amortization expense.

Operating income in the DZ BANK Group amounted to €7,115 million (2018: €5,450 million). This figure comprises net interest income, net fee and commission income, gains and losses on trading activities, gains and losses on investments, other gains and losses on valuation of financial instruments, gains and losses from the derecognition of financial assets measured at amortized cost, net income from insurance business, and other net operating income.

Net interest income (including net income from long-term equity investments) in the DZ BANK Group declined by 4.2 percent year on year to €2,738 million (2018: €2,858 million).

Net interest income rose by €68 million at DZ HYP, by €59 million at DZ BANK – central institution and corporate bank (DZ BANK – CICB), by €33 million at TeamBank, and by €15 million at UMH. In contrast, net interest income declined by €310 million at BSH, primarily as a consequence of the increase in the provisions relating to building society operations as described in the details for the BSH operating segment; it went down by €31 million at DVB.

Net income from long-term equity investments of the DZ BANK Group fell by €4 million to €59 million (2018: €63 million).

Net fee and commission income in the DZ BANK Group increased by 1.0 percent to €1,975 million (2018: €1,955 million).

Net fee and commission income advanced by €52 million at UMH, by €26 million at DZ BANK – CICB, and by €12 million at BSH. Conversely, net fee and commission income went down by €36 million at DVB, by €17 million at VR Smart Finanz, and by €15 million at TeamBank.

The DZ BANK Group's **gains and losses on trading activities** in 2019 came to a net gain of €472 million compared with a net gain of €285 million for 2018. This was largely attributable to the gains and losses on trading activities at DZ BANK – CICB, amounting to a net gain of €437 million (2018: net gain of €258 million).

The net gains under **gains and losses on investments** went up by €158 million to €182 million (2018: €24 million).

The change in the gains and losses on investments was primarily attributable to the BSH operating segment's disposal of its shares in Czech building society Českomoravská stavební spořitelna (ČMSS).

Other gains and losses on valuation of financial instruments in the DZ BANK Group amounted to a net gain of €255 million in 2019 (2018: net loss of €186 million).

Other gains and losses on valuation of financial instruments increased by €361 million at DZ HYP, largely as a result of the narrowing of spreads on bonds issued by eurozone periphery countries. At DVB, other gains and losses on valuation of financial instruments went up by €69 million, and at BSH by €10 million. The specific reasons for the year-on-year change in other gains and losses on valuation financial instruments were the factors described in the details for these operating segments.

Gains and losses from the derecognition of financial assets measured at amortized cost declined by €118 million to a net gain of €15 million (2018: net gain of €133 million). At DZ BANK – CICB and in the Other/Consolidation segment, there were declines of €69 million and €53 million respectively.

The DZ BANK Group's **net income from insurance business** comprises premiums earned, gains and losses on investments held by insurance companies and other insurance company gains and losses, insurance benefit payments, insurance business operating expenses, and gains and losses from the derecognition of financial assets measured at amortized cost in the insurance business. In 2019, this figure increased by €738 million to €1,228 million (2018: €490 million).

This year-on-year change was primarily attributable to the increase, described in the details for the R+V operating segment, in gains and losses on investments held by insurance companies and other insurance company gains and losses.

Loss allowances amounted to a net addition of €329 million (2018: net addition of €21 million).

Further disclosures on the nature and extent of risks arising from financial instruments and insurance contracts can be found in note 85 of the notes to the consolidated financial statements.

Administrative expenses in the DZ BANK Group amounted to €4,074 million (2018: €4,059 million). Staff expenses rose by €35 million to €1,878 million (2018: €1,843 million). Other administrative expenses declined by €20 million to €2,196 million (2018: €2,216 million).

The DZ BANK Group's **other net operating income** amounted to €250 million (2018: net expense of €109 million).

Other net operating income went up by €192 million at DZ PRIVATBANK, by €61 million at UMH, by €57 million at DVB, by €35 million at VR Smart Finanz, by €19 million at BSH, and by €17 million at DZ BANK – CICB. However, it declined by €20 million at DZ HYP and by €14 million at R+V. The main reasons for the year-on-year change in other net operating income were the factors described in the details for these operating segments.

Profit before taxes for 2019 amounted to €2,712 million, compared with €1,370 million in 2018.

The DZ BANK Group's **cost/income ratio** (i.e. the ratio of administrative expenses to operating income) for 2019 was 57.3 percent (2018: 74.5 percent).

The **regulatory return on risk-adjusted capital (RORAC)** was 15.2 percent (2018: 8.2 percent).

The DZ BANK Group's **income taxes** amounted to €839 million in the reporting year (2018: €452 million).

The DZ BANK Group generated a **net profit** of €1,873 million in 2019 compared with a net profit of €918 million in 2018.

The following provides an explanation of the above information and the details below (section 3.2) concerning the financial performance of the DZ BANK Group with reference to the corresponding presentation in the outlook for 2019 (chapter V of the 2018 group management report).

In 2019, the DZ BANK Group generated profit before taxes that was higher than the budgeted figure. Nevertheless, net interest income and gains and losses on trading activities fell short of the budget in the reporting year. On the other hand, net fee and commission income, gains and losses on investments, other gains and losses on valuation of financial instruments, and other net operating income exceeded the corresponding budget figures. The requirement for loss allowances was lower than expected and was thus also one of the contributing factors in the improved earnings performance. In addition, the budgeted figure for net income from insurance business was exceeded. The main reason was a higher net gain under gains and losses on investments held by insurance companies and other insurance company gains and losses compared with budget as a consequence of the EURO STOXX 50's rise combined with falling interest rates and the narrowing of spreads in the interest-bearing securities portfolios.

The level of profit before taxes for the reporting year was also influenced by a series of one-off items. Trends in the capital market affected profit before taxes at R+V in 2019. Notably, the net gains under gains and losses on investments held by insurance companies went up by €520 million as a result of the EURO STOXX 50's rise of 744 points to 3,745 points, although interest rates declined at the same time.

At BSH, the disposal of the shares in Czech building society ČMSS contributed a gain of €99 million to the gains and losses on investments. However, net interest income at BSH was adversely impacted by an increase in interest bonus provisions related to building society operations, which resulted in an additional charge of €280 million. The DZ BANK Group's other net operating income included positive effects from UMH's sale of the fully consolidated subsidiary Union Investment Towarzystwo Funduszy Inwestycyjnych S.A. (TFI), Poland, generating a gain of €72 million, and from DVB's sale of its aviation finance and land transport finance core businesses (giving rise to gains of €206 million and €12 million respectively) as well as its fully consolidated subsidiary LogPay Financial Services GmbH, Eschborn (gain of €28 million). Other net operating income in the DZ BANK Group also included negative effects from the recognition of restructuring provisions in the operating segments DZ BANK – CICB (€21 million), DZ HYP (€17 million), and DVB (€46 million). Other gains and losses on valuation of financial instruments at DZ HYP included a positive effect of €246 million as a result of the narrowing of spreads on bonds issued by eurozone periphery countries. Disregarding the effects described above, the DZ BANK Group's profit before taxes for 2019 would have amounted to €1,893 million.

3.2 Financial performance in detail

Figure 3 shows the details of the financial performance of the DZ BANK Group's operating segments in 2019 compared with 2018.

Segmentation is fundamentally based on the integrated risk and capital management system in the DZ BANK Group, the function of which is to create transparency, notably in respect of the risk structure and risk-bearing capacity of the individual management units in the group. The segment information presents separate disclosures for the management units DZ HYP AG, Hamburg/Münster, (DZ HYP), TeamBank AG Nürnberg, Nuremberg, (TeamBank), DZ PRIVATBANK, and the BSH, DVB, R+V, UMH, and VR Smart Finanz subgroups.

From 2019, the previous DZ BANK management unit is broken down into central institution and corporate bank (DZ BANK – CICB) and the group management function (DZ BANK – holding function) because of changes to the internal management structure and the associated modification of the internal reporting system. The related reorganization of the management units in the internal reporting system has been adopted for the presentation of the operating segments. The DZ BANK – CICB operating segment comprises the cooperative central institution function, which supports the operating activities of the local cooperative banks, and the corporate bank function. DZ BANK – holding function is mainly used to pool tasks carried out on behalf of the DZ BANK Group in relation to commercial law, tax, and prudential supervision.

The total assets of DZ BANK – holding function include the equity, plus a number of other items such as a notional carrying amount for the long-term equity investment in DZ BANK – CICB, together with the carrying amounts of the long-term equity investments in the other management units. The notional long-term equity investment in DZ BANK – CICB is measured in an amount equating to 11 percent of the risk-weighted assets of DZ BANK – CICB. The dividend payments of the management units and the intragroup income relating to the liabilities to dormant partners, which were previously included in the DZ BANK operating segment, are reported under Other/Consolidation from 2019. The relevant consolidation activities are still included under Other/Consolidation. DZ BANK – holding function does not constitute an operating segment within the meaning of IFRS 8.5 but is presented separately in line with the internal reporting structure. The prior-year figures have been restated accordingly. All other companies in the DZ BANK Group, which are not required to provide regular quantitative reports to the chief operating decision-makers, and the consolidations are reported on an aggregated basis under Other/Consolidation.

FIG. 3 – SEGMENT INFORMATION

2019

€ million	BSH	R+V	TeamBank	UMH
Net interest income	450	-	482	40
Net fee and commission income	-28	-	-28	1,468
Gains and losses on trading activities	-	-	-	-
Gains and losses on investments	163	-	-	2
Other gains and losses on valuation of financial instruments	18	-	-	-43
Gains and losses from the derecognition of financial assets measured at amortized cost	18	-	-	-
Premiums earned	-	17,249	-	-
Gains and losses on investments held by insurance companies and other insurance company gains and losses	-	6,204	-	-
Insurance benefit payments	-	-19,340	-	-
Insurance business operating expenses	-	-2,973	-	-
Gains and losses from the derecognition of financial assets measured at amortized cost in the insurance business	-	-12	-	-
Loss allowances	-4	-	-77	-
Administrative expenses	-486	-	-230	-910
Other net operating income	58	-11	5	91
Profit/loss before taxes	**189**	**1,117**	**152**	**648**
Cost/income ratio (%)	71.6	-	50.1	58.4
Regulatory RORAC (%)	16.5	13.3	30.0	>100.0
Average own funds/solvency requirement	1,147	8,415	506	357
Total assets/total equity and liabilities as at Dec. 31, 2019	77,469	121,973	9,455	3,012

2018

€ million	BSH	R+V	TeamBank	UMH
Net interest income [1]	760	-	449	25
Net fee and commission income	-40	-	-13	1,416
Gains and losses on trading activities	-	-	-	-
Gains and losses on investments [1]	5	-	-	-23
Other gains and losses on valuation of financial instruments [1]	8	-	-	-51
Gains and losses from the derecognition of financial assets measured at amortized cost [1]	14	-	-	-
Premiums earned	-	15,997	-	-
Gains and losses on investments held by insurance companies and other insurance company gains and losses [1]	-	1,343	-	-
Insurance benefit payments	-	-14,208	-	-
Insurance business operating expenses	-	-2,721	-	-
Gains and losses from the derecognition of financial assets measured at amortized cost in the insurance business [1]	-	-1	-	-
Loss allowances	-11	-	-70	-
Administrative expenses	-480	-	-222	-895
Other net operating income	39	3	1	30
Profit/loss before taxes	**295**	**413**	**145**	**502**
Cost/income ratio (%)	61.1	-	50.8	64.1
Regulatory RORAC (%)	26.8	5.5	31.8	>100.0
Average own funds/solvency requirement	1,098	7,564	458	346
Total assets/total equity and liabilities as at Dec. 31, 2018 [1]	71,667	107,351	8,536	2,559

1 Amount restated (see note 2 in the notes to the consolidated financial statements).

	DZ BANK – CICB	DZ HYP	DZ PRIVAT-BANK	VR Smart Finanz	DVB	DZ BANK – holding function	Other/ Consolidation	**Total**
	772	656	65	147	146	-55	35	2,738
	388	2	176	-10	48	-	-41	1,975
	437	-2	9	-	6	-	22	472
	-3	10	-	-	-1	-	11	182
	39	275	2	1	-36	-	-1	255
	50	-	-	-	-	-	-53	15
	-	-	-	-	-	-	-	17,249
	-	-	-	-	-	-	-47	6,157
	-	-	-	-	-	-	-	-19,340
	-	-	-	-	-	-	150	-2,823
	-	-	-	-	-	-	-3	-15
	-77	1	-	-30	-141	-	-1	-329
	-1,296	-259	-220	-127	-202	-203	-141	-4,074
	-17	4	4	9	72	-	35	250
	293	**687**	**36**	**-10**	**-108**	**-258**	**-34**	**2,712**
	77.8	27.4	85.9	86.4	86.0	-	-	57.3
	5.8	44.5	11.2	-3.4	-42.1	-	-	15.2
	5,056	1,543	319	291	256	-	-	17,890
	288,841	92,284	19,464	4,283	14,239	20,191	-91,832	559,379

	DZ BANK – CICB	DZ HYP	DZ PRIVAT-BANK	VR Smart Finanz	DVB	DZ BANK – holding function	Other/ Consolidation	**Total**
	713	588	64	153	177	-71	-	2,858
	362	2	182	7	84	-	-45	1,955
	258	1	10	-	-3	-	19	285
	24	-10	-	22	-18	-	24	24
	36	-86	-	-	-105	-	12	-186
	119	-	-	-	-	-	-	133
	-	-	-	-	-	-	-	15,997
	-	-	-	-	-	-	-69	1,274
	-	-	-	-	-	-	-	-14,208
	-	-	-	-	-	-	149	-2,572
	-	-	-	-	-	-	-	-1
	140	12	-	-13	-80	-	1	-21
	-1,256	-299	-219	-142	-200	-210	-136	-4,059
	-34	24	-188	-26	15	-	27	-109
	362	**232**	**-151**	**1**	**-130**	**-281**	**-18**	**1,370**
	85.0	57.6	>100.0	91.0	>100.0	-	-	74.5
	7.6	16.0	-44.8	0.2	-33.8	-	-	8.2
	4,772	1,460	336	325	352	-	-	16,711
	259,904	85,882	18,322	4,768	20,566	19,484	-80,306	518,733

3.2.1 BSH

Net interest income in the BSH subgroup contracted by €310 million to €450 million (2018: €760 million).

This change was mainly attributable to the persistently low level of interest rates, which led to an additional charge of €280 million from the increase in interest bonus provisions for older rate scales in building society operations. These provisions largely reflected discounted future obligations of Bausparkasse Schwäbisch Hall to make interest bonus payments to those home savings customers who decline to take up the contractually agreed loans. At the end of the reporting year, the 10-year swap rate was 0.21 percent (December 31, 2018: 0.82 percent). Interest income arising on investments declined by €40 million to €513 million (2018: €553 million) because capital market rates for investments remained low. Net interest income was also adversely impacted by an increase of €21 million in fees and commissions directly assignable to the acquisition of home savings contracts and loan agreements and incorporated into the effective interest method applied to home savings deposits.

In the case of loans issued under advance or interim financing arrangements, the BSH subgroup managed to increase its income from non-collective business in 2019 by €29 million to €940 million (2018: €911 million) on the back of the expansion in business over the last few years and despite a fall in average returns. Income from home savings loans and other building loans amounted to €133 million, which was roughly at the level of the previous year.

The volume of home savings deposits in the BSH subgroup grew by €3.3 billion to €64.9 billion as at December 31, 2019 (December 31, 2018: €61.6 billion). Despite this growth, the interest cost went down because the current tariffs have lower interest rates.

Net fee and commission income amounted to a net expense of €28 million in 2019 (2018: net expense of €40 million).

This improvement was due to the fall in fees and commissions not directly attributable to the conclusion of a home savings contract.

In the home savings business, BSH entered into approximately 524 thousand (2018: 554 thousand) new home savings contracts with a volume of €28.5 billion (2018: €29.7 billion) in Germany.

In the home finance business, the realized volume of new business advanced by €1.5 billion year on year to €16.7 billion (2018: €15.2 billion) in Germany. This figure includes home savings loan contracts and bridging loans from BSH and other referrals totaling €2.0 billion (2018: €1.9 billion).

The net gain under **gains and losses on investments** of €163 million (2018: €5 million) was attributable to the disposal of the shares in Czech building society ČMSS (€99 million) and to the sale of securities (€64 million) during the reporting year.

Other gains and losses on valuation of financial instruments climbed by €10 million to a net gain of €18 million in the reporting year (2018: net gain of €8 million) and was primarily due to the early termination of interest-rate swaps.

Gains and losses from the derecognition of financial assets measured at amortized cost amounted to a net gain of €18 million (2018: net gain of €14 million) and largely resulted from the sale of registered securities.

Loss allowances amounted to a net addition of €4 million in total (2018: net addition of €11 million). The level of loss allowances is influenced by the regular validation of credit risk parameters and an adjustment of the loss allowances to reflect loan commitments.

Administrative expenses went up by €6 million to €486 million (2018: €480 million). Staff expenses amounted to €225 million, which equated to an increase of €4 million compared with the prior-year figure of €221 million. This increase arose because of a rise in the number of employees in connection with the expansion of the home finance business. Other administrative expenses grew by €2 million to €261 million (2018: €259 million).

Other net operating income rose by €19 million to €58 million (2018: €39 million), largely as a result of the reversal of provisions.

Profit before taxes declined by €106 million in the reporting year to €189 million (2018: €295 million) as a consequence of the changes described above.

The **cost/income ratio** in 2019 was 71.6 percent (2018: 61.1 percent).

Regulatory RORAC was 16.5 percent (2018: 26.8 percent).

3.2.2 R+V

Premiums earned went up by €1,252 million to €17,249 million (2018: €15,997 million), thanks to the tight integration of the R+V subgroup into the cooperative financial network.

Premium income earned in the life insurance and health insurance business grew year on year by a total of €431 million to €8,299 million.

Premiums earned from the life insurance business rose by €400 million to €7,673 million. Occupational pensions, traditional products, and new guarantees were the main areas of business contributing to these gains. The credit insurance business also saw rising premiums compared with the previous year. In the health insurance business, net premiums earned rose by €31 million to €626 million. All business segments generated year-on-year increases, with notably strong growth in private supplementary health insurance.

In the non-life insurance business, premium income earned grew by €342 million to €6,130 million, with most of this growth being generated from vehicle insurance and corporate customer business.

Premium income earned from the inward reinsurance business rose by €479 million to €2,820 million. Business performed well in all regions, with Europe remaining the largest market. Growth was generated in all divisions.

Gains and losses on investments held by insurance companies and other insurance company gains and losses advanced by €4,861 million to a net gain of €6,204 million (2018: net gain of €1,343 million).

At the end of the year under review, the level of long-term interest rates was below the corresponding level at the end of 2018. At the same time, the narrowing of spreads on interest-bearing securities had a positive impact on this item. Over the course of 2019, equity markets relevant to R+V performed better than in 2018. For example, the EURO STOXX 50, a share index comprising 50 large, listed companies in the EMU, saw a rise of 744 points from the start of 2019, closing the year on 3,745 points. In 2018, this index had fallen by 503 points. In the reporting year, movements in exchange rates between the euro and various currencies were generally more favorable than in the previous year.

Overall, these trends in the reporting year essentially resulted in a €4,882 million improvement in unrealized gains and losses to a net gain of €3,585 million (2018: net loss of €1,297 million), a €256 million improvement in the contribution to earnings from the derecognition of investments to a gain of €237 million (2018: loss of €19 million), and an increase of €63 million in the net gains under foreign exchange gains and losses to €244 million (2018: net gain of €181 million). In addition, net income under current income and expense rose by €1 million to €2,347 million (2018: €2,346 million) and the balance of depreciation, amortization, impairment losses, and reversals of impairment losses deteriorated by €24 million to a net expense of €74 million (2018: net expense of €50 million).

Owing to the inclusion of provisions for premium refunds (particularly in the life insurance and health insurance business) and claims by policyholders in the fund-linked life insurance business, the change in the level of gains and losses on investments held by insurance companies also affected the ‘insurance benefit payments’ line item presented below.

Insurance benefit payments increased by €5,132 million from €14,208 million in 2018 to €19,340 million in the reporting year.

The increase in insurance benefit payments reflected both the trend in net premiums earned and the policyholder participation in gains and losses on investments held by insurance companies.

At the companies offering personal insurance, the changes in insurance benefit payments were in line with the change in premium income and in gains and losses on investments held by insurance companies and other insurance company gains and losses. An amount of €647 million (2018: €305 million) was added to the supplementary change-in-discount-rate reserve. In the non-life insurance business, a decline in the claims rate trend was evident compared with the prior period. For example, the overall claims rate remained below the prior-year level. Claims expenses for natural disasters and major claim costs both declined year on year. However, the underlying cost of claims increased.

In the inward reinsurance business, the net claims ratio was up by 2.3 percentage points compared with the prior year. The ratios for major and medium claims were above those in 2018. Notably, typhoons Hagibis and Faxai, together with Hurricane Dorian, gave rise to claims of around €169 million, with a corresponding impact on earnings.

Insurance business operating expenses went up by €252 million to €2,973 million (2018: €2,721 million) in the course of ordinary business activities in all divisions, with a particularly sharp rise in the inward reinsurance and non-life insurance businesses.

Because of the factors described above, **profit before taxes** for 2019 rose by €704 million to €1,117 million (2018: €413 million).

Regulatory RORAC was 13.3 percent (2018: 5.5 percent).

3.2.3 TeamBank

Net interest income at TeamBank amounted to €482 million, which was €33 million higher than the equivalent figure in 2018 of €449 million. The main source of this increase was expansion of the volume of consumer finance. The volume of the loan portfolio rose by €655 million to €8,873 million (2018: €8,218 million).

The increase in the consumer finance volume was particularly attributable to the trends described below. As at December 31, 2019, TeamBank was working in collaboration with 745 of Germany's 842 cooperative banks and with 138 partner banks in Austria. In addition, more than 110 thousand members of cooperative banks benefited from advice in 2019, of whom around 16 thousand were new to the cooperative financial network. As at December 31, 2019, around 231 thousand customers had either signed up for easyCredit-Finanzreserve or were already using this flexible means of borrowing. As a result, some 18.0 percent of new business in 2019 was generated through easyCredit-Finanzreserve.

The business model of a consumer finance provider constructed on the basis of the easyCredit-Liquiditätsberater advisory concept, which includes a financial compass created individually for each customer and provides both the customer and the advisor with transparency about the credit decision reached, enabled TeamBank to increase loans and advances to customers by 8.0 percent to €9,063 million as at December 31, 2019 (December 31, 2018: €8,390 million). The number of customers rose again, by 67 thousand, to reach 944 thousand.

Net fee and commission income declined by €15 million to a net expense of €28 million (2018: net expense of €13 million). This change was primarily due to higher commission payments to partner banks, in turn caused by the growth in new business.

Loss allowances were higher than in the prior year at €77 million, a year-on-year increase of €7 million (2018: €70 million). This was mainly due to the higher year-on-year growth of the lending portfolio and credit risk premiums for recently opened accounts affected by changes in the sales process.

Administrative expenses went up by €8 million to €230 million (2018: €222 million). Staff expenses rose by €3 million to €92 million (2018: €89 million) because of the increase in headcount. Other administrative expenses went up by €5 million to €138 million (2018: €133 million), primarily because of higher IT costs.

Other net operating income increased by €4 million to €5 million (2018: €1 million).

Profit before taxes for the year under review amounted to €152 million. The increase of €7 million compared with the figure of €145 million reported for 2018 was a consequence of the factors described above.

TeamBank's **cost/income ratio** in 2019 was 50.1 percent (2018: 50.8 percent).

Regulatory RORAC was 30.0 percent (2018: 31.8 percent).

3.2.4 UMH

Net interest income rose by €15 million to €40 million (2018: €25 million), largely due to a greater contribution from ZBI Partnerschafts-Holding GmbH.

Net fee and commission income at UMH went up by €52 million to €1,468 million (2018: €1,416 million).

The change in net fee and commission income was predominantly due to the factors described below. Because of the rise in the average assets under management of the Union Investment Group, which climbed by €18.7 billion to €349.4 billion (2018: €330.7 billion), the volume-related contribution to net fee and commission income rose compared with the prior year.

The assets under management of the Union Investment Group comprise the assets and securities portfolios measured at their current market value, also referred to as free assets or asset management, for which Union Investment offers investment recommendations (advisory) or bears responsibility for portfolio management (insourcing). The assets are managed both for third parties and in the name of the group. Changes in the managed assets occur as a result of factors such as net inflows, changes in securities prices, and exchange-rate effects.

Income from performance-related management fees amounted to €9 million (2018: €16 million). Income from real estate fund transaction fees increased by €3 million to €36 million during the reporting year (2018: €33 million).

Against this backdrop, Union Investment managed to generate net inflows from its retail business of €8.1 billion in 2019 (2018: €7.5 billion) in collaboration with the local cooperative banks.

The number of traditional fund-linked savings plans, which are used by retail customers as investments aimed at long-term capital accumulation, had risen to 2.7 million contracts by the end of 2019, with an increase in the 12-month savings volume to €4.9 billion (December 31, 2018: €4.3 billion).

The total assets in the portfolio of Riester pension products swelled to €20.9 billion as at December 31, 2019 (December 31, 2018: €16.7 billion).

The number of fund-linked savings plans managed by Union Investment in its retail business at the end of 2019 totaled 5.3 million (December 31, 2018: 4.9 million). These plans included contracts under employer-funded capital formation schemes as well as the traditional savings plans and Riester pension contracts referred to above.

The open-ended real estate funds offered by the Union Investment Group, which are an intrinsic-value-based component of the investment mix, generated net new business totaling €3.8 billion in 2019 (2018: €1.9 billion).

Assets under management in the funds of the PrivatFonds family reached a record high in the reporting year. The portfolio volume for retail clients stood at €25.3 billion at the end of 2019 (December 31, 2018: €23.1 billion).

The persistently low level of interest rates also presented a challenge for the management of risk and returns in the institutional business. This is reflected in the structure of the investment accounts, which feature a greater number of asset classes and a broad allocation by country. In 2019, demand was focused primarily on concentrated equity strategies and sustainable investment. In its institutional business, the Union Investment Group generated net inflows amounting to €11.3 billion (2018: €7.8 billion). A total of 70 new institutional clients were gained in the reporting year.

The portfolio of sustainably managed funds had expanded to €53.1 billion at the end of 2019 (December 31, 2018: €41.4 billion). This growth demonstrates that institutional clients are increasingly focusing on socially responsible investing.

The €25 million improvement in **gains and losses on investments** to a net gain of €2 million (2018: net loss of €23 million) was largely attributable to the net losses incurred in 2018 on the sale of funds in Union Investment's own-account investing activities.

Other gains and losses on valuation of financial instruments improved by €8 million to a net loss of €43 million (2018: net loss of €51 million).

The €15 million rise in **administrative expenses** to €910 million (2018: €895 million) was predominantly caused by staff expenses advancing by €22 million to €428 million (2018: €406 million), which in turn was due to average pay rises and appointments to new and vacant positions. Salary components also took into account the performance of the business reflected in UMH's KPIs. Other administrative expenses contracted by €7 million to €482 million (2018: €489 million), mainly because of lower expenses incurred in connection with consultancy and external research.

Other net operating income improved by €61 million to €91 million (2018: €30 million). This increase was primarily the result of the disposal of the fully consolidated subsidiary Union Investment Towarzystwo Funduszy Inwestycyjnych S.A. (TFI), Poland.

Profit before taxes went up by €146 million to €648 million (2018: €502 million), above all due to the changes described above.

The **cost/income ratio** in 2019 was 58.4 percent (2018: 64.1 percent).

Regulatory RORAC was greater than 100.0 percent (2018: greater than 100.0 percent).

3.2.5 DZ BANK – CICB

Net interest income is primarily attributable to the lending business portfolios (Corporate Banking business line and a separately managed real estate lending portfolio), the portfolios from the capital markets business, and the portfolios of long-term equity investments allocated to the central institution and corporate bank. Net interest income rose by 8.3 percent to €772 million (2018: €713 million).

In the Corporate Banking business line, net interest income rose by 3.7 percent to €446 million (2018: €430 million).

The net interest income in the four regional corporate customer divisions plus Central Corporate Banking rose by 6.1 percent to €245 million (2018: €231 million). This was attributable to the growth in the lending volume and, in particular, loan drawdowns in the domestic corporate customer segment.

Net interest income in the Structured Finance and Investment Promotion divisions amounted to €201 million, an increase of 1.0 percent compared with the prior-year figure of €199 million. The main drivers behind this growth in the Structured Finance division were project finance and foreign trade business. The acquisition of further new business more than consolidated the expansion of international trade and export finance business over the last few years. One of the notable developments in project finance was growth in international renewable energies finance business.

Net interest income from the separately managed real estate lending portfolio was up year on year at €46 million (2018: €36 million). This was attributable to higher early-redemption fees.

Net interest income from capital markets business went up by 22.3 percent to €230 million (2018: €188 million), primarily as a consequence of higher income from money market business and a greater level of early-redemption fees.

Current income and expense from long-term equity investments declined by 15.3 percent to €50 million (2018: €59 million). This decrease was primarily explained by a year-on-year fall of €15 million in income from long-term equity investments at VR Equitypartner GmbH to €11 million, and a corresponding fall of €8 million at Deutsche WertpapierService Bank AG to €0 million. Some of this decline was offset by an increase in income from long-term equity investments of €3 million at AGIMA AG to €3 million, and a corresponding increase of €3 million at Phoenix Beteiligungsgesellschaft to €3 million.

Net fee and commission income rose by 7.2 percent to €388 million (2018: €362 million).

The principal sources of income were service fees in the Corporate Banking business line (in particular, from lending business including guarantees and international business), in the Capital Markets business line (mainly from securities issuance and brokerage business, agents' fees, transactions on futures and options exchanges, financial services, and the provision of information), and in the Transaction Banking business line (primarily from payments processing including credit card processing, safe custody, and gains/losses from the currency service business).

In the Corporate Banking business line, net fee and commission income was up by €18 million year on year at €123 million (2018: €105 million). The main sources of this increase were the lending business, together with financial guarantee contracts and loan commitments.

In the Capital Markets business line, the contribution to net fee and commission income rose by 5.8 percent to €163 million (2018: €154 million). Of particular note was the income from fund sales commissions, which went up by 20.6 percent to €41 million (2018: €34 million) on the back of higher volumes.

In addition, net fee and commission income in the Transaction Banking business line was also up on the previous year at €127 million, an increase of €7 million or 5.8 percent (2018: €120 million). This growth was accounted for by the securities safe custody business, payments processing, and higher gains from the currency service business.

As part of service procurement arrangements, DZ BANK has transferred processing services in the lending business to Schwäbisch Hall Kreditservice, in the payments processing business to equensWorldline SE, and in capital markets business/transaction banking to Deutsche WertpapierService Bank AG. The expenses arising in connection with obtaining services from the above external processing companies amounted to a total of €169 million (2018: €167 million) and are reported under net fee and commission income for the individual Corporate Banking (€9 million) and Capital Markets/Transaction Banking (€160 million) business lines.

Aside from the aforementioned business lines, net fee and commission income from other financial services amounted to a greater net expense of €25 million in 2019 (2018: net expense of €17 million). This change was largely caused by higher commission on loans.

Gains and losses on trading activities rose by 69.4 percent to a net gain of €437 million (2018: net gain of €258 million).

Gains and losses on trading activities relate to the business activities of the Capital Markets business line. Gains and losses on money market business entered into for trading purposes (mainly repurchase agreements) by the Group Treasury division and all derivatives are also included in gains and losses on trading activities because they are categorized as ‘financial assets and liabilities measured at fair value through profit or loss’ (fair value PL).

Gains and losses on trading activities in the Capital Markets business line amounted to a net gain of €430 million, a year-on-year rise of 36.5 percent (2018: net gain of €315 million). One of the reasons for this was a higher level of sales with institutional and corporate customers and the associated boost to income. The rise in sales was evident in all asset classes, but the increase in derivatives business, the expansion of the structured products business, and the foreign-exchange business all made a particular contribution to the improvement in the net gains. On the other hand, the margins in fixed-income business declined because more deals were being entered into via electronic trading platforms. However, it was possible to offset the fall in margins with an increase in sales volume and sales in other asset classes.

Adjustment of the valuation curves to market conditions results in unrealized gains and losses. For the assets and liabilities recognized at fair value in the fair value PL category and for the ‘financial assets and liabilities designated as at fair value through profit or loss’ (fair value option) category, the adjustment of the valuation curves gave rise to a net gain of €60 million in 2019 (2018: net gain of €28 million).

The contribution to gains or losses on trading activities from money market business entered into for trading purposes (mainly repurchase agreements) came to €10 million in the reporting year (2018: €15 million).

Further factors influencing the gains and losses on trading activities in the reporting year included interest-rate-related changes in the fair value of cross-currency basis swaps used for the hedging of financial instruments in the banking book denominated in foreign currency amounting to a loss of €13 million (2018: loss of €23 million).

Gains and losses on investments declined by €27 million to a net loss of €3 million (2018: net gain of €24 million). The net loss in the reporting year resulted from the combination of gains from the disposal of securities in an amount of €16 million and losses of €18 million arising from the termination of hedges measured at fair value through OCI as part of portfolio fair value hedge accounting. In 2018, the early disposal of high-quality liquid assets had generated net gains of €16 million.

Other gains and losses on valuation of financial instruments rose by 8.3 percent to a net gain of €39 million (2018: net gain of €36 million). This was due to the positive change of €24 million in the fair value measurement of Visa Inc. (December 31, 2018: positive change of €15 million).

Gains and losses from the derecognition of financial assets measured at amortized cost declined by 58.0 percent to a net gain of €50 million (2018: net gain of €119 million). Within this figure, the gains on the derecognition of financial assets measured at amortized cost fell by €51 million to €68 million. The reversal of adjustments to carrying amounts (hedge adjustments) in the context of hedge accounting gave rise to a negative effect of €31 million.

Loss allowances amounted to an expense of €77 million (2018: income of €140 million). Some of the net additions in respect of the lending business and investments (€123 million) were offset by other income of €46 million (including recoveries on loans and advances previously impaired).

The net reversal in the prior year was mainly due to improvements in borrowers' credit ratings and the successful restructuring of loans. There had also been positive effects of recoveries on loans and advances previously impaired (€51 million) and of reversals of other provisions for loans and advances (€50 million).

Administrative expenses went up by 3.2 percent to €1,296 million (2018: €1,256 million).

The €19 million rise in staff expenses to €595 million (2018: €576 million) was due, among other things, to higher remuneration expenses in the reporting year.

Other administrative expenses increased by 3.1 percent to €701 million (2018: €680 million). The consultancy expenses within this figure were €236 million, €26 million lower than in 2018. However, expenses for the BVR deposit guarantee fund were up by €12 million to €24 million in 2019 (2018: €12 million) and expenses for the bank levy were €2 million higher at €23 million (2018: €21 million). IT expenses also rose year on year, by €15 million, to €165 million.

Other net operating income amounted to a net expense of €17 million (2018: net expense of €34 million) and in the reporting year mainly consisted of income from the reversal of provisions and accruals of €33 million (2018: €57 million).

Other net operating income also included gains of €8 million on the disposal of DZ BANK's long-term equity investment in WÜRTT. GENO-HAUS GmbH & Co. KG, Stuttgart.

However, some of these income and gains were outweighed by an expense of €20 million from the addition to the provisions for restructuring as part of the 'Verbund First 4.0' strategic program (2018: expense of €80 million). The item also included start-up costs of €12 million for the cross-bank payment system paydirekt (2018: €10 million).

Profit before taxes amounted to €293 million in the reporting year, which was €69 million lower than the figure of €362 million reported for 2018.

The **cost/income ratio** in 2019 was 77.8 percent (2018: 85.0 percent).

The **regulatory return on risk-adjusted capital (RORAC)** was 5.8 percent (2018: 7.6 percent).

3.2.6 DZ HYP

At €656 million, the **net interest income** of DZ HYP was €68 million higher than in the previous year (2018: €588 million).

The rise in net interest income in the reporting year was mainly the result of portfolio growth generated from new business and effects from the early redemption of loans.

The volume of new business at DZ HYP in the reporting year exceeded the level of the previous year. DZ HYP generated a new business volume of €12,885 million (2018: €11,864 million) across its Commercial Real Estate Investors, Housing Sector, Retail Customers/Private Investors, and Public Sector divisions.

In the Commercial Real Estate Investors division, DZ HYP lifted the volume of new business in 2019 to €8,976 million (2018: €7,725 million). The volume of new lending jointly generated with the local cooperative banks in the commercial real estate finance business amounted to €4,068 million in 2019 (2018: €3,451 million).

In the Housing Sector division, the volume of new commitments in the reporting year came to €898 million (2018: €1,013 million). A significant area of focus in this business was the provision of long-term finance for new construction and renovation investment projects.

In the Retail Customers/Private Investors division, DZ HYP generated a volume of new commitments of €2,294 million in 2019 (2018: €2,232 million). Demand for long-term fixed interest rates continued to be supported by the sustained low level of interest rates. The volume of new commitments brokered by cooperative banks with retail customers came to €1,841 million in 2019 (2018: €1,468 million). In the business with private investors, DZ HYP's new commitment volume amounted to €453 million in 2019 (2018: €764 million).

In the year under review, DZ HYP generated new public-sector customer business of €717 million (2018: €894 million). Of this amount, €582 million (2018: €639 million) was attributable to business brokered through the cooperative banks and €135 million to direct business (2018: €255 million). Some 83 percent of all deals were generated through the brokering activities of the cooperative banks.

The **gains and losses on investments** amounting to a net gain of €10 million (2018: net loss of €10 million) arose primarily from the sale of Spanish government bonds.

Other gains and losses on valuation of financial instruments improved by €361 million to a net gain of €275 million in 2019 (2018: net loss of €86 million). This was predominantly because of a narrowing of spreads on bonds from eurozone periphery countries (gain of €246 million; 2018: loss of €61 million), particularly on Italian government bonds (gain of €126 million; 2018: loss of €98 million), and Spanish government bonds (gain of €79 million; 2018: gain of €31 million).

Loss allowances amounted to a net reversal of €1 million (2018: net reversal of €12 million). The change was mostly attributable to the addition for investments of €2 million (2018: reversal of €8 million).

Administrative expenses fell by €40 million to €259 million (2018: €299 million), primarily because of a one-time €15 million reduction in the bank levy to €10 million (2018: €25 million) and a drop of €20 million in consultancy expenses to €40 million (2018: €60 million) in connection with the merger. The expenses for regulatory projects also went down.

Other net operating income declined by €20 million to €4 million (2018: €24 million). This was mainly due to changes in the reversal of provisions for administration fees and early-redemption payments and to the recognition of a restructuring provision of €17 million in connection with streamlining the organizational structure.

Profit before taxes for the year under review amounted to €687 million. The rise of €455 million compared with the profit before taxes of €232 million reported for 2018 was mainly a consequence of the factors described above.

The **cost/income ratio** in 2019 was 27.4 percent (2018: 57.6 percent).

Regulatory RORAC was 44.5 percent (2018: 16.0 percent).

3.2.7 DZ PRIVATBANK

Net interest income at DZ PRIVATBANK increased by €1 million to €65 million (2018: €64 million) despite the persistently low interest rates.

Net interest income in the reporting year was also influenced by the continuation of a risk-conscious investment strategy and the expiration of securities exposures bearing higher rates of return.

In 2019, the average volume of guaranteed LuxCredit loans issued by DZ PRIVATBANK, which acts as the competence center for foreign-currency lending and investing in the interest-earning business, amounted to €4.6 billion (2018: €4.4 billion).

Net fee and commission income declined by €6 million to €176 million (2018: €182 million). The decrease in net fee and commission income was primarily due to a margin-related fall in the contribution to earnings from the fund services business.

As at the end of the reporting year, the value of funds under management amounted to €120.1 billion (December 31, 2018: €101.6 billion). The number of fund-related mandates as at December 31, 2019 was 540 (December 31, 2018: 565).

As at December 31, 2019, the volume of assets under management relating to high-net-worth clients amounted to €18.8 billion (December 31, 2018: €16.7 billion). The assets under management comprise the volume of securities, derivatives, and deposits of customers in the private banking business.

Other gains and losses on valuation of financial instruments rose by €2 million to a net gain of €2 million (2018: net gain of €0 million) as a result of market conditions.

Administrative expenses went up by €1 million to €220 million (2018: €219 million). The rise in staff expenses of €4 million to €132 million (2018: €128 million) was partially offset by a decrease in other administrative expenses, which are subject to stringent process and cost management, of €3 million to €88 million (2018: €91 million).

Other net operating income amounted to net income of €4 million (2018: net expense of €188 million). The net expense in 2018 was mainly the result of an adverse impact from impairment losses on goodwill and customer relationships in the amount of €128 million and €41 million respectively. These assets had been recognized in connection with the merger of DZ PRIVATBANK S.A. with WGZ BANK Luxembourg S.A. in 2011.

Profit before taxes amounted to €36 million, an improvement of €187 million on the loss before taxes of €151 million in 2018, which had been impacted by one-off items.

The **cost/income ratio** for DZ PRIVATBANK in 2019 was 85.9 percent (2018: greater than 100.0 percent).

Regulatory RORAC was 11.2 percent (2018: minus 44.8 percent).

3.2.8 VR Smart Finanz

Net interest income at VR Smart Finanz declined by €6 million to €147 million in 2019 (2018: €153 million).

The expansion of the core business, which involved a further rise in the volumes of the digital solutions 'VR Smart flexibel' and 'VR Smart express', had a positive impact on net interest income. Some of this impact was offset by a contraction in net interest income caused by the implementation of the strategy to scale back or dispose of non-core activities. In 2019, the strategy resulted in the sale of the following areas of the business: real estate leasing (VR-IMMOBILIEN-LEASING GmbH), centralized settlement, IT leasing (BFL Leasing GmbH), and the unconsolidated property companies.

The year-on-year rise of 33.0 percent (2018: 17.6 percent) in the volume of online business (leasing, hire purchase, and lending) transacted with the cooperative banks in the year under review underlined the growing importance of digitally supported financing solutions. The proportion of total new business (leasing and lending) accounted for by contracts entered into online increased from 81.8 percent in 2018 to 90.0 percent in the reporting year.

Net fee and commission income declined by €17 million to a net expense of €10 million (2018: net income of €7 million). The main reasons for this change were the level of trailer fees to be paid to the cooperative banks, which climbed in line with the volume of business, and the absence of income resulting from the disposal of the centralized settlement business.

Gains and losses on investments amounted to a net gain of €0 million (2018: net gain of €22 million). In 2018, gains and losses on investments had included the impact of the derecognition of the equity-accounted 50 percent long-term equity investment in VBLI.

Loss allowances went up by €17 million to €30 million in the reporting year (2018: €13 million). This change was predominantly due to the rise in the volume of the 'VR Smart flexibel' product.

Administrative expenses went down by €15 million to €127 million in 2019 (2018: €142 million) because of the disposal of the non-core activities referred to above. The lower headcount meant that staff expenses declined by €9 million to €68 million (2018: €77 million). Other administrative expenses fell by €6 million to €59 million (2018: €65 million).

Other net operating income amounted to €9 million (2018: net expense of €26 million). This change in other net operating income can be largely explained by the €11 million gain on the sale of the centralized settlement business and by the lower adverse impact compared with 2018 of the restructuring expenses in connection with the transformation into a digital provider of finance for the self-employed and small businesses, which amounted to €10 million (2018: €17 million).

VR Smart Finanz generated a **loss before taxes** of €10 million in the year under review (2018: profit before taxes of €1 million), largely as a consequence of the factors described above.

The **cost/income ratio** in 2019 was 86.4 percent (2018: 91.0 percent).

Regulatory RORAC was minus 3.4 percent (2018: 0.2 percent).

3.2.9 DVB

The DVB subgroup's **net interest income** declined by €31 million in 2019 to €146 million (2018: €177 million). The contraction in the portfolio of debt certificates issued including bonds gave rise to an adverse impact from early-redemption fees.

The volume of customer loans in the DVB subgroup stood at €7.4 billion as at the end of the reporting year (December 31, 2018: €16.6 billion).

At €48 million, **net fee and commission income** was down by €36 million year on year (2018: €84 million).

This decrease was largely due to the absence of income following the sale of shares in LogPay Financial Services GmbH and the disposal of the land transport finance and aviation finance businesses, and to lower income caused by the fall in new lending business.

Gains and losses on investments amounted to a net loss of €1 million (2018: net loss of €18 million). The figure for the prior year notably included impairment losses recognized in respect of the carrying amounts of equity-accounted entities.

Other gains and losses on valuation of financial instruments improved by €69 million to a net loss of €36 million (2018: net loss of €105 million). In this regard, IFRS-related measurement effects, particularly from hedge accounting, and interest-rate-related measurements of cross-currency swaps led to a smaller loss.

The addition to **loss allowances** rose by €61 million to €141 million (2018: €80 million). The change compared with 2018 was due, in particular, to the increased need for loss allowances in the shipping and offshore businesses.

Administrative expenses amounted to €202 million (2018: €200 million), a year-on-year increase of €2 million.

Other net operating income amounted to €72 million (2018: €15 million). Significant factors affecting this item in the reporting year were the disposal of the aviation finance and land transport finance core businesses, which generated gains of €206 million and €12 million respectively, and the sale of the long-term equity investment in LogPay Financial Services GmbH, which resulted in a gain of €28 million. This item also included investment management impairment losses of €100 million and restructuring expenses of €46 million.

In 2019, DVB incurred a **loss before taxes** of €108 million (2018: loss before taxes of €130 million), largely as a consequence of the factors described above.

The **cost/income ratio** in 2019 was 86.0 percent (2018: greater than 100.0 percent).

Regulatory RORAC was minus 42.1 percent (2018: minus 33.8 percent).

3.2.10 DZ BANK – holding function

Net interest income includes the interest expense on subordinated capital, together with the net interest income from the funding of the main long-term equity investment carrying amounts and the investment of capital.

Net interest income amounted to a net expense of €55 million (2018: net expense of €71 million), a change of 22.5 percent.

The interest expense on subordinated capital declined by 19.7 percent to €61 million (2018: €76 million) as a result of volume reductions.

Net interest income from the funding of long-term equity investment carrying amounts and the investment of capital amounted to €6 million in 2019 (2018: €5 million).

Administrative expenses went down by 3.3 percent year on year to €203 million (2018: €210 million).

Expenses from the group function went down by €17 million to €70 million (2018: €87 million) as a result of lower project expenses.

However, expenses for the bank levy and contributions (particularly to the BVR protection scheme) were up by €6 million to €39 million owing to adjustments to the basis of assessment in 2019. In addition, IT and project expenses rose from €55 million in 2018 to €58 million in the reporting year, while other expenses for the benefit of the group and local cooperative banks increased by €1 million to €35 million.

3.2.11 Other/Consolidation

The consolidation-related adjustments shown under Other/Consolidation to reconcile operating segment profit/loss before taxes to consolidated profit/loss before taxes are attributable to the elimination of intragroup transactions and to the fact that investments in joint ventures and associates were accounted for using the equity method.

The adjustments to net interest income were primarily the result of the elimination of intragroup dividend payments and profit distributions in connection with intragroup liabilities to dormant partners and were also attributable to the early redemption of issued bonds and commercial paper that had been acquired by entities in the DZ BANK Group other than the issuer.

The figure under Other/Consolidation for net fee and commission income largely relates to the fee and commission business of TeamBank and the BSH subgroup with the R+V subgroup.

The remaining adjustments are mostly also attributable to the consolidation of income and expenses.

4 Net assets

As at December 31, 2019, the DZ BANK Group's **total assets** had increased by €40.7 billion, or 7.8 percent, to €559.4 billion (December 31, 2018: €518.7 billion). This increase was largely attributable to a higher level of total assets at DZ BANK – CICB (up by €28.9 billion), R+V (up by €14.6 billion), and DZ HYP (up by €6.4 billion), whereas DVB recorded a decrease of €6.3 billion.

The **volume of business** amounted to €994,142 million (December 31, 2018: €904,918 million). This figure comprised the total assets, the assets under management at UMH as at December 31, 2019 amounting to €368,208 million (December 31, 2018: €323,370 million), the financial guarantee contracts and loan commitments amounting to €65,794 million (December 31, 2018: €61,871 million), and the volume of trust activities amounting to €761 million (December 31, 2018: €944 million).

The DZ BANK Group's **loans and advances to banks** rose to €97.5 billion, an increase of €5.9 billion or 6.5 percent. Loans and advances to banks in Germany went up by €4.1 billion to €89.1 billion and loans and advances to foreign banks by €1.8 billion to €8.4 billion.

The DZ BANK Group's **loans and advances to customers** amounted to €186.2 billion, which was €11.7 billion, or 6.7 percent, higher than at the end of 2018. The corresponding prior-year figure has been restated (see note 2 in the notes to the consolidated financial statements). Within this figure, loans and advances to customers in Germany rose by €11.7 billion to €157.6 billion, whereas loans and advances to customers outside Germany were unchanged at €28.6 billion.

As at December 31, 2019, **financial assets held for trading** amounted to €44.8 billion, an increase of €6.9 billion, or 18.0 percent, on the figure as at December 31, 2018. This change was mainly due to a rise in derivatives (positive fair values) (up by €3.7 billion), bonds and other fixed-income securities (up by €1.7 billion), receivables (up by €1.3 billion), and shares and other variable-yield securities (up by €0.2 billion).

FIG. 4 – TOTAL ASSETS

Investments were up by €8.6 billion, or 18.0 percent, to €56.9 billion. The principal reasons were growth of €8.6 billion in the portfolio of bonds and other fixed-income securities and a rise of €0.3 billion in the portfolio of shares and other variable-yield securities, although some of these increases were offset by a decrease in investments in joint ventures (down by €0.2 billion).

Investments held by insurance companies rose by €12.7 billion (12.6 percent) to €113.5 billion (December 31, 2018: €100.8 billion). This was due, above all, to a €2.1 billion increase in variable-yield securities to €11.3 billion, a €6.9 billion increase in fixed-income securities to €55.8 billion, and a €2.7 billion increase in assets related to unit-linked contracts to €14.4 billion.

In the DZ BANK Group, **non-current assets and disposal groups classified as held for sale** amounted to €0.5 billion as at December 31, 2019, a fall of €6.6 billion compared with the figure as at December 31, 2018. This change compared with the end of 2018 was largely attributable to two items. Firstly, it related to DVB's aviation finance and land transport finance core businesses and the fully consolidated subsidiary LogPay Financial Services GmbH, which were sold in 2019. Secondly, it related to BFL Leasing GmbH, which no longer formed part of the core business of VR Smart Finanz, and 94.0 percent of VR-IMMOBILIEN-LEASING GmbH, which were also sold in 2019.

The DZ BANK Group's **deposits from banks** as at December 31, 2019 amounted to €141.1 billion, which was €1.4 billion, or 1.0 percent, lower than the figure reported as at December 31, 2018. Deposits from domestic banks were down by €0.9 billion to €127.9 billion, while deposits from foreign banks decreased by €0.5 billion to €13.2 billion.

Deposits from customers contracted by €1.0 billion, or 0.8 percent, to €131.5 billion (December 31, 2018: €132.5 billion). Deposits from domestic customers fell by €4.0 billion to €113.0 billion (December 31, 2018: €117.0 billion). Deposits from foreign customers rose by €3.0 billion to €18.5 billion (December 31, 2018: €15.5 billion).

At the end of the year, the carrying amount of **debt certificates issued including bonds** in the DZ BANK Group was €85.1 billion (December 31, 2018: €63.9 billion). The rise of €21.2 billion was largely due to growth of €20.7 billion in the portfolio of other debt certificates issued to €33.6 billion while, at the same time, the portfolio of bonds issued expanded by €0.5 billion to €51.5 billion.

Financial liabilities held for trading went up by €6.8 billion, or 15.1 percent, to €51.8 billion (December 31, 2018: €45.0 billion). This change was due to a rise in derivatives (negative fair values) (up by €2.8 billion), bonds issued (up by €2.0 billion), and money market deposits (up by €2.0 billion).

Insurance liabilities increased by €11.1 billion, or 11.9 percent, to €104.3 billion (December 31, 2018: €93.2 billion). This was largely attributable to rises of €3.8 billion in the benefit reserve, €3.9 billion in the provision for premium refunds, and €2.1 billion in the reserve for unit-linked insurance contracts.

As at December 31, 2019, the **equity** reported by the DZ BANK Group was €27.8 billion (December 31, 2018: €23.5 billion). The increase of €4.3 billion compared with the end of 2018 was largely due to rises of €1.5 billion in retained earnings, €1.1 billion in the reserve from other comprehensive income, and €1.4 billion in additional equity components in view of the issuance of a tranche of additional Tier 1 notes (AT1 bonds) by DZ BANK.

The **capital and solvency situation** of the DZ BANK financial conglomerate, the DZ BANK Group, and the R+V Versicherung AG insurance group is described in this group management report in chapter VI (Opportunity and risk report), section 7.3 (Normative internal perspective).

5 Financial position

Liquidity management for the entities in the DZ BANK Group is carried out by the Group Treasury division at DZ BANK and on a decentralized basis by the individual subsidiaries. The individual entities are provided with funding by DZ BANK (group funding) or the entities exchange cash among themselves via DZ BANK (group clearing). Liquidity is managed within DZ BANK centrally by head office treasury in Frankfurt and by the associated treasury units in its international branches, although Frankfurt has primary responsibility.

In the context of liquidity management, the DZ BANK Group distinguishes between operational liquidity (liquidity in the maturity band of up to one year) and structural liquidity (liquidity in the maturity band of more than one year). Dedicated steering committees have been established for both types of liquidity.

The DZ BANK Group has a diversified funding base for **operational liquidity**. A considerable portion is accounted for by money market activities resulting from the cash-pooling function with the cooperative banks. This enables cooperative banks with available liquidity to invest it with DZ BANK, while cooperative banks requiring liquidity can obtain it from DZ BANK. Traditionally, this results in a liquidity surplus, which provides the main basis for short-term funding in the unsecured money markets. Corporate customers and institutional clients are another important source of funding for operational liquidity requirements. Funding on the interbank market is not strategically important to the DZ BANK Group.

The DZ BANK Group issues money market products based on debt certificates through its main branches in Frankfurt, New York, Hong Kong, London, and Luxembourg. DZ BANK has initiated a standardized groupwide multi-issuer euro commercial paper program, which DZ BANK and DZ PRIVATBANK S.A. can draw on.

Money market funding also includes collateralized money market activities, which form the basis for diversified funding on money markets. To this end, key repo and securities lending activities, together with the collateral management process, are managed centrally in DZ BANK's Group Treasury division. The Group Treasury division also has at its disposal a portfolio of investment-grade liquid securities. These securities can be used as collateral in monetary policy funding transactions with central banks, in bilateral repos, or in the tri-party repo market.

Structural liquidity activities are used to manage and satisfy the long-term funding requirements (more than one year) of DZ BANK and, in coordination with the group entities, those of the DZ BANK Group.

For both the DZ BANK Group and each individual group entity, structural liquidity is measured daily on the basis of total cash flows.

DZ BANK secures its long-term funding for structural liquidity by using structured and non-structured capital market products that are mainly utilized for the cooperative banks' own-account and customer-account securities business and marketed to institutional clients. Long-term funding that is not covered is secured through systematic integration between the entities in the DZ BANK Group. Options for obtaining covered liquidity through Pfandbriefe or DZ BANK BRIEFE are used on a decentralized basis, in other words based on the different cover assets at DZ BANK, DZ HYP, DVB, and, since 2019, also at BSH.

Long-term funding requirements in foreign currencies are covered through the basis swap market, ensuring matching maturities.

The Group Treasury division at DZ BANK carries out groupwide **liquidity planning** annually. This involves determining the funding requirements of the DZ BANK Group for the next financial year on the basis of the coordinated business plans of the individual companies. Liquidity planning is updated throughout the year.

Monthly **structural analyses** of the various resources available on the liabilities side of DZ BANK's balance sheet are also conducted. The purpose of these analyses is to provide senior management with information that can then be used as the basis for actively managing the liability profile.

To complement the description of the funding structure, further information on **liquidity risk** can be found in this group management report in chapter VI (Opportunity and risk report), section 6.2 (Economic perspective). The year-on-year changes in cash flows from operating activities, investing activities, and financing activities are shown in the **statement of cash flows** in the consolidated financial statements. Contractual cash inflows and cash outflows are set out in the **maturity analysis** in note 86 of the notes to the consolidated financial statements.

III Events after the balance sheet date

Events of particular importance that occurred after the end of the financial year are described in note 100 of the notes to the consolidated financial statements.

IV Human resources report and sustainability

The non-financial group statement of DZ BANK AG in accordance with section 340i in conjunction with section 315b of the German Commercial Code (HGB) is combined with the non-financial statement of the parent entity in accordance with section 340a in conjunction with section 289b HGB.

The separate combined non-financial statement is contained in the Non-financial statement section of this Annual Report. It is available in German at *www.berichte2019.dzbank.de* and in English at *www.reports2019.dzbank.com*

V Outlook

1 Economic conditions

1.1 Global economic trends

A marked slowdown was evident in the global economy in 2019. Numerous political risks and escalation of the trade disputes between the US and China during the year subdued the economic climate around the globe considerably, contributing to a widespread slump in growth.

However, the weakening of growth rates across all countries is likely to have bottomed out at the end of 2019. The 'phase 1' trade deal agreed between the US and China following months of negotiations is the first important step toward de-escalating the trade dispute, which has been smoldering since 2018. The deal between the US and China will probably also have a positive impact on the global economy and international trade. Nevertheless, it would be premature to expect a comprehensive recovery.

Furthermore, a new factor, the coronavirus outbreak, has emerged since the start of this year. It has not yet had any significant adverse effect on the DZ BANK Group, but its implications for the global economy are not yet known.

In the US, the economic stimulus from the 2018 tax reforms is tailing off. It is therefore anticipated that growth rates will continue to ease over the coming years. Currently, it is clear that the financial markets do not consider the rising government debt in the US to be a serious problem for the time being. In 2019, the Fed instigated a cycle of interest-rate cuts because of the uncertain economic outlook. Monetary policy will probably remain unchanged in the current year, although it is quite conceivable that there could be a further slight fall in the federal funds rate.

In Europe, growth rates dropped more sharply than in the US in 2019. They are likely to remain low in 2020 and only gradually return to something close to the trend growth rates. This is because the fallout from the trade dispute between the US and China, concerns that the conflict in the Middle East will worsen, and uncertainty surrounding the withdrawal of the UK from the EU single market without a free trade agreement all remain in the air, at least for the time being, even if a serious deterioration is not currently anticipated.

The ECB will also probably continue to maintain its extremely expansionary monetary policy. No improvement in the deposit rate is likely to be on the agenda for the foreseeable future. This prediction is supported by a number of factors. Firstly, it is undeniable that monetary policy is already very expansionary, because the ECB took the deposit rate further into negative territory in September 2019 and decided to restart bond-buying. In addition, sentiment indicators are currently pointing to stabilization of the economy, which means that the ECB is unlikely to feel inclined to adopt additional corrective measures. Furthermore, as the waters become calmer in terms of geopolitical risks, this could allow the ECB more time to maintain its existing monetary policy.

No significant upward pressure on consumer prices is expected in 2020. Inflation rates are therefore unlikely to reach a level that could be considered a cause for concern by central banks.

1.2 Trends in the USA

Although economic growth in the US is forecast to slacken from the rate of 2.3 percent in 2019 to a rate of 1.9 percent in 2020, few people share the worries about a recession that are aired now and again. The unemployment rate will remain around the historic low and the prospects for housebuilding are looking brighter once more, although manufacturing is unlikely to become the motor of growth again for a while.

The economic climate in the US at the start of 2020 did not suggest that there would be a significant economic acceleration. Purchasing manager surveys at the end of 2019 presented a mixed picture. Among service providers, sentiment indicators lay well above the growth threshold, whereas the manufacturing climate remained muted despite the emerging signs of a deal with China. On the other hand, consumer surveys indicated that spending would continue unabated. It is thus likely that household consumption will continue to play the role of growth driver in the current year.

It is still anticipated that the inflation rate will not rise beyond the 2 percent mark for any length of time because there is hardly any wage pressure, which would have to be passed on through prices, despite the high level of employment. US inflation is therefore forecast to remain more or less unchanged at 2.0 percent in 2020. Ultimately, price pressure in the US will thus remain very subdued in spite of the prolonged economic upturn.

1.3 Trends in the eurozone

At the beginning of 2020, there has not yet been any real improvement in the economic prospects for the eurozone. The emerging de-escalation of the trade dispute between the US and China based on the 'phase 1' trade deal is likely to ease some of the international economic risks, at the very least. On the other hand, the threat of a trade dispute between the US and Europe has not yet been eliminated. This could inflict further damage on export-oriented industries in the eurozone, which are already suffering from a persistent drop in demand.

The UK left the EU on January 31, 2020. Initially, not much will change as regards the direct economic relationships between the UK and the EU because there is an agreed transition period until the end of 2020. In the intervening period, the aim is to negotiate a free trade agreement that will govern the future relationship.

Economic momentum in the eurozone remained modest at the beginning of 2020. Because of this, economic growth of just 0.9 percent is forecast for 2020, compared with 1.2 percent in 2019. There was little strong economic stimulus at the start of the year, for example in terms of fiscal policy.

The inflation rate in the eurozone will probably be more moderate over the course of 2020. Assuming the above, the inflation rate for the whole of 2020 is projected at 1.6 percent, compared with 1.2 percent in 2019.

1.4 Trends in Germany

Expansion of economic output in the past year was at its weakest since 2013, the growth rate in real terms being just 0.6 percent. Therefore, the pace of growth more than halved compared with the 2018 figure. Official figures confirm, however, that Germany did not slip into the feared technical recession (two consecutive quarters of decline in GDP) over the course of 2019. Following the contraction of economic output of 0.2 percent in the second quarter, the country posted marginally positive growth figures for the second half of the year. The slowdown in the pace of growth in the domestic economy was primarily attributable to the industrial sector. Over the last year, global demand for German manufacturing products has lost much of its momentum because of the detrimental impact of various political problems.

Looking forward to 2020, it appears that there will not be a recession after all because the downturn in the economy bottomed out at the end of 2019. Assuming that global economic growth has rallied and that there will be no further escalation of the various political crises, a growth rate of around 1 percent can be expected in Germany in 2020. However, more than one third of this growth rate can be attributed solely to the effect of the number of working days in the year and is not related to the economy. Thus, a genuine economic recovery in Germany cannot yet be anticipated in 2020; at best, the projections are for stabilization of growth at a low level.

The average rate of inflation in Germany for 2020 will probably be only slightly higher than in the previous year at 1.8 percent (2019: 1.4 percent). There are no predictions of higher inflationary pressure over the longer term in Germany either.

1.5 Trends in the financial sector

For some years, the financial sector has faced considerable pressure in terms of both adjustment and costs caused by the need to comply with regulatory reforms and implement structural change to adapt to competitive conditions.

The regulatory measures introduced since the financial crisis have had a range of objectives, including restructuring of the supervisory architecture and improved capital and liquidity adequacy in order to make the financial sector more resilient in the event of a crisis. A further objective is to ensure that the risks arising from the business activities in the financial industry are not borne by the public sector and thus the taxpayer.

Further information on the regulatory environment can be found in section 5.1 of the opportunity and risk report.

In response to these regulatory requirements, banks have reduced their leverage over the last few years and substantially bolstered their risk-bearing capacity by improving liquidity and capital adequacy.

In addition, new competitors with approaches based on the use of technology are presenting the financial sector with the challenge of scrutinizing its existing business models, adapting them as required, and substantially improving its efficiency by digitalizing business and IT processes. The corresponding capital investment is initially likely to push up costs in the industry before the anticipated profitability gains can be realized.

Efforts to address the challenges described above will be made more difficult in 2020 by what is expected, from the current perspective, to remain a comparatively low level of nominal interest rates. This will be accompanied by a relatively flat yield curve and will prevent any significant increase in margins in interest-related business.

The statements are based on a current assessment of the ECB's monetary policy, which will remain expansionary because of low inflation rates in the eurozone. Interest rates are not expected to return to normal levels in 2020.

Following a period of gradual interest-rate hikes, the Fed changed course in January 2019 and lowered the target range for the federal funds rate three times with the objective of keeping the US economy on a growth trajectory while ensuring price stability. Currently, the Fed is initially expected to pursue a wait-and-see monetary policy in 2020 with the option of implementing further interest-rate cuts if necessary.

Despite the expansionary monetary policy, the economic outlook remains subdued, particularly for the eurozone, with the result that there are no expectations of any overly positive boost for the financial performance of the European financial sector.

In this regard, the potential impact of uncertain political developments on the economic position of banks and insurance companies should also not be ignored. Further information on macroeconomic risk factors can be found in section 5.2 of the opportunity and risk report.

2 Financial position and financial performance

Key features of the 2020 financial year alongside a continuation of the challenging market and competitive conditions will include the further evolution of the DZ BANK Group's operating business and capital expenditure on new technologies (Letter to shareholders).

The forecasts below are based on the outcome of the DZ BANK Group's annual planning process. Further information on the planning process can be found in the 'DZ BANK Group fundamentals' chapter (section 2.4). Variances from the underlying planning scenario, in the form of opportunities and risks, may have an influence on financial position and financial performance.

According to the planning for 2020, **total assets** will end the year slightly higher compared with the figure as at the end of 2019. The forecast growth, which will have a corresponding impact on the balance sheet, is expected be focused in the BSH, TeamBank, and R+V operating segments. However, the level of total assets will also reflect the countervailing effect from the planned contraction of the portfolios of loans and advances in the DVB operating segment and from the predicted decline in the volume of deposits in the DZ PRIVATBANK operating segment.

In 2019, the DZ BANK Group generated an exceptional **profit before taxes** that was at the upper end of the long-term target range of €1.5 billion to €2.0 billion, even after taking account of the generally positive one-off items (Business report, section 3.1). **Profit before taxes** in 2020 is likely to be at the lower end of this long-term target range of €1.5 billion to €2.0 billion. The amounts in the information below each take account of the aforementioned one-off items.

The future financial performance of the DZ BANK Group could be subject to risks arising from the economic conditions outlined above. The situation is monitored continuously and factored into planning and management.

In 2020, **net interest income** including income from long-term equity investments is currently anticipated to decline significantly because interest rates are likely to remain low, which will particularly affect the interest-rate-sensitive business models in the DZ BANK Group.

Net fee and commission income is projected to make another hefty contribution to the earnings of the DZ BANK Group in 2020. This is due to the predicted growth in the volume of assets under management and the associated volume-related income in the UMH and DZ PRIVATBANK operating segments.

Net gains under **gains and losses on trading activities** in 2020 are predicted to be at a higher level than those in 2019.

Customer-driven capital markets business in the DZ BANK – CICB operating segment will probably provide particular impetus in 2020. The primary prerequisite for a steady level of net gains under gains and losses on trading activities is considered to be a stable financial and capital markets environment.

Gains and losses on investments are expected to deteriorate significantly in 2020.

The net gains under **other gains and losses on valuation of financial instruments** are likely to be at a low level in 2020.

Net income from insurance business in 2020 is expected to be well below the 2019 figure. From the current perspective, the gross premiums in the various divisions of the R+V operating segment are predicted to rise significantly, whereas the net gains under gains and losses on investments held by insurance companies will probably fall back sharply to normal levels in 2020.

Loss allowances are likely to rise considerably in 2020 in line with the volume of the lending portfolio, the targeted volume of new business, and the long-term standard risk costs.

Administrative expenses are predicted to be marginally higher in 2020 than they were in 2019. While staff expenses will decline slightly according to current predictions, general and administrative expenses are likely to rise markedly in view of the planned growth and capital spending requirements.

The DZ BANK Group's **other net operating income** is projected to increase sharply in 2020.

The **cost/income ratio** for the DZ BANK Group is likely to rise significantly in 2020 as a result of the expected year-on-year decrease in income and an almost unchanged level of expenses. As before, the DZ BANK Group will be focusing its energies on managing costs and generating growth in the operating business.

Regulatory RORAC, the risk-adjusted performance measure based on regulatory risk capital, will decline substantially in 2020 on current assessments because of the lower income projections.

3 Liquidity and capital adequacy

Based on the position in the year under review and the funding measures planned for 2020, the DZ BANK Group predicts that it will be able to continue maintaining an appropriate level of economic and regulatory **liquidity adequacy** in 2020.

Further information on liquidity adequacy can be found in sections 6.2 and 6.3 of the opportunity and risk report.

As matters currently stand, the DZ BANK Group's **capital adequacy** will continue to be assured for 2020 from both economic and regulatory perspectives; that is to say, it will continue to have at its disposal the available internal capital necessary to cover the risks associated with the finance business and other risks arising from the group's business operations.

Over the last few years, the DZ BANK Group has greatly strengthened its capital base from its own resources (through the retention of profits) and through corporate action. In 2020, a high priority will once again be given to strengthening the capital base.

Further information on capital adequacy can be found in sections 7.2 and 7.3 of the opportunity and risk report.

4 Operating segments in detail

4.1 BSH

Residential construction will remain one of the key components of the German economy in 2020. According to a forecast by the Deutsches Institut für Wirtschaftsforschung (DIW Berlin) [German Institute for Economic Research], the construction industry will grow at a nominal rate of over 6 percent, a rate significantly greater than that for the economy as a whole. Both new building and the renovation and modernization of existing buildings will benefit from the ECB's expansionary monetary policy. At the same time, it is anticipated that the labor market will remain largely unaffected by the weakness in German industry. Pay settlements will also cause incomes to rise markedly. The drivers behind the real estate boom will therefore remain in place in 2020.

Projections estimate that 310,000 homes will be completed in 2020, compared with a corresponding figure of around 300,000 in 2019. But that still does not match the level of demand, which various studies put at 350,000 to 400,000 homes per year. Added to this, there was a construction backlog at the start of 2020 comprising some 693,000 homes that had been approved but had not yet been completed. This is a record figure, currently representing 2.5 years' worth of construction activity. Based on this data, construction industry trade associations forecast that house-building will generate sales revenue of €54.2 billion in 2020 compared with a figure of just under €51 billion in 2019, a year-on-year increase of 7 percent. BSH, a specialist in home finance, will also benefit from this activity.

In its core home finance business, BSH expects earnings to be slightly higher than the record level achieved in 2019. As regards home savings, the second core business at BSH, new business is predicted to be markedly below the 2019 level because of the continuing challenges presented by persistently low interest rates and significant regulatory requirements.

Taking these various factors into account, BSH anticipates that its **profit before taxes** will see a sharp year-on-year decline in 2020.

The low interest rates are likely to have a substantial detrimental impact on interest income in 2020. However, there will be a positive year-on-year effect from a sharp fall in interest expense caused by a lower addition to the provisions for risks attaching to older rate scales in building society operations. Based on these assumptions, **net interest income** is projected to rise sharply in 2020.

With regard to **loss allowances**, BSH will continue to benefit from Germany's good economic performance and low unemployment rate. As a consequence, loss allowances will – compared with the adjusted figure for 2019 – probably hold steady in 2020 despite the marked expansion of non-collective lending business in previous years.

Net fee and commission income in 2020 is expected to remain around the 2019 level based on marginal expansion of the home finance business and a significant contraction of new home savings business.

Gains and losses on investments are projected to deteriorate significantly because the gains from the disposal of the shares in ČMSS were included as a one-off item in the 2019 figure.

Administrative expenses will be substantially higher in 2020, a consequence of strategic projects and action plans in connection with the further development of the home savings and home finance core businesses. Strict cost discipline and savings will help to limit the increase.

On current calculations, the **cost/income ratio** will worsen substantially, largely because the sharp rise in net interest income will be insufficient to offset the substantial deterioration in gains and losses on investments and much higher administrative expenses.

Regulatory RORAC will probably be down a little because of the slightly higher capital requirements and the fall in profit before taxes.

4.2 R+V

In the opinion of R+V, the 2020 financial year will continue to be shaped by the challenging conditions. The market environment will remain very tough from any number of perspectives, including political issues, regulation, low interest rates, economic conditions, and consumer behavior.

Back in 2017, R+V launched its 'Wachstum durch Wandel' (growth through change) program with the overall objective of consolidating its position in the market and equipping itself for the future. The main aims within the strategic program are to safeguard profitable growth over the long term, bring about further growth in sales, refine the strong R+V corporate culture, and sharpen the focus on customer needs.

In line with this strategy, R+V – the composite insurer in the Volksbanken Raiffeisenbanken cooperative financial network – is planning to continue on its trajectory of profitable growth in 2020. The value added for the cooperative financial network should also increase steadily as a result.

Slight overall growth is expected in **gross premiums written**. This will be generated across all divisions in the R+V Group.

In non-life insurance, **gross premiums written** are forecast to grow marginally in 2020. The **claims rate** will probably remain at the level of 2019. Based on a slight rise in the expense ratio, the **combined ratio** (total of insurance business operating expenses and claims expenses divided by premiums earned) is projected to be a little higher than the 2019 figure.

In the life insurance and health insurance business, the **gross premiums written** for 2020 are predicted to be slightly above the level of 2019. In previous years, single-premium insurance policies accounted for a significant proportion of new business. New single-premium business is subject to some volatility and a contraction is therefore always possible, particularly in a shifting interest-rate environment.

The latest pension insurance report (2019) published by the Bundesministerium für Arbeit und Soziales (BMAS) [German Federal Ministry of Labour and Social Affairs] states that the ratio of pensions to pay (before tax), referred to as the security level, will fall from the current level of 48.2 percent to 44.6 percent by 2033. This means that the level of provision from the statutory pension by itself is declining. In the report, the German government expressly states that the statutory pension alone is no longer sufficient to maintain an existing standard of living. It recommends that retirees also make use of the options offered by the German Retirement Income Act (AltEinkG) and government subsidies. The German Act to Strengthen Occupational Pensions (BRSG), which came into force on January 1, 2018, is a further component in the efforts to prevent old-age poverty. This act is focused particularly on small and medium-sized enterprises (SMEs) as well as on employees with low incomes, who are more likely to be affected by old-age poverty. Industry-specific pension schemes such as the dedicated schemes available in Germany for the chemicals industry (Chemie-Versorgungswerk), engineering industry (MetallRente), pharmacy industry (ApothekenRente), healthcare industry (KlinikRente), and media industry (Versorgungswerk der Presse) are helping to popularize occupational pension provision.

It is expected that awareness of the economic losses from natural disasters, global economic growth, and the growing global population will generate a sustained high level of demand for reinsurance. Following the major loss events that occurred in previous years, it is anticipated that there will be a further increase in the price of reinsurance cover in 2020. R+V will continue to pursue its strategy of profitable growth in its inward reinsurance business.

Further substantial growth in **gross premiums written** is predicted. On the costs side, R+V anticipates an unchanged administrative expenses ratio (net insurance business operating expenses divided by net premiums earned) and a small improvement in the combined ratio in 2020.

Investing activity is based on a long-term investment strategy combined with an integrated approach to risk management. Focusing on asset protection, the strategy is designed to ensure that insurance obligations can be met at all times.

The budgeted **gains and losses on investments held by insurance companies** for 2020 are down sharply compared with the previous year, as the equivalent figure in 2019 had risen substantially because of the fall in the level of market interest rates. In contrast, no material change in the low interest rates is anticipated in 2020.

The overall result of the above factors in the planning is a substantial decline in **profit before taxes** compared with the 2019 figure, which had been significantly boosted by the positive trend in capital markets.

Regulatory RORAC is expected to fall sharply in 2020 in line with the forecast decline in profit before taxes combined with a slight rise in capital requirements.

4.3 TeamBank

Although the signs that the economy is clouding over are unmistakable, consumer spending is likely to remain a key driver of economic growth in 2020. Steady growth is therefore predicted for the consumer finance market. This solid growth trajectory, combined with consumers' increasing preference for digital delivery channels, makes the market very attractive to competitors. Further digital competitors from the non- and near-bank sector with disruptive business models are expected to enter the market. Fintechs are continuing to gain importance and the activities of the tech giants are also becoming increasingly visible in the German banking industry.

In collaboration with the cooperative banks, TeamBank is aiming in 2020 to generate profitable, sustainable growth at a rate that is consistently higher than that of the market. TeamBank remains focused on directing customers who prefer online/mobile channels to the cooperative banks, and attracting new customers and members as well as retaining existing ones.

TeamBank is forecasting strong portfolio growth in 2020, which is projected to lead to a corresponding rise in **net interest income**.

A significant rise in **loss allowances** is anticipated as a consequence of the portfolio expansion in 2020 and prudent credit assessment of customers who are added to the portfolio as a result of innovations in products and lending processes.

Administrative expenses will rise sharply in 2020, mainly because of the planned investment to upgrade the technical infrastructure as a prerequisite for the focus on growth.

In view of the anticipated challenge presented by the market and competitors, **profit before taxes** is predicted to decrease moderately.

Consequently, the **cost/income ratio** for 2020 will worsen slightly compared with the 2019 level.

The rise in minimum capital requirements will lead to a small decline in **regulatory RORAC** in 2020.

4.4 UMH

UMH is setting itself ambitious targets for 2020.

Against the backdrop of persistently tough political and capital market conditions (the withdrawal of the UK from the EU, the trade dispute between China and the US, the continuation of low interest rates in Europe and many other parts of the world, the anticipated slowdown of growth in the US and eurozone), UMH intends to continue systematically exploiting opportunities to deliver a positive business performance.

UMH is once again aiming to achieve a very high level of assets under management at the end of 2020, although this level is projected to be slightly down compared with the position at the end of 2019. New business will be sustained at a high level. Expectations regarding overall performance are slightly higher for 2020.

Net fee and commission income is projected to rise a little in 2020, mainly as a consequence of the expected slight increase in volume-dependent income resulting from the marginally higher average level of assets under management.

Net finance costs – comprising net interest income, gains and losses on investments, and other gains and losses on valuation of financial instruments – are likely to improve significantly in 2020, primarily because of a sharp fall in the expense from the valuation of guarantee commitments for investment products and the absence of the expense from the valuation of options in connection with the acquisition of shares in a long-term equity investment. However, the contribution from own-account investing is predicted to fall substantially.

Administrative expenses are projected to rise significantly in 2020. Staff expenses will be a little higher as a consequence of growth-related recruitment and planned salary increases. Some of this increase will be offset by a small reduction in variable remuneration components linked to company KPIs. Consultancy and office operating costs will cause general and administrative expenses to go up sharply. Depreciation, amortization, and impairment will increase significantly, mainly as a result of costs for buildings and of the first-time recognition of capital expenditure relating to completed projects.

A sharp decrease in **other net operating income** is expected, predominantly because of the absence of the gain recognized in 2019 on the disposal of Union Investment Towarzystwo Funduszy Inwestycyjnych S.A. (TFI), Poland.

Based on the factors described above, **profit before taxes** is once again projected to be at a high level in 2020, but lower than the profit before taxes generated in 2019.

The situation will be similar for the **cost/income ratio** and **regulatory RORAC**.

4.5 DZ BANK – CICB

The persistently low level of interest rates is presenting a challenge for the banking industry. In addition, the German banking market, which had previously consisted of three pillars, has now been extended to include a fourth pillar, which consists of entities such as fintechs and foreign banks. This fourth pillar is significantly ratcheting up the competitive pressure in the industry.

Advancing digitalization will determine future development, creating both opportunities and risks for the financial sector. Greater use of digital technologies is enhancing transparency in the market. At the same time, banks can themselves benefit from the use of digital technologies to respond to changes in customer requirements.

Because of this market environment, **profit before taxes** at DZ BANK – CICB is expected to fall sharply in 2020, after taking account of one-off items (Business report, section 3.1).

Net interest income (excluding income from long-term equity investments) in 2020 is predicted to fall well below the 2019 level. It is anticipated that net interest income from customer business will be affected, notably, by a small anticipated rise in the margin contribution from interest-bearing business and a fall in other net interest income. In terms of planning, a positive contribution is expected from the interest-bearing business, particularly with corporate customers in Germany and abroad, and from the development lending business and money market business.

It is anticipated that the growth in corporate banking will be driven by further increases in volume. The projected growth and the stepping up of corporate banking business are linked to the systematic implementation of activities under the 'Verbund First 4.0' strategic program.

The target for 2020 is to maintain the margin at an almost constant level despite a market environment that is expected to remain highly competitive and an interest-rate environment that is currently very challenging. The anticipated growth delivering a boost for net interest income is likely to be derived from a continuing expansion of volume.

Other net operating interest income mainly consists of operating income from money market business outside the cooperative financial network, promissory notes, and securities. The anticipated decline in net interest income in the planning period is mainly due to the fact that margins are expected to fall while portfolio volumes remain broadly unchanged. In addition, it is projected that intermediary-related money market funding will remain virtually constant.

Loss allowances are likely to rise significantly in 2020. Reversals recognized in 2019 have not been included in the planning for 2020. In 2019, additions were also partly offset by income from recoveries on loans and advances previously impaired.

The planning for loss allowances in 2020 is based on the expected loss from the lending business, particularly in corporate banking. Loss allowances will probably return to their normal level in 2020 and change in line with the lending portfolio, the targeted volume of new business, and the long-term standard risk costs.

Net fee and commission income is projected to rise slightly in 2020, primarily as a result of the planned growth in service fees in individual operating units. Growth opportunities are likely to be exploited, particularly in the Transaction Banking business line as a consequence of the comprehensive digitalization strategy combined with efficiency optimization in payments processing and depositary services.

Gains and losses on trading activities are forecast to improve significantly in 2020, provided there is no substantial market turmoil. Gains on trading activities in the DZ BANK – CICB operating segment will be generated from margins in customer business involving investment and risk management products and from the related customer-initiated trading contributions.

In this context, key income drivers are likely to be the exploitation of cross-selling potential in corporate banking, the expansion of the range of products via targeted product initiatives, and the harnessing of potential in the securities business by stepping up collaboration with the cooperative banks in customer business. There are also plans to expand institutional customer business on e-trading platforms.

In all probability, **administrative expenses** will rise again slightly in 2020. Despite the continuing plans for implementation of the 'Verbund First 4.0' strategic program aimed at leveraging specific efficiencies, cutting the number of full-time equivalents, and reducing the number of external employees in project and line activities, there are likely to be additional countervailing general and administrative expenses arising from strategic investment in the digitalization of market access and in IT as well as from higher contributions to the BVR protection scheme and for banking supervision. IT costs will also rise as a result of the planned insourcing in connection with VR Smart Finanz and VR FACTOREM. However, some of these costs will be offset by corresponding income under these contractual arrangements.

Current assessments show that the **cost/income ratio** will worsen slightly in 2020 as a result of the conservative projection of financial performance compared with 2019 and the rise in administrative expenses.

As things stand, **regulatory RORAC** will probably decline in 2020 based on slightly higher capital requirements and the increase in loss allowances.

4.6 DZ HYP

Because of the perpetually low level of interest rates, real estate remains an attractive investment product. Investors from both Germany and abroad are expected to continue increasing the proportion of real estate in their portfolios at the expense of interest-bearing investment products. Demand in the real estate market is thus likely to remain high over the next few years. Real estate in Germany will play a key role because of the economic and political stability in the country. On the supply side, in terms of real estate finance, there is likely to be ongoing pressure to consolidate within the industry accompanied by increased capital requirements in the banking sector. This combination of supply and demand could lead to rising credit margins in 2020 for real estate finance, from which DZ HYP would also benefit. Overall, this anticipated scenario creates a solid foundation for DZ HYP, which is forecasting that the volume of new business in real estate finance in 2020 will be a little below the 2019 figure with a slight rise in interest margins.

Net interest income in 2020 is projected to be slightly below the 2019 figure because of lower expected one-off items in connection with the early redemption of loans. Real estate lending is expected to increase slightly, as are the associated margins.

Loss allowances for 2020 are forecast on the basis of standard risk costs and are thus likely to increase markedly.

Based on current assessments, the credit spreads in government financing in 2020 are expected to deviate only minimally from their level in 2019. **Other gains and losses on valuation of financial instruments**, which resulted in a net gain in 2019, will therefore probably be close to zero in 2020 and thus down significantly year on year.

Administrative expenses are projected to be at the level of 2019.

Based on stable operating performance with various countervailing effects on earnings, but particularly because of the decline in **other gains and losses on valuation of financial instruments**, the **profit before taxes** at DZ HYP in 2020 is predicted to be significantly below the corresponding 2019 figure.

Accordingly, the **cost/income ratio** is expected to rise significantly.

Regulatory RORAC is also likely to decline considerably due to the fall in profit before taxes forecast for 2020.

4.7 DZ PRIVATBANK

Although the economy of the eurozone will lose momentum in the medium term, economic sentiment is expected to remain in positive territory despite the adverse factors.

The inflation rate in the eurozone will probably not exceed the ECB's target of 2 percent in 2020.

Based on current assessments, **net interest income** will fall sharply in 2020 because of the persistently low interest rates.

In 2020, **net fee and commission income** is predicted to rise substantially thanks to the good performance of the private banking and fund services businesses.

The assets under management in private banking will also rise because of planned increases in inflow rates from the independent sales activities of partners. The main value driver is fund volume, which is likely to grow substantially – particularly in the case of third-party funds.

Gains and losses on trading activities are forecast to deteriorate significantly in 2020.

Administrative expenses are expected to rise moderately in 2020. The increase will be due not only to the sustained growth of costs relating to regulatory requirements but also to high levels of capital expenditure.

Based on current forecasts, **profit before taxes** will decline only slightly year on year, despite a challenging market environment.

The **cost/income ratio** and **regulatory RORAC** are both forecast to be on a par with 2019.

4.8 VR Smart Finanz

The priorities for VR Smart Finanz in 2020 are to step up collaboration with the cooperative banks and achieve a greater level of market penetration for the existing solutions aimed at small-business and self-employed customers. In view of the economic conditions, slightly faster economic growth is anticipated compared with 2019.

VR Smart Finanz continues to pursue a decentralized approach in which it aims to provide digital solutions to support the cooperative banks.

The organizational structure implemented in 2019 encourages agile approaches to working, the objective of which is to create a stronger customer focus and increase speed of delivery. On the basis of the restructuring carried out in 2019, VR Smart Finanz plans to carry out a further reduction in headcount in 2020 to 420 full-time equivalents. VR Smart Finanz sources from selected divisions with the aim of enabling it to leverage synergies in the DZ BANK Group and benefit from divisions that operate as centers of expertise. A key project in this regard is the outsourcing of IT operations to DZ BANK, which is to be implemented in a number of stages by the end of 2020. In addition, it is planned to sell VR FACTOREM GmbH to DZ BANK in the first half of 2020, as a result of which the sales activities in non-strategic areas of business will be ended.

In 2020, VR Smart Finanz will continue to focus on joint marketing with the cooperative banks and on the objective of tapping into the available potential for income and growth from small businesses, the self-employed, and the (lower) SME segment.

VR Smart Finanz is forecasting a sharp increase in the volume of business and number of customers in 2020, which will be achieved by focusing on marketing, expanding collaboration with banks offering significant potential, and accelerating the creation of new sales channels. At the same time, it is planning to implement specific measures to increase customer loyalty and thereby influence the portfolio structure. A significant rise in volume is expected particularly in connection with the digitalized and automated 'VR Smart flexibel' business loan and 'VR Smart express' asset finance businesses, as a result of which **net interest income** is projected to increase sharply year on year.

The greater level of collaboration with the cooperative banks and the increase in business volumes will also be reflected in much higher **bank commissions** and **fee and commission expenses**.

Based on a conservative risk projection and the increase in business volume, it is anticipated that there will be a significant rise in **loss allowances**. As a consequence of the growth in the profitable 'VR Smart express' and 'VR Smart flexibel' financing solutions, the margin after risk is forecast to remain constant in the portfolio as a whole.

Following completion of the sale of the non-strategic businesses, the reduction in headcount, and the progressive automation of the financing solutions, **administrative expenses** are expected to fall slightly.

This will also be reflected in a substantial improvement in the **cost/income ratio** and **regulatory RORAC**. The anticipated significant increase in business volume, combined with constant margins and greatly diminishing effects from the transformation program, is projected to lead to a substantial improvement in **profit before taxes** from ordinary activities.

4.9 DVB

DVB's outlook for 2020 is determined by sector-specific developments and macroeconomic factors. Moreover, the strategic considerations that emerged during 2018 will continue to have an impact on DVB's business performance in 2020. In this context, DVB sold its land transport finance business in December 2018 (transaction completed on May 3, 2019). In the first quarter of 2019, it sold its aviation business[1] and its wholly owned subsidiary LogPay Financial Services GmbH (transaction completed on October 30, 2019).

Following the sale of core business units in 2019, the Board of Managing Directors has decided, after due consultation, to allow the remaining portfolios to run off. As a result, DVB will continue to manage its existing business as a fully operational bank but, in the shipping finance business, cease active marketing and, as a rule, not enter into any new business.

In view of the general state of transport markets and the aforementioned strategic decisions, the objectives for 2020 are as follows:

- Complete the sale and carve-out of AIM and AAM, probably during the first half of 2020
- Fulfill and deliver all post-completion activities and obligations in connection with the three transactions referred to above
- Continue to allow the maritime portfolio to run off; actively wind down the NPL portfolio
- Focus on simplifying the operating model while carrying out the run-off plan.
- During the transformation of the business model, DVB will remain a reliable partner to its customers, business partners, and other relevant stakeholders by maintaining a constant dialogue and continuing to fulfill its obligations under existing agreements in a thorough and professional manner.

Overall, DVB's projected financial performance in 2020 will be heavily influenced by conditions in the maritime market and the decision of the Board of Managing Directors to allow the bank's remaining portfolios to run off. The bank is committed to achieving the objectives outlined above and living up to its reputation as a reliable and solid financial institution. DVB is optimistic that its results for 2020 will be in line with the financial planning and will meet stakeholders' expectations. For 2020, DVB currently anticipates that it will generate a **loss before taxes** in the mid double-digit millions of euros.

4.10 DZ BANK – holding function

The **loss before taxes** is forecast to be significantly lower in 2020.

Net interest income is predicted to rise sharply in 2020 overall.

Administrative expenses in 2020 will probably be slightly lower than the 2019 level. However, it is anticipated that expenses for the bank levy and contributions (particularly the BVR protection scheme) will increase slightly in the period covered by the forecast. Likewise, IT and project expenses are expected to rise a little.

By contrast, there will probably be a slight fall in the group function expenses and the other expenses for the benefit of the group and local cooperative banks.

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[1] The transfer of the aviation finance portfolio, the employees, and other parts of the business infrastructure was completed on November 18, 2019; only a small portion of the credit portfolio was still to be transferred in stages as at the start of 2020. The transaction relating to the aviation investment management (AIM) and aviation asset management (AAM) activities has not yet been completed. The sale is expected to be completed by the end of the first half of 2020.

VI Combined opportunity and risk report

1 Disclosure principles

In its capacity as the parent company in the DZ BANK Group, DZ BANK is publishing this opportunity and risk report in order to meet the transparency requirements for opportunities and risks applicable to the DZ BANK Group as specified in **sections 114 and 117 of the German Securities Trading Act (WpHG)** and **section 315 of the German Commercial Code** (**HGB**) in conjunction with **German Accounting Standard (GAS) 20**. Furthermore, the opportunity and risk report meets the transparency requirements regarding opportunities and risks applicable to DZ BANK as a separate entity that are specified in **section 289 HGB** in accordance with GAS 20.

This report also implements the applicable international risk reporting requirements, specifically those set out in the following legal standards:

- International Accounting Standard **(IAS) 1.134–136** (capital)
- International Financial Reporting Standard **(IFRS) 7.31–42** (nature and extent of risks arising from financial instruments)
- **IFRS 4.38–39A** (nature and extent of risks arising from insurance contracts).

This does not include the legal standards below, because the required disclosures are not used to manage risk. In these instances, the disclosures are included in the notes to the consolidated financial statements ('notes'):

- Accounting-related credit disclosures in accordance with **IFRS 7.35F(a)–36(b)**: note 85
- Maturity analysis in respect of financial assets and financial liabilities in accordance with **IFRS 7.39(a) and (b)**: note 86
- Maturity analysis in respect of financial assets and financial liabilities in accordance with **IFRS 4.39(d)(i)**: note 86
- Claims rate trend for direct non-life insurance business and for the inward reinsurance business in accordance with **IFRS 4.39(c)(iii)**: note 42.

The requirements set out in IFRS 7 are generally limited to financial instruments, shifting the focus of reporting to credit risk, equity investment risk, market risk, and liquidity risk. In contrast, the DZ BANK Group takes a holistic view of all these risks when using risk management tools and when assessing the risk position. As a consequence, the groupwide risk management system not only covers risks that arise specifically in connection with financial instruments, but also all other relevant types of risk. This integrated approach is reflected in the opportunity and risk report.

The opportunity and risk report also includes information in compliance with those recommended risk-related disclosures that have been issued by the **Financial Stability Board** (FSB), the **European Banking Authority** (EBA), and the **European Securities and Markets Authority** (ESMA) that are intended to improve the usefulness of the disclosures in the decision-making process.

The quantitative disclosures in this opportunity and risk report are based on information that is presented to the Board of Managing Directors and used for internal management purposes (known as the **management approach**). This is designed to ensure the usefulness of the disclosures in the decision-making process.

The opportunity and risk report of the DZ BANK Group includes disclosures relating to **DZ BANK**. It is therefore a **combined opportunity and risk report** in accordance with section 315 (5) HGB in conjunction with GAS 20.22. A separate opportunity and risk report is not prepared for DZ BANK. Unless stated otherwise, the disclosures relating to the DZ BANK Group and the Bank sector also apply to DZ BANK.

Detailed information on individual **management units** is only provided in the opportunity and risk report if the units are of material significance to opportunity and risk management, potential opportunities, risk factors or the risk position, and if the situation in the subsidiaries differs substantially from the overall descriptions applicable to the DZ BANK Group. However, management units are always specifically mentioned where this is necessary to explain the amount, structure, and management of the risks in the DZ BANK Group, and the changes in these risks.

The disclosure of **non-financial risks in accordance with section 315c HGB in conjunction with section 289c HGB** is included in a separate non-financial statement within this Annual Report. The statement analyzes the negative consequences of the activities of the entities in the DZ BANK Group on economic units and persons outside the DZ BANK Group. The concept of risk in section 315c HGB therefore fundamentally differs from the standard concept of risk as defined in Basel Pillar 2, which is concerned with risks that affect the entities in the DZ BANK Group themselves. The risks as defined in Basel Pillar 2 are disclosed in this opportunity and risk report.

The DZ BANK Group and DZ BANK treat reputational risk and operational risk as non-financial risks subject to regulatory standards. Details on the management of these risks are included in sections 13 and 19 (Reputational risk) and in sections 14 and 20 (Operational risk).

DZ BANK Group

2 Summary

2.1 Material changes

2.1.1 Risk factors

As part of the annual appropriateness test relating to risk disclosure in the DZ BANK Group, the following risk factors that had been included in the 2018 opportunity and risk report were removed because they were found to be not material.

- Commercial-law environment
- UK exit from the EU (Brexit)
- Instability in Turkey
- Catalonian independence.

The risk factor relating to the capital requirement for market risk was assigned to the risk factor Basel IV.

2.1.2 ECB guides to the ILAAP and ICAAP

Since the start of 2019, the DZ BANK Group has applied the guides to the internal liquidity adequacy assessment process (ILAAP) and the internal capital adequacy assessment process (ICAAP) that were published by the ECB as part of the Single Supervisory Mechanism (SSM) in November 2018. In accordance with these guides, the DZ BANK Group manages both its liquidity adequacy and its capital adequacy from an economic perspective and from a normative internal perspective. This includes integration of the economic and normative internal perspectives within the ILAAP and within the ICAAP as well as integration between the ICAAP and the ILAAP.

Management of **liquidity adequacy** from an **economic perspective** is closely based on the method that was used until 2018. In this approach, a purely internal view is used to manage liquidity adequacy. This supports the aim of ensuring that all material risks in the DZ BANK Group and at DZ BANK affecting liquidity are covered by full liquidity adequacy. An internally specified management buffer is also held. The **normative internal perspective** is based on the liquidity ratios required under Pillar 1. Its objective is to assess the DZ BANK banking group’s ability to comply with regulatory minimum requirements (plus an internally specified management buffer).

The aim of the ICAAP is to ensure that, from two complementary perspectives (the economic and the normative internal perspectives), **capital resources are adequate** for an institution to be able to continue operating. Both perspectives are equally valid management approaches. They are integrated mainly on the basis of the risk inventory check, which the management uses to determine and specify the main risks in the DZ BANK Group.

The **economic perspective** is purely an internal perspective for managing **capital adequacy** with the aim of ensuring that all of the DZ BANK Group’s material capital risks are fully backed by capital plus an internally specified management buffer. According to the ICAAP guide, the economic perspective is based on the assumption of an institution’s continuity. Consequently, a notable change is that subordinated liabilities have not been included in the calculation of the DZ BANK Group’s available internal capital since the beginning of 2019. The new method therefore means that the level of economic capital adequacy is significantly lower than under the previous method. The assessment of current economic capital adequacy is supplemented by **stress tests** that analyze economic losses in scenarios covering all types of risk and in scenarios for specific risk types.

The **normative internal perspective** is based on the capital ratios in Pillar 1. Its objective is to ensure that the DZ BANK financial conglomerate and the DZ BANK banking group comply with regulatory minimum capital requirements (plus an internally specified management buffer), both in the current circumstances and in forward-looking scenarios. The normative internal perspective comprises three management dimensions: monitoring of actual regulatory KPIs, capital planning, and adverse stress tests.

2.1.3 Central market risk model

Also since the beginning of 2019, the aggregate risk capital requirement for market risk in the Bank sector has been determined centrally at DZ BANK, taking into account concentration and diversification effects. The procedures for determining market risk at sector level previously used locally in the management units have thus been superseded.

2.2 Opportunity and risk management system

2.2.1 Fundamental features

The DZ BANK Group and DZ BANK define **opportunities** as unexpected positive variances from the forecast financial performance. **Risks** result from adverse developments affecting financial position or financial performance, and essentially comprise the risk of an unexpected future liquidity shortfall or unexpected future losses. A distinction is made between liquidity and capital. Risks that materialize can affect both of these resources.

The **management of opportunities** in the DZ BANK Group and at DZ BANK is integrated into the annual strategic planning process. Strategic planning is designed to enable the group to identify and analyze market discontinuities based on different macroeconomic scenarios, trends, and changes in the markets, and forms the basis for evaluating opportunities. Opportunities that the management units identify as adding value are fed into the relevant business strategies.

Reports on future business development opportunities are based on the business strategies. As part of the general communication of the business strategies, employees are kept up to date about potential opportunities that have been identified.

The management of opportunities and risks forms an integral part of the groupwide strategic planning process. The risk management system is based on the risk appetite statement – the fundamental document for determining risk appetite in the DZ BANK Group – and the specific details of this appetite embodied in **risk strategies**, which are consistent with the business strategies and have been approved by the Board of Managing Directors. The **risk appetite statement** contains risk policy guidelines and risk strategy requirements applicable throughout the group. It also sets out quantitative requirements reflecting the risk appetite specified by the Board of Managing Directors.

Management and control tools are used in all areas of risk. These tools are subject to continual further development and refinement. The methods used for measuring risk are integrated into the risk management system. Risk model calculations are used to manage the DZ BANK Group, DZ BANK, and the other management units.

DZ BANK and its subsidiaries have a **risk management system** that covers all material risks and is updated on an ongoing basis in line with changes to the business and regulatory environment. The organizational arrangements, methods, and IT systems that have been implemented – especially the limit system based on risk-bearing capacity, stress testing of all material risk types, and internal reporting – are designed to enable the DZ BANK Group and DZ BANK to identify material risks at an early stage and initiate the necessary control measures. This particularly applies to **risks that could affect the group's survival as a going concern**.

The tools used for the purposes of risk management are also designed to enable the DZ BANK Group to respond appropriately to **significant market movements**. Possible changes in risk factors, such as a deterioration in credit ratings or the widening of credit spreads on securities, are reflected in adjusted risk parameters in the mark-to-model measurement of credit risk and market risk. Conservative crisis scenarios for short-term and medium-term liquidity are intended to ensure that liquidity risk management also takes adequate account of market crises.

The risk management system is more detailed than the system for the **management of opportunities** because risk management is subject to comprehensive statutory requirements and is also of critical importance to the continued existence of DZ BANK and the DZ BANK Group as going concerns. The management of opportunities and risks is an integral part of the strategic planning process.

2.2.2 KPIs

Risks affecting liquidity and capital resources are managed on the basis of groupwide liquidity risk management and groupwide risk capital management. The purpose of **liquidity risk management** is to ensure adequate levels of liquidity reserves are in place in respect of risks arising from future payment obligations (liquidity adequacy). The aim of **risk capital management** is to ensure the availability of capital resources that are commensurate with the risks assumed (capital adequacy).

The key risk management figures used in the DZ BANK Group are the minimum liquidity surplus and the liquidity coverage ratio (LCR) in respect of **liquidity**, economic capital adequacy, the coverage ratio for the financial conglomerate, and the regulatory capital ratios in respect of **capital**, plus the leverage ratio and the minimum requirement for own funds and eligible liabilities (MREL).

The **minimum liquidity surplus**, which reflects economic liquidity adequacy, and **economic capital adequacy** are calculated using the methods developed by DZ BANK. Disclosures on the method used to calculate these key figures can be found in sections 6.2.5 and 7.2.1. Information on the relationship between these figures and the balance sheet can be found in sections 6.2.6 and 7.2.1. The other KPIs mentioned above are calculated in accordance with the methods stipulated by the supervisory authorities.

The minimum liquidity surplus and economic capital adequacy cannot be reconciled directly to individual line items in the consolidated financial statements because they are forward-looking considerations. Although these key figures are based on the consolidated financial statements, a number of other factors are used in their calculation. The disclosure of these figures in the opportunity and risk report is in accordance with the financial reporting standards to be applied in external risk reporting.

2.2.3 Management units

All DZ BANK Group entities are integrated into the groupwide opportunity and risk management system. DZ BANK and its main subsidiaries – also referred to as management units – form the core of the financial services group. The DZ BANK Group largely comprises the regulatory DZ BANK banking group and R+V.

The insurance business operated at R+V differs in material respects from the other businesses of the DZ BANK Group. For example, actuarial risk is subject to factors that are different from those affecting risks typically assumed in banking business. Furthermore, policyholders have a share in any gains or losses from investments in connection with life insurance, as specified in statutory requirements, and this must be appropriately taken into account in the measurement of risk. Not least, the supervisory authorities also treat banking business and insurance business differently and this is reflected in differing regulatory regimes for banks and insurance companies.

Because of these circumstances, two sectors – Bank sector and Insurance sector – have been created within the DZ BANK Group for the purposes of risk management. The management units are assigned to these sectors as follows:

Bank sector:
- DZ BANK
- BSH
- DVB
- DZ HYP
- DZ PRIVATBANK
- TeamBank
- UMH
- VR Smart Finanz

Insurance sector:
- R+V.

The management units represent the operating segments of the DZ BANK Group. From a risk perspective, the 'DZ BANK' management unit equates to the central institution and corporate bank operating segment and the holding function.

DZ HYP has applied the **waiver** pursuant to section 2a (1), (2), and (5) of the German Banking Act (KWG) in conjunction with article 7 (1) of the Capital Requirements Regulation (CRR), under which – provided certain conditions are met – the regulatory supervision at individual bank level may be replaced by supervision of the entire banking group.

The management units are deemed to be material in terms of their contribution to the DZ BANK Group's aggregate risk and are therefore directly incorporated into the group's risk management system. The other subsidiaries and investee entities are included in the system indirectly as part of equity investment risk.

The management units' subsidiaries and investees are also included in the DZ BANK Group's risk management system – indirectly via the majority-owned entities – with due regard to the minimum standards applicable throughout the group.

Risk is managed groupwide on a consolidated basis. Risks arising in the subsidiaries therefore impact the risk-bearing capacity of DZ BANK as the group parent.

2.3 Potential opportunities and risk factors

The DZ BANK Group and DZ BANK have the benefit of significant **potential opportunities** from the strategic focus on the cooperative banks and from increasing digitalization, especially in the payments processing business. In addition, the funding opportunities in money and capital markets derived from the credit ratings enjoyed by DZ BANK and its subsidiaries enable the entities in the DZ BANK Group to pursue a wider range of business options.

The DZ BANK Group and DZ BANK are exposed to risk factors that could have an adverse impact on liquidity adequacy and capital adequacy. For example, the **regulatory framework** for the banking industry remains characterized by ever tighter regulatory requirements. These developments particularly have an impact on business risk.

The DZ BANK Group and DZ BANK are also exposed to the following **macroeconomic risk factors**:

- Low interest rates
- Global trade disputes
- Economic divergence in the eurozone
- Challenging shipping and offshore markets
- Climate change.

A potential **rating downgrade** for DZ BANK or its subsidiaries represents a further risk factor across all risk types for the DZ BANK Group and DZ BANK.

Risk factors specific to each type of risk also determine the extent of risk exposure in the DZ BANK Group and at DZ BANK. Detailed disclosures in this regard are provided in sections 8 to 20, in each case under the header 'Specific risk factors'.

2.4 Risk

2.4.1 Features of managed risks

The main **features of the directly managed risks** and their significance for the operating segments in the Bank and Insurance sectors are shown in Fig. 5 and Fig. 6. The risks shown correspond to the outcome of the risk inventory check carried out for 2019 and reflect the risks that are material to the DZ BANK Group and DZ BANK.

To ensure that the presentation of the disclosures remains clear, the risk management system disclosures included in the opportunity and risk report are limited to the main material entities in the group (indicated in Fig. 5 by a dot on a dark gray background). This selection is based on a materiality assessment, which takes into account the contribution of each management unit to the DZ BANK Group's overall risk for each type of risk. However, the figures presented in the opportunity and risk report cover all the management units included in the internal reporting system (indicated additionally in Fig. 5 by a dot on a light gray background).

The following risks have been identified as not material:

- Funding risk (Bank sector)
- Strategic risk (Bank sector and Insurance sector).

FIG. 5 – RISKS AND OPERATING SEGMENTS IN THE BANK SECTOR[1]

Risk

	Risk type	Definition	Specific risk factors
	RISK NOT COVERED BY CAPITAL		
	Liquidity risk	Risk that cash and cash equivalents will not be available in sufficient amounts to ensure that payment obligations can be met (insolvency risk)	– Withdrawal of funding – Greater collateral requirements – Changes in the fair value of financial instruments – Exercise of drawing rights – Exercise of termination rights – Conclusion of new business to uphold reputation – Repurchase of products to uphold reputation – Increased liquidity requirement for intraday payments – Restrictions on currency-related liquidity generation via currency swaps
	RISK COVERED BY CAPITAL		
Financial risks	**Credit risk** – Traditional credit risk – Issuer risk – Replacement risk	Risk of losses arising from the default of counterparties (borrowers, issuers, other counterparties) and from the migration of the credit ratings of these counterparties	– Increase in the concentration of volume in counterparties, industries, or countries – Accumulation of exposures with longer terms to maturity
Financial risks	**Equity investment risk**	Risk of losses arising from negative changes in the fair value of that portion of the long-term equity investments portfolio for which the risks are not included in other types of risk	Increased requirement for the recognition of impairment losses on the carrying amounts of investments – as a result of impaired carrying amounts – as a result of a lack of information in the case of non-controlling interests
Financial risks	**Market risk** – Interest-rate risk – Equity risk – Fund price risk – Currency risk – Commodity risk – Spread risk and migration risk – Asset-management risk – Market liquidity risk	– Risk of losses that could arise from adverse changes in market prices or in the parameters that influence prices (market risk in the narrow sense of the term) – Risk of losses that could arise from adverse changes in market liquidity (market liquidity risk)	– Widening of credit spreads on government and corporate bonds – Shortages of market liquidity
Financial risks	**Technical risk of a home savings and loan company**[2] – New business risk – Collective risk	– Risk of a negative impact from possible variances compared with the planned new business volume (new business risk) – Risk of a negative impact that could arise from variances between the actual and forecast performance of the collective building society operations caused by significant long-term changes in customer behavior unrelated to changes in interest rates (collective risk)	– Decline in new business – Changed customer behavior (unrelated to changes in interest rates)
Financial risks	**Business risk**	Risk of losses arising from earnings volatility for a given business strategy and not covered by other types of risk	– Costs of regulation – Competition based on pricing and terms – Greater competition in capital markets business – New competitors in transaction banking
Non-financial risks	**Reputational risk**[3]	Risk of losses from events that damage confidence, mainly among customers (including the cooperative banks), shareholders, employees, the labor market, the general public, and the supervisory authorities, in the entities in the Bank sector or in the products and services that they offer	– Decrease in new and existing business – Backing of stakeholders is no longer guaranteed
Non-financial risks	**Operational risk**	Risk of losses from human behavior, technological failure, weaknesses in process or project management, or external events	HR risk: – Business interruption caused by strikes – Insufficient availability of employees and skills IT risk: Malfunctions or breakdowns in data processing systems Outsourcing risk: Disruptions to outsourced processes and services Legal risk: Adverse changes in the legal environment Tax risk: – Adverse changes in the tax framework – Adverse changes in the interpretation by tax authorities of the existing tax framework – Adverse changes in non-tax rules – Retrospective tax liabilities Compliance risk: Violations of legal provisions Risks in connection with the (consolidated) financial reporting process: deficiencies in external financial reporting

1 Apart from migration risk on traditional loans, which are covered by the capital buffer.
2 Including business risk and reputational risk of BSH.
3 The Bank sector's reputational risk is contained in the risk capital requirement for business risk. BSH's reputational risk, which is covered mainly by the technical risk of a home savings and loan company, is not included here.

Risks		Operating segments (management units)							
Risk management KPIs disclosed		DZ BANK	BSH	DVB	DZ HYP	DZ PRIVAT BANK	TeamBank	UMH	VR Smart Finanz
– Liquid securities – Unsecured short-term and medium-term funding – Minimum liquidity surplus – LCR	Section 6.2.6 Section 6.2.6 Section 6.2.7 Section 6.3.3	**•**	**•**	**•**	**•**	**•**	**•**		**•**
– Lending volume – Risk capital requirement	Sections 8.6, 8.7, and 8.8 Section 8.10	**•**	**•**	**•**	**•**	•	**•**		•
– Carrying amounts of investments – Risk capital requirement	Section 9.5	**•**	**•**	**•**	•		•	•	•
– Value-at-risk – Risk capital requirement	Section 10.7.1 Section 10.7.2	**•**	**•**	**•**	**•**	•	•	**•**	•
Risk capital requirement	Section 11.5		**•**						
Risk capital requirement	Section 12.4	**•**	•	**•**	•	**•**	•	•	**•**
		•	•	**•**	•	**•**	•	•	**•**
– Loss events and losses – Risk capital requirement	Section 14.12 Section 14.13	**•**	•	**•**	**•**	**•**	•	**•**	•

Management unit disclosures in the opportunity and risk report:

• Quantitative and qualitative • disclosures Quantitative disclosures Not relevant

FIG. 6 – RISKS IN THE INSURANCE OPERATING SEGMENT AND SECTOR

	Risk type	Definition	Specific risk factors	Risk management KPIs disclosed	
	RISK COVERED BY CAPITAL PURSUANT TO SOLVENCY II				
Financial risks	**Actuarial risk** – Life actuarial risk – Health actuarial risk – Non-life actuarial risk	– Life actuarial risk: Risk arising from the assumption of life insurance obligations in relation to the risks covered and the processes used in the conduct of this business – Health actuarial risk: Risk arising from the assumption of health and casualty insurance obligations in relation to the risks covered and the processes used in the conduct of this business – Non-life actuarial risk: Risk arising from the assumption of non-life insurance obligations in relation to the risks covered and the processes used in the conduct of this business	– Life actuarial risk: Adverse change in the calculation assumptions for life insurance over the lifetime of the contract – Health actuarial risk: Higher drawdown of benefits by health insurance policyholders – Non-life actuarial risk: Unexpected rise in claims incurred	– Claims rate trend in non-life insurance – Overall solvency requirement	Section 16.6 Section 16.7
Financial risks	**Market risk** – Interest-rate risk – Spread risk – Equity risk – Currency risk – Real-estate risk – Concentration risk	Risk arising from fluctuation in the level or volatility of market prices of financial instruments that have an impact on the value of the assets and liabilities of the entity	– Rise in interest rates or widening of credit spreads – Deterioration of the financial circumstances of issuers or debtors	– Lending volume – Overall solvency requirement	Section 17.4 Section 17.5
Financial risks	**Counterparty default risk**	Risk of possible losses due to unexpected default or deterioration in the credit standing of counterparties or debtors of insurance or reinsurance companies over the subsequent 12 months	Deterioration of counterparties' financial circumstances	– Lending volume – Overall solvency requirement	Section 17.4 Section 18.4
Non-financial risks	**Reputational risk**[1]	Risk of losses that could arise from possible damage to the reputation of R+V or of the entire industry as a result of a negative perception among the general public	– Decrease in new and existing business – Backing of stakeholders is no longer guaranteed		
Non-financial risks	**Operational risk**	Risk of loss arising from inadequate or failed internal processes, personnel, or systems, or from external events (including legal risk)	HR risk: Insufficient availability of employees and skills IT risk: Malfunctions or breakdowns in data processing systems Legal risk: Adverse changes in the legal environment Tax risk: – Adverse changes in the tax framework – Changes in the interpretation by tax authorities of the existing tax framework – Retrospective tax liabilities	Overall solvency requirement	Section 20.7
	RISK COVERED BY CAPITAL PURSUANT TO SOLVENCY I				
	Risks from entities in other financial sectors	The entities in other financial sectors mainly consist of pension funds and occupational pension schemes	Generally corresponding to the risk factors for risks backed by capital pursuant to Solvency II	Overall solvency requirement	Section 21

1 The Insurance sector's reputational risk is included in the overall solvency requirement for life actuarial risk (lapse risk).

2.4.2 Risk profile

The DZ BANK Group's **business model** and the associated business models used by the management units (see section I.1 of the (group) management report) shape the risk profile of the group. The main risks associated with the business models of the management units are shown in Fig. 5 and Fig. 6. The businesses operated by the DZ BANK Group and DZ BANK that have a significant impact on the risk profile are described under 'Business background and risk strategy' within the sections of the opportunity and risk report covering the different risk types.

The values for the **risk-related KPIs** presented in Fig. 7 reflect the liquidity risks and the risks backed by capital assumed by the DZ BANK Group and DZ BANK. They illustrate the **risk profile** of the DZ BANK Group. The values for these KPIs are compared against the (internal) threshold values specified by the Board of Managing Directors of DZ BANK with due regard to the business and risk strategies – also referred to below as **risk appetite** – and against the (external) minimum targets laid down by the supervisory authorities.

The interaction between the risk profile and risk appetite is explained in section 6 in connection with liquidity adequacy, and in section 7 in connection with capital adequacy.

FIG. 7 – RISK-RELATED KPIS

	Measured figure		Internal minimum threshold value[1]		External minimum target	
	Dec. 31, 2019	Dec. 31, 2018	2019	2018	2019	2018
LIQUIDITY ADEQUACY						
DZ BANK Group (economic perspective)						
Economic liquidity adequacy (€ billion)[2]	12.5	12.0	4.0	4.0	0.0	0.0
DZ BANK banking group						
Liquidity coverage ratio (%)	144.6	141.4	110.0	110.0	100.0	100.0
CAPITAL ADEQUACY						
DZ BANK Group (economic perspective)						
Economic capital adequacy (%)[3]	159.3	170.3	120.0	120.0	100.0	100.0
DZ BANK financial conglomerate (normative internal perspective)						
Coverage ratio for the financial conglomerate (%)[4,5]	171.9	174.0	120.0	120.0	100.0	100.0
DZ BANK banking group (normative internal perspective)						
Common equity Tier 1 capital ratio (%)[5,6]	14.4	13.7	11.5	11.0	9.8	8.8
Tier 1 capital ratio (%)[5,6]	15.9	14.3	13.0	12.5	11.3	10.3
Total capital ratio (%)[5,6]	17.9	16.8	15.0	14.5	13.3	12.3
Leverage ratio (%)[5]	4.9	4.3	3.5	3.5		
MREL ratio (%)[7]	11.4	14.4	8.5		8.2	8.2

1 As specified by the Board of Managing Directors.
2 The measured value relates to the stress scenario with the lowest minimum liquidity surplus. The internal threshold value relates to the observation threshold.
3 The internal threshold value is the amber threshold in the traffic light system for managing and monitoring economic capital adequacy. The value originally measured as at December 31, 2018 was 167.8 percent and has been adjusted due to the scheduled recalculation of the overall solvency requirement for the Insurance sector.
4 Figure measured as at December 31, 2019: Preliminary coverage ratio. Figure measured as at December 31, 2018: Final coverage ratio.
5 Measured values based on full application of the CRR.
6 The external minimum targets are the binding regulatory minimum capital requirements. Details on the minimum capital requirements can be found in section 7.3.3.
7 Measured value as at September 30, 2019 rather than as at December 31, 2019.

Not available

The DZ BANK Group met the internal threshold values and external minimum targets on every measurement date/every reporting date in 2019. The **solvency** of DZ BANK or its subsidiaries was never in jeopardy on any risk measurement date during the reporting period. By holding liquidity reserves, the DZ BANK Group and DZ BANK are able to protect their liquidity against any potential crisis-related threats. They also complied with regulatory requirements for liquidity adequacy on every reporting date.

In addition, the DZ BANK Group remained within its economic **risk-bearing capacity** in 2019 and also complied with regulatory requirements for capital adequacy on every reporting date.

3 Fundamental principles of managing opportunities and risks

3.1 Regulatory framework for risk management

The **conglomerate-wide risk management system** takes into account the statutory requirements specified in section 25 (1) of the German Supervision of Financial Conglomerates Act (FKAG) in conjunction with section 25a KWG and the German Minimum Requirements for Risk Management for Banks and Financial Services Institutions (MaRisk BA). In respect of risk management for the relevant management units, the DZ BANK Group also observes the requirements specified in sections 26 and 27 of the German Act on the Supervision of Insurance Undertakings (VAG) and section 28 of the German Capital Investment Code (KAGB) in conjunction with the German Minimum Requirements for Risk Management for Investment Management Companies (KAMaRisk).

When DZ BANK designed the risk management system of the DZ BANK Group and DZ BANK, it followed the guidance provided by the EBA and the European Insurance and Occupational Pensions Authority (EIOPA), together with the pronouncements of the Basel Committee on Banking Supervision (BCBS) and the Financial Stability Board (FSB) on risk management issues.

In the year under review, DZ BANK updated its **recovery plan** in accordance with the requirements specified by banking supervisors. The recovery plan is based on the requirements specified in the German Bank Recovery and Resolution Act (SAG) and in other legal sources, especially Commission Delegated Regulation (EU) No. 2016/1075, which implements various EBA guidelines and also includes specific national stipulations. The German Minimum Requirements for the Design of Recovery Plans (MaSan) contains further relevant provisions. An updated recovery plan was prepared during the reporting year and submitted to the ECB.

In accordance with article 7 (2) of Regulation (EU) No. 806/2014, the Single Resolution Board (SRB) is the European regulator responsible under the Single Resolution Mechanism (SRM) for the preparation of resolution plans and for all decisions in connection with the resolution of all institutions that are under the direct supervision of the ECB. A group resolution plan is drawn up for institutions that are subject to supervision at consolidated level. The SRB works closely with the national resolution authorities (in 2019 in Germany, this was the Bundesanstalt für Finanzdienstleistungsaufsicht (BaFin) [German Federal Financial Supervisory Authority]). The **resolution plan** is aimed at ensuring the resolvability of the banking group. In accordance with section 42 (1) SAG, the resolution authority (BaFin) can demand that the institution provide it with comprehensive assistance in connection with drawing up and updating the resolution plan. For this reason, as in prior years, DZ BANK once again in 2019 supported the ongoing preparation of the resolution plan for the DZ BANK Group. It supplied the resolution authority with numerous analyses related to DZ BANK and completed standardized questionnaires.

3.2 Risk culture

The risk culture at DZ BANK is shaped by the high degree of responsibility assumed by the cooperative financial network for its members and for society. At DZ BANK, activities involving risk are based on the values of drive, integrity, and trust. The priority is on compliance with strategic and associated operating requirements when dealing with risk. The risk culture is reflected in the existing risk management processes and methods and in the conduct of employees.

The following principles apply in respect of employee conduct:

- Leadership culture: The management must set out clear expectations regarding the handling of risk and lead by example.
- Risk appetite: Employees must understand their roles and their part in the risk management system; they must assume responsibility for their decisions.
- Communications: Internal communications must be open and consensus-based. Alternative opinions must be respected and employees encouraged to analyze risk transparently.
- Employees and expertise: Employees must bear responsibility for conscious handling of risk. They must use the available expertise and undertake continuing professional development in a changing environment.
- Change management: Employees must learn from past experience and ensure the business model is sustainable by managing change proactively.

The key features of the risk culture are documented in a framework, which is available to all employees of DZ BANK.

3.3 Risk strategies

The exploitation of business opportunities and the systematic, controlled assumption of risk in relation to target returns form an integral part of corporate control in the DZ BANK Group and at DZ BANK. The activities resulting from the business model require the ability to identify, measure, assess, manage, monitor, and communicate opportunities and risks. The need to hold appropriate reserves of cash and to cover risks with adequate capital is also recognized as an essential prerequisite for the operation of the business and is of fundamental importance.

In all their activities, the DZ BANK Group and DZ BANK therefore observe a risk culture in which they only take on risk to the extent necessary to achieve their business objectives – taking account of the guiding principle of a ‘network-oriented central institution and financial services group’ – and to the extent that they have an adequate understanding of, and expertise in, measuring and managing the risk. The focus is on all material risks from the perspectives of capital/income and liquidity and on avoiding the aggressive assumption of risk.

In order to implement this principle, the Board of Managing Directors of DZ BANK has drawn up risk strategies for each of the material risks using the business strategies as a basis. The risk strategies each encompass the main risk-bearing business activities, the objectives of risk management (including the requirements for accepting or preventing risk), and the action to be taken to attain the objectives. The risk strategies are each valid for one calendar year.
The annual updating of the risk strategies is integrated with the strategic planning process and is carried out

by the Group Risk Controlling, Credit, Credit Services, and Strategy & Group Development divisions in consultation with other relevant divisions at DZ BANK and the subsidiaries concerned.

The risk strategies are described in the following sections covering the individual risk types.

3.4 Risk appetite

The entities in the DZ BANK Group define risk appetite as the nature and extent of the risks that will be accepted at group level or by the management units when implementing their business models. Risk appetite equates to the term 'risk tolerance' used by the supervisory authorities in a disclosure context.

The risk appetite statement formulates risk policy principles on risk tolerance in the DZ BANK Group. The principles are overarching statements that are consistent with the business model and the risk strategies. The qualitative principles are supplemented by quantitative key figures, for which threshold values are set internally. These key figures constitute the DZ BANK Group's risk-oriented KPIs. The values for the KPIs and the internal threshold values are shown in Fig. 7. The monthly overall risk report is used to monitor the internal threshold values.

Disclosures on the business model and the business strategies can be found in section I.1 (Business model and strategic focus) of the (group) management report.

3.5 Opportunity and risk-oriented corporate governance

3.5.1 Governance structure

The **risk management system** in the DZ BANK Group and at DZ BANK builds on the risk strategies adopted by the Board of Managing Directors of DZ BANK. It is based on three lines of defense that are interlinked and well established in the monitoring and control environment. Fig. 8 shows the governance structure for risk management.

The **three-lines-of-defense model** clarifies the understanding of risk management within the DZ BANK Group and sets out the roles and responsibilities.

The interaction between the three functional areas, or lines of defense, is intended to provide the basis for effective groupwide risk management. The tasks of the individual lines of defense are as follows:

First line of defense: Day-to-day assumption and management of risk; related reporting to the Board of Managing Directors

Second line of defense:
- Establishment and enhancement of a framework for risk management
- Monitoring of compliance with the framework in the first line of defense
- Related reporting to the Supervisory Board and Board of Managing Directors
- Second vote in credit decisions as defined in MaRisk
- Structuring and monitoring of compliance, data protection, and corporate security

Third line of defense:
- Process-independent examination and assessment of risk management and control processes in the first and second lines of defense.
- Reporting to the Board of Managing Directors, Supervisory Board, and Audit Committee

Independent auditors, together with banking and insurance supervisory authorities, form the **external control functions** and these functions regularly hold discussions with all three lines of defense. The supervisory authorities can specify key points to be covered by independent auditors in their audits of financial statements. The auditors report to the supervisory authorities on the findings of their audits of financial statements and special audits.

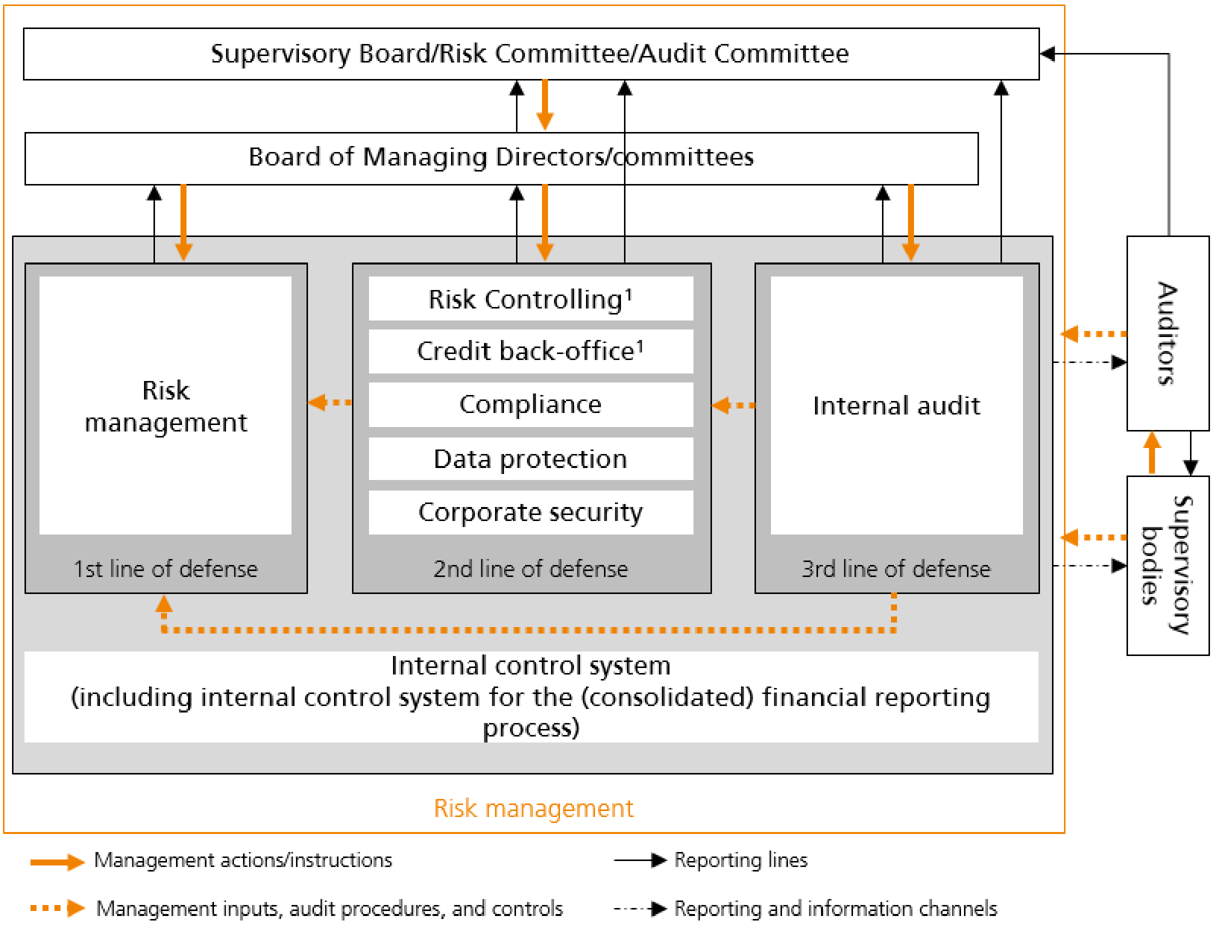
The role of the opportunity and risk management **committees** in the corporate governance structure is presented in section I.2.2.3 (Corporate management committees), which can be found in the 'DZ BANK Group fundamentals' chapter of the (group) management report.

3.5.2 Risk management

Risk management refers to the operational implementation of the risk strategies in the risk-bearing business units based on standards applicable throughout the group.

The management units make conscious decisions on whether to assume or avoid risks. They must observe guidelines and risk limits specified by the head office.

FIG. 8 – GOVERNANCE STRUCTURE OF RISK MANAGEMENT IN THE DZ BANK GROUP AND AT DZ BANK (SCHEMATIC DIAGRAM)



1 Risk Controlling and the Credit back-office division together form the risk management function in the narrower sense as specified in the EBA guidelines on internal governance.

The divisions responsible for risk management in the first line of defense are separated in terms of both organization and function from the divisions in the second and third lines of defense.

3.5.3 Risk control

Central Risk Controlling at DZ BANK is responsible for identifying, measuring, and assessing risk in the DZ BANK Group. This role includes early detection, full recording of data (to the extent that this is possible), and internal monitoring for all material risks. Risk Controlling also reports risks to the Supervisory Board, the Board of Managing Directors, and the management units.

Risk Controlling at DZ BANK lays down the fundamental requirements for the risk measurement methods to be used throughout the group and coordinates implementation with the risk control units in the other management units. The aim of this structure is to ensure that the management of risk capital is consistent throughout the group.

In cooperation with the other management units, Risk Controlling at DZ BANK establishes a groupwide risk reporting system covering all material types of risk based on specified minimum standards using methods agreed between the management units.

Both at DZ BANK and in the other management units, Risk Controlling is responsible for the transparency of risks assumed and aims to ensure that all risk measurement methods used are up to date. The risk control units in the management units also monitor compliance with the entity-related limits that have been set based on the risk capital allocated by DZ BANK. Risk Controlling at DZ BANK is also responsible for risk reporting at group level.

3.5.4 Credit back-office division

The Credit divisions of the entities in the Bank sector form the back office within the meaning of MaRisk. They are responsible for aspects of identifying, measuring, monitoring, and managing credit risk. These aspects include analyzing the risk (including ratings), approving or rejecting a credit decision with the back office's 'second vote', ensuring compliance with the credit risk strategy, and identifying and appropriately assessing the risks from loans to members of the governing bodies. The responsibilities of the back office also comprise the ongoing monitoring of loan exposures, including identifying and processing non-performing exposures and deciding on measures to be implemented if limits are exceeded, as well as the management of loan collateral. In the case of exposures that are relevant for management, the exposure throughout the group is taken into account and appropriate management guidance is given to the management units.

The Credit back-office division also specifies credit standards, processes, and procedures for the lending business and monitors compliance in a number of ways, notably through the comply-or-explain approach. In addition, the Credit divisions are responsible for supervising and updating the group credit risk reporting system, which complements the risk control reporting system.

3.5.5 Compliance

The Board of Managing Directors of DZ BANK and the Boards of Managing Directors of the other management units are responsible for compliance with legal provisions and requirements and for the principles and measures implemented for this purpose. To fulfill these duties, the Boards of Managing Directors generally appoint an independent compliance function.

The main tasks of the compliance function are to identify, manage, and mitigate compliance risk in order to protect customers, DZ BANK, the other entities in the DZ BANK Group, and their employees against breaches of legal provisions and requirements. The compliance function is also responsible for monitoring compliance with the legal provisions and requirements. Other tasks of the compliance function are to keep senior management up to date with new regulatory requirements and to advise the departments on implementing new provisions and requirements.

In accordance with the requirements of the Supervisory Review and Evaluation Process for Basel Pillar 2 (SREP), a single compliance framework must be established for the main entities in the DZ BANK Group. This framework must lay down rules on cooperation between the individual compliance functions and set out their authority and responsibilities.

The DZ BANK Group's compliance framework comprises the compliance policy. The policy includes requirements for establishing and organizing the compliance functions and details of their duties. It is supplemented by compliance standards, which specify how to implement these requirements at an operational level.

If individual requirements in the compliance standards cannot be fulfilled by a management unit, for example because they conflict with local rules or special legal requirements, the affected management unit must provide an explanation.

The DZ BANK Group's compliance framework is reviewed annually to check that it is up to date.

3.5.6 Data protection

The entities in the DZ BANK Group have introduced suitable precautions aimed at ensuring that they comply with data protection provisions relating to customers, business partners, and employees. This has involved, in particular, creating the function of data protection officer and issuing standard data protection principles. In addition, employees regularly receive updates on the currently applicable data protection provisions.

In the management units, independent data protection officers report to the relevant Board of Managing Directors. At the invitation of DZ BANK's data protection officer, the data protection officers in the management units meet at least once a year to share information on current data protection issues and discuss potential joint data protection activities.

3.5.7 Corporate security

DZ BANK and the other management units take into account the relevant regulatory requirements in the following areas of corporate security:

- Information security
- Business continuity management
- Outsourcing management.

In some management units, these areas of activity are not assigned to corporate security from an organizational perspective. The regulatory requirements are implemented in all of the group's subsidiaries by means of written specifications and compliance is monitored by DZ BANK.

Information security

The DZ BANK Group understands information security to be the operational security of processes, IT applications, and IT infrastructures.

DZ BANK has implemented an information security management system (ISMS). The rules that it contains, along with the methodological framework that it provides, are based on the ISO/IEC 27001:2013 standard. The ISMS is designed to ensure the confidentiality, integrity, availability, and authenticity of data and the media on which data is stored (IT applications, IT systems, and infrastructure components). The governance model implemented defines the methods, processes, roles, responsibilities, authority, and reporting channels that are necessary to achieve the strategic objectives and carry out the tasks of information security at operational level. It also provides an operational framework for the consistent quantitative and qualitative evaluation and management of information security risk, which forms part of operational risk.

Business continuity management

At DZ BANK, business continuity management provides structures and methodologies that will enable time-critical business processes to be maintained should an emergency arise (dealing with emergencies). Measures to prevent such emergencies are also developed and implemented (preventing emergencies). In this way, DZ BANK aims to ensure that it can maintain its operations in the event of emergencies, even though the level of activity may have to be reduced. This applies particularly if there are situations in which whole groups of individuals or significant parts of the buildings or IT infrastructure are affected.

At DZ BANK, time-critical business processes are identified by the head-office team for business continuity management using business impact analyses and protected by business continuity planning. DZ BANK's business continuity management system has been certified in accordance with the ISO 22301 2012 standard.

Outsourcing management

At DZ BANK, the central outsourcing management unit acts as the central point of contact for all issues relating to the management of external procurement. This includes outsourcing and management-relevant external procurement (external procurement of IT services and other purchases from third parties). The Central Outsourcing Management (COM) unit is responsible for developing, introducing, and monitoring the framework specifications as well as for appropriately implementing the statutory requirements in respect of regulated external procurement at DZ BANK.

The framework specifications for outsourcing management include general requirements for the management units in the Bank sector to ensure that the management of outsourcing is largely standardized throughout the DZ BANK Group. The Insurance sector is subject to separate regulatory requirements that are described in internal guidance issued by R+V.

Further disclosures on outsourcing risk can be found in section 14.7.

3.5.8 Control functions

Internal audit

The **internal audit** departments of DZ BANK and all the main subsidiaries are responsible for non-process-specific control and monitoring tasks. They carry out systematic, regular risk-based audits focusing on compliance with statutory and regulatory requirements. The internal audit departments also review and assess risk management and the internal control system to ensure that they are fully operational and effective, and that processing is properly carried out. In addition, they monitor the action taken in response to audit findings to ensure that identified problems have been rectified.

The internal audit departments at DZ BANK and the other management units report to the chief executive officer or other senior managers of the unit concerned.

DZ BANK's internal audit department is responsible for internal audit tasks at group level. These tasks include, in particular, the coordination of audits involving multiple entities, the implementation of which lies within the remit of the individual internal audit departments in the management units concerned, and the evaluation of individual management unit audit reports of relevance to the group as a whole. Cooperation between internal audit departments in the DZ BANK Group is governed by a separate set of rules and arrangements.

Supervisory Board

The Board of Managing Directors reports to the Supervisory Board of DZ BANK four times a year about the risk situation, the risk strategies, and the status and further development of the risk management system of the DZ BANK Group and DZ BANK. The Board of Managing Directors also provides the Supervisory Board with reports about significant loan and investment exposures and the associated risks, again four times a year. The Supervisory Board discusses these issues with the Board of Managing Directors, advises it, and monitors its management activities. The Supervisory Board is involved in decisions of fundamental importance.

The Supervisory Board has set up a Risk Committee, which addresses issues related to overall risk appetite and risk strategy. The chairman of the Risk Committee reports to the full Supervisory Board four times a year on the material findings of the committee's work.

At least quarterly, the Board of Managing Directors makes the centrally produced risk reports available to the members of the Risk Committee and the other members of the Supervisory Board. The chairman of the Risk Committee informs the full Supervisory Board about the main content of these reports no later than at its next meeting.

External control functions

Independent **auditors** carry out audits pursuant to section 29 (1) sentence 2 no. 2a KWG in conjunction with section 25a (1) sentence 3 KWG in relation to the risk management system, including the internal control functions, of the entities in the Bank sector. For the Insurance sector, verification of the Solvency II balance sheet is carried out pursuant to section 35 (2) VAG and an audit of the early-warning system for risk, including the internal monitoring system of R+V, is carried out pursuant to section 35 (3) VAG in conjunction with section 317 (4) HGB and section 91 (2) of the German Stock Corporation Act (AktG).

The **banking and insurance supervisory authorities** also conduct audits focusing on risk.

3.5.9 General internal control system

The objective of DZ BANK's internal control system and the corresponding control systems in other management units is to ensure the effectiveness and efficiency of the risk management activities within the DZ BANK Group and at DZ BANK by means of basic principles, action plans, and procedures.

Organizational structures and controls built into work processes serve to ensure that the monitoring of risk management activity is integrated into processes. IT systems are systematically protected by authority-dependent management of authorizations and by technical security measures, the aim of which is to prevent unauthorized access both within and outside management units.

3.5.10 Internal control system for the (consolidated) financial reporting process

Objective and responsibilities

DZ BANK is subject to a requirement to prepare consolidated financial statements and a group management report as well as separate financial statements and a management report. The primary objective of external (consolidated) financial reporting in the DZ BANK Group and at DZ BANK is to provide decision-useful information for the users of the reports. This includes all activities to ensure that (consolidated) financial reporting is properly prepared and that material violations of accounting standards – which could result in the provision of inaccurate information to users or in mismanagement of the group – are avoided with a sufficient degree of certainty.

In order to limit operational risk in this area of activity, DZ BANK and its subsidiaries have set up internal control systems for the (consolidated) financial reporting process as an integral component of the control systems put in place for the general risk management process. In this context, the activities of employees, the implemented controls, the technologies used, and the design of work processes are structured to ensure that the objectives associated with (consolidated) financial reporting are achieved.

Overall responsibility for (consolidated) financial reporting lies in the first instance with Group Finance and Group Risk Controlling at DZ BANK, with all the consolidated entities in the DZ BANK Group responsible for preparing and monitoring the quantitative and qualitative information required for the consolidated financial statements.

Instructions and rules

The methods to be applied within the DZ BANK Group in the preparation of the consolidated financial statements are set out in writing in a group manual. The methods to be applied within DZ BANK in the preparation of the separate financial statements are documented in a written set of procedural rules. Both of these internal documents are updated on an ongoing basis. The basis for external risk reporting is the disclosure policy approved by the Board of

Managing Directors. This policy sets out the principles and fundamental decisions for the methods, organizational structure, and IT systems to be used in risk disclosure in the DZ BANK Group and at DZ BANK. The instructions and rules are audited to assess whether they remain appropriate and are amended in line with changes to internal and external requirements.

Resources and methods

The processes set up at DZ BANK and its subsidiaries aim to facilitate (using suitable IT systems) efficient risk management in respect of financial reporting, based on the guidelines set by the Finance working group and taking into account the rules in the risk manual and the policy on risk disclosure.

The group's financial reporting process is decentralized. Responsibility for preparing and checking the quantitative and qualitative information required for the consolidated financial statements lies with the organizational units used for this purpose in the entities of the DZ BANK Group. The Group Finance and Group Risk Controlling divisions at DZ BANK implement the relevant controls and checks in respect of data quality and compliance with the DZ BANK Group rules. Guidelines for the management units' risk control departments on data quality management and the internal control system set out the standards for ensuring the quality of data in the process for managing economic capital adequacy.

The organizational units post the accounting entries for individual transactions. The consolidation processes are carried out by DZ BANK's Group Finance division and by the accounting departments of each entity in the DZ BANK Group. The purpose of this structure is to ensure that all accounting entries and consolidation processes are properly documented and checked.

Financial reporting, including consolidated financial reporting, is chiefly the responsibility of employees of DZ BANK and the other organizational units used for this purpose in the entities of the DZ BANK Group. If required, external experts are brought in for certain accounting-related calculations as part of the financial reporting process, such as determining the defined benefit obligation and valuing collateral.

Consolidated financial reporting is based on mandatory workflow plans agreed between DZ BANK's Group Finance division and the individual accounting departments of the organizational units within the DZ BANK Group. These plans set out the procedures for collating and generating the quantitative and qualitative information required for the preparation of statutory company reports and which are necessary for the internal management of the operating units within the DZ BANK Group.

Generally accepted valuation methods are used in the preparation of the consolidated financial statements and group management report, and the separate financial statements and the management report. These methods are regularly reviewed to ensure they remain appropriate.

In order to ensure the efficiency of the (consolidated) financial reporting system, the processing of the underlying data is extensively automated using IT systems. Control mechanisms are in place with the aim of ensuring the quality of processing and are one of the elements used to limit operational risk. (Consolidated) accounting input and output data undergoes automated and manual checks.

Business continuity plans have also been put in place. These plans are intended to ensure the availability of HR and technical resources required for the (consolidated) accounting and financial reporting processes.

Information technology

The IT systems used for (consolidated) financial reporting have to satisfy the applicable security requirements in terms of confidentiality, integrity, availability, and authenticity. Automated controls are used to ensure that the processed (consolidated) accounting data is handled properly and securely in accordance with the relevant requirements. The controls in IT-supported (consolidated) accounting processes include, in particular, validation procedures to ensure consistent issue of authorizations, verification of master data modifications, logical access controls, and change management validation procedures in connection with developing, implementing, or modifying IT applications.

The IT infrastructure required for the use of electronic (consolidated) accounting systems is subject to the security controls implemented on the basis of the general security principles for data processing at DZ BANK and in the other entities of the DZ BANK Group.

The information technology used for consolidated accounting purposes is equipped with the functionality to enable it to handle the journal entries in individual organizational units as well as the consolidation transactions carried out by DZ BANK's group accounting department and by the accounting departments in the subgroups.

IT-supported (consolidated) accounting processes are audited as an integral part of the internal audits carried out by the internal audit departments at DZ BANK and the other entities in the DZ BANK Group.

Ensuring and improving effectiveness

The processes used are reviewed to ensure they remain appropriate and fit for purpose; they are adapted in line with new products, circumstances, or changes in statutory requirements. To guarantee and increase the quality of (consolidated) accounting at DZ BANK and the other entities in the DZ BANK Group, the employees charged with responsibility for financial reporting receive needs-based training in the legal requirements and the IT systems used. When statutory changes are implemented, external advisors and auditors are brought in to provide quality assurance for financial reporting. At regular intervals, the internal audit department audits the internal control system related to the process for (consolidated) financial reporting.

3.6 Risk management tools

3.6.1 Accounting basis

Accounting basis for risk measurement

The transaction data that is used to prepare the DZ BANK consolidated financial statements forms the basis for the measurement of risk throughout the group. The same applies to the separate financial statements of DZ BANK. A wide range of other factors are also taken into account in the calculation of risk. These factors are explained in more detail during the course of this opportunity and risk report.

The line items in the consolidated financial statements significant to risk measurement are shown in Fig. 9. The information presented is also applicable to the measurement of risk for the separate financial statements of DZ BANK and the measurement of its risk, which does not include the technical risk of a home savings and loan company or the risks incurred by the Insurance sector.

The sections below provide a further explanation of the link between individual types of risk and the consolidated financial statements.

A further breakdown of the line items in the consolidated financial statements used to determine **credit risk** is given in section 8.7.1.
The investments used for the purposes of measuring **equity investment risk** are the following items reported in note 56 of the notes to the consolidated financial statements: shares and other shareholdings, investments in subsidiaries, investments in associates, and investments in joint ventures.

In the **Bank sector**, the measurement of financial instruments both for the purposes of determining market risk and for financial reporting purposes is based on financial market data provided centrally. Discrepancies in carrying amounts arise from the differing treatment of impairment amounts in the market risk calculation and in the accounting figures. Differences also arise because the market risk calculation measures bonds on the basis of credit spreads using available market data whereas the accounting treatment uses liquid bond prices. If no liquid prices are available for bonds, issuer and credit spreads are also used to measure bonds for accounting purposes. With the exception of these differences, the disclosures relating to **market risk** reflect the fair values of the assets and liabilities concerned.

The measurement for the **technical risk of a home savings and loan company** is based on the loans and advances to banks and customers (home savings loans) and also the home savings deposits (deposits from banks and customers) described in notes 64 and 65 of the notes to the consolidated financial statements.

Insurance liabilities, as reported in the financial statements, are a key value for determining all types of **actuarial risk**. The line item Investments held by insurance companies is also used to determine all types of **market risk** and **counterparty default risk**. The line item Other assets is included in the computation of actuarial risk and counterparty default risk.

Operational risk, **business risk**, and **reputational risk** are measured independently of the balance sheet items reported in the consolidated financial statements.

The calculation of **liquidity risk** is derived from future cash flows, which in general terms are determined

FIG. 9 – RISK-BEARING LINE ITEMS IN THE CONSOLIDATED FINANCIAL STATEMENTS[1]

		BANK SECTOR													INSURANCE SECTOR								
		Credit risk				Market risk						Portfolio assignment[2]			Actuarial risk			Market risk					
Consolidated financial statements		Traditional credit risk	Issuer risk	Replacement risk	**Equity investment risk**	Interest-rate risk	Spread risk and migration risk	Equity risk	Currency risk	Fund price risk	Asset management risk	Trading portfolios	Non-trading portfolios	**Technical risk of a home savings and loan company**	Life	Health	Non-life	Interest-rate risk	Spread risk	Equity risk	Currency risk	Real-estate risk	**Counterparty default risk**
Risk-bearing assets	Loans and advances to banks	●		●		●	●		●			●	●	●									
	Loans and advances to customers	●				●	●		●			●	●	●									
	Derivatives used for hedging (positive fair values)			●		●	●	●	●	●		●	●										
	Financial assets held for trading		●	●		●	●	●	●	●		●											
	Investments		●	●	●	●	●	●	●	●			●										
	Investments held by insurance companies																	●	●	●	●	●	●
	Other assets														●	●	●						●
	Financial guarantee contracts and loan commitments	●				●			●				●										
Risk-bearing liabilities	Deposits from banks					●	●		●			●	●	●									
	Deposits from customers					●	●		●			●	●	●									
	Debt certificates issued including bonds					●	●	●	●	●		●	●										
	Derivatives used for hedging (negative fair values)			●		●	●	●	●	●	●	●	●										
	Financial liabilities held for trading			●		●	●	●	●	●		●											
	Insurance liabilities														●	●	●	●					

1 As liquidity risk is determined on the basis of all line items in the consolidated financial statements, the details for liquidity risk are not provided here for reasons of clarity.
2 Disclosures for the banking business.

from all of the balance sheet items in the consolidated financial statements.

Accounting basis for risk coverage

The link between available liquidity reserves, which are used to determine economic liquidity adequacy, and the consolidated balance sheet is described in section 6.2.6.

The link between available internal capital, which is used to determine economic capital adequacy, and the consolidated balance sheet is covered in section 7.2.1.

3.6.2 Measurement of risk and risk concentrations

Framework

Risk management in the DZ BANK Group is based on a **resource-oriented perspective of liquidity and capital**. The group uses this approach to implement the regulatory requirements for the internal liquidity adequacy assessment process (ILAAP) and the internal capital adequacy assessment process (ICAAP). A distinction is also made between **economic and regulatory liquidity adequacy and between economic and regulatory capital adequacy**. The impact of each risk type on both economic capital and economic liquidity is taken into consideration. The effect and materiality of the various types of risk may vary, depending on the resource in question.

Economic liquidity adequacy

To ascertain the DZ BANK Group's economic liquidity adequacy, the minimum surplus cash that would be available if various scenarios were to materialize within the following year is determined as part of the **measurement of liquidity risk**.

Concentrations of liquidity risk can occur primarily due to the accumulation of outgoing payments at particular times of the day or on particular days (concentrations of maturities), the distribution of funding across particular currencies, markets, products, and liquidity providers (concentrations of funding sources), and the distribution of liquidity reserves across particular currencies, ratings, and issuers (concentrations of reserves). There is no capital requirement in connection with liquidity risk.

Liquidity risk at R+V (Insurance sector) is not material at DZ BANK Group level. This is because liquidity is typically tied up in liabilities with maturities of 5 years or more in insurance business.

Economic capital adequacy

In the **Bank sector**, **economic capital** (risk capital requirement) is calculated for credit risk, equity investment risk, market risk, the technical risk of a home savings and loan company, operational risk, and business risk in order to ascertain economic capital adequacy. This risk capital requirement is generally calculated as value-at-risk with a holding period of 1 year and a unilateral confidence level of 99.90 percent.

The capital requirement for the individual risk types is aggregated into the total risk capital requirement for the Bank sector taking into account various diversification effects. The diversified risk capital requirement reflects the interdependency of individual types of risk. The risks relating to the Bank and Insurance sectors are aggregated, disregarding diversification effects between the sectors.

In the **Insurance sector**, risk measurement is based on the method specified in Solvency II with the aim of determining value-at-risk, which is the measure of **economic capital**. The value-at-risk for the change in economic own funds is determined with a confidence level of 99.5 percent over a period of one year.

The DZ BANK Group holds a **capital buffer** as a component of aggregate risk to allow for a possible lack of precision in the measurement of the risks backed by capital.

Based on an analysis of portfolios, the management of **risk concentrations** aims to identify potential downside risks that may arise from the accumulation of individual risks and, if necessary, to take corrective action. A distinction is made between risk concentrations that occur within a risk type (intra-risk concentrations) and concentrations that arise as a result of the interaction between different types of risk (inter-risk concentrations). Inter-risk concentrations are implicitly taken into account when determining correlation matrices for the purposes of inter-risk aggregation. They are mainly managed by using quantitative stress test approaches and qualitative analyses, which aim to provide a holistic view across all types of risk.

3.6.3 Stress tests

In addition to the risk measurements, the effects of extreme but plausible events are also analyzed. Stress tests of this kind are used to establish whether the DZ BANK Group can sustain its business models, even under extreme economic conditions. Stress tests are carried out in respect of liquidity, economic risk-bearing capacity, and regulatory capital ratios.

3.6.4 Limitation principles

The DZ BANK Group has implemented a system of limits to ensure that it retains an adequate level of liquidity and maintains its risk-bearing capacity.

A system of limits and pre-set threshold values aims to ensure that the **liquidity surplus** at the level of the DZ BANK Group does not become a shortfall and therefore that an adequate level of liquidity is guaranteed.

In the case of **risks backed by capital**, the limits take the form of risk limits or volume limits, depending on the type of business and type of risk. Whereas risk limits in all types of risk restrict exposure measured with an economic model, volume limits are applied additionally in transactions involving counterparties. Risk management is also supported by limits for relevant key performance indicators. Specific amendments to risk positions based on an adjustment of the volume and risk structure in the underlying transactions are intended to ensure that the measured exposure does not exceed the approved volume and risk limits. Risks that are incurred are compared with the limits allocated to them and monitored using a traffic light system.

3.6.5 Hedging objectives and hedging transactions

Hedging activities can be undertaken where appropriate in order to transfer liquidity risk, credit risk, market risk (Bank sector), market risk (Insurance sector), actuarial risk, and operational risk to the greatest possible extent to third parties outside the DZ BANK Group. All hedging activities are conducted within the strategic rules specified in writing and applicable throughout the group. Derivatives and other instruments are used to hedge credit risk and market risk.

If the hedging of risk in connection with financial instruments gives rise to **accounting mismatches** between the hedged item and the derivative hedging instrument used, the DZ BANK Group designates the hedging transaction as a hedge in accordance with the hedge accounting requirements of IFRS 9 in order to eliminate or reduce such mismatches. The DZ BANK Group continues to account for portfolio hedges in application of the rules under IAS 39. Hedge accounting in the DZ BANK Group encompasses the hedging of interest-rate risk and currency risk. It therefore affects market risk in both the Bank and Insurance sectors. Hedging information is disclosed in note 84 of the notes to the consolidated financial statements.

DZ BANK has not recognized any hedges on the balance sheet in accordance with section 254 HGB.

3.6.6 Risk reporting and risk manual

The quarterly **overall risk report** includes the risks throughout the group identified by DZ BANK. Together with the **adverse stress tests report**, which is also compiled on a quarterly basis, the **report on recovery indicators** , which is prepared quarterly, and the **reverse stress tests report**, which is produced annually, the overall risk report is the main channel through which risks incurred by the DZ BANK Group, DZ BANK, and the other management units are communicated to the Supervisory Board, the Board of Managing Directors, and the Group Risk and Finance Committee. Since the beginning of 2019, economic and regulatory key risk indicators have also been made available to the Board of Managing Directors in a monthly overall risk report, which is intended to ensure that the Board is informed promptly about the overall risk situation. In addition, the Board of Managing Directors and the Supervisory Board's Risk Committee receive portfolio and exposure-related management information in the quarterly **credit risk report for the DZ BANK Group**. Furthermore, the Board of Managing Directors receives monthly information on **liquidity risk** in the DZ BANK Group, DZ BANK, and the other management units.

To complement the above, DZ BANK and the main subsidiaries have further reporting systems for all relevant types of risk. Depending on the degree of materiality in the risk exposures concerned, these systems aim to ensure that decision-makers and supervisory bodies receive transparent information at each measurement date on the risk profile of the management units for which they are responsible.

The **risk manual**, which is available to all employees of the management units, sets out the general parameters for identifying, measuring, assessing, managing, monitoring, and communicating risks. These general parameters are intended to ensure that risk management is properly carried out in the DZ BANK Group. The manual forms the basis for a shared understanding of the minimum standards for risk management throughout the group.

The main subsidiaries also have their own risk manuals covering special aspects of risk related specifically to these management units. R+V has Solvency II guidelines.

3.6.7 Risk inventory and appropriateness test

Every year, DZ BANK draws up a **risk inventory**, the objective of which is to identify the types of risk that are relevant for the DZ BANK Group and assess the materiality of these risk types. According to need, a risk inventory check may also be carried out at other times in order to identify any material changes in the risk profile during the course of the year. A materiality analysis is carried out for those types of risk that could arise in connection with the operating activities of the entities in the DZ BANK Group. The next step is to assess the extent to which there are concentrations of risk types classified as material in the Bank sector, the Insurance sector, and across sectors.

DZ BANK also conducts an annual **appropriateness test**, both for itself and at DZ BANK Group level. The appropriateness test may also be carried out at other times in response to specific events. The objective is to review the latest groupwide specifications for the analysis of risk-bearing capacity. In addition, the appropriateness test includes a number of other tests to assess whether the risk measurement methods used for all types of risk classified as material are in fact fit for purpose. The appropriateness test found that risk measurement in the DZ BANK Group is generally appropriate, although potential improvements to some aspects of risk measurement were identified.

The risk inventory check and appropriateness test are coordinated in terms of content and timing. All management units in the DZ BANK Group are included in both processes. The findings of the risk inventory and the appropriateness test are incorporated into the risk management process.

Risk inventory checks and appropriateness tests are generally conducted in a similar way for the main subsidiaries.

4 Opportunities

4.1 Management of opportunities

The management of opportunities in the DZ BANK Group and at DZ BANK is integrated into the annual **strategic planning process**. Strategic planning enables the group to identify and analyze market discontinuities based on different macroeconomic scenarios, trends, and changes in the markets, and forms the basis for evaluating opportunities. Identified opportunities are taken into account in the business strategies.

Details about the strategic planning process are presented in section I.2.4 of the (group) management report.

Reports on future business development opportunities are based on the outcome of the business strategies. As part of the general communication of the business strategies, employees are kept up to date about potential opportunities that have been identified.

4.2 Potential opportunities

4.2.1 Corporate strategy

DZ BANK's core functions as a central institution, corporate bank, and holding company mean that it focuses closely on the local cooperative banks, which are its customers and owners. DZ BANK's **focus on the cooperative banks** is vital in view of the need to manage scarce resources and to meet new regulatory requirements. By focusing more closely on the Volksbanken Raiffeisenbanken cooperative financial network, DZ BANK's aim is to exploit the potential of its core activities more fully, particularly with regard to retail banking and SME business.

The principle of a '**network-oriented central institution/financial services group**' also means that business activities are concentrated on the business areas covered by the cooperative banks and on strengthening the position of the local cooperative banks in their markets. To this end, the DZ BANK Group, in its role as financial services provider, supplies decentralized products, platforms, and services.

In 2018, DZ BANK launched '**Verbund First 4.0**', a strategic program designed to ensure the organization's resilience for the future. The associated potential opportunities are presented in section I.1 (Business model and strategic focus) of the (group) management report.

The core activities referred to above are supplemented by **complementary activities** using existing products, platforms, and services, for which DZ BANK acts as a corporate bank vis-à-vis third parties. These activities do not compete directly with those of the cooperative banks.

The **Outlook** in chapter V of the (group) management report describes expected developments in the market and business environment together with the business strategies and their implications for the financial performance forecast for 2020. The expected developments in the market and business environment are crucial factors in the **strategic positioning** and the resulting opportunities for increasing earnings and cutting costs.

4.2.2 Digitalization and new competitors

The process of **digitalization** has been surging ahead in virtually every area of life, evidenced by the widespread growth in the use of internet-based services and high-tech end devices. This trend is encouraging the intermediation of **new competitors** at the interface between customers and banking services. For example, it is evident that non-banks are increasingly gaining a foothold in the payments processing segment.

At the same time, the advancing digitalization across all areas of life and the associated changes in customer behavior are opening up opportunities in relation to day-to-day banking business, especially payments processing. For example, increased use of mobile devices in payments processing means that particularly Germany – where paying in cash has generally continued to be more common than in other countries – is now seeing cash transactions being substituted with cashless payments. Payments through online cash register functions are climbing steadily, making it more important to have payment processes that are suitable for omnichannel use. Overall, the acceleration in the use of financial management applications means that business processes and payment processes are becoming increasingly merged.

The entities in the DZ BANK Group responded to these developments a while ago by increasing the new products and services that they offer. Examples include the launch of paydirekt, a cross-bank e-commerce payment system, the implementation of contactless credit card payments using a smartphone at point of sale, and the introduction of standardized and stronger authentication procedures. The expansion of applications aimed at simplifying liquidity management and billing, together with greater use of a range of special benefits, facilitates more integration of banking business into customer value chains. DZ BANK's participation in the SEPA instant payments system also opens up opportunities for developing new solutions.

Based on this range of initiatives, the DZ BANK Group is forging ahead with the replacement of cash and increasingly tying in additional payment-related services with accounts. DZ BANK is thus sharing in the accelerating trend toward electronic payment transactions with the objective of increasing its earnings.

Furthermore, new technologies and developments – such as blockchain and digital currencies – are being identified as potential opportunities, tested by the Transaction Banking business line, and assessed as to whether they are viable for use in the cooperative financial network.

4.2.3 Credit ratings

The credit ratings of DZ BANK and its subsidiaries are critical in determining the funding opportunities available on money and capital markets. The relatively high ratings compared with other entities in the market open up potential opportunities for the entities in the DZ BANK Group.

DZ BANK is awarded credit ratings by the three largest rating agencies, Standard & Poor's, Moody's, and Fitch Ratings. Individual subsidiaries of DZ BANK are also given their own ratings. In view of the high degree of cohesion within the cooperative financial network, Fitch Ratings and Standard & Poor's issue a network rating, for the purposes of which the cooperative financial institutions are analyzed on a consolidated basis. The criteria used by the agencies include factors such as strategy, risk assessment, transparency, and solidarity within the cooperative financial network in addition to business performance and collaboration.

During the year under review, the rating agencies reviewed the credit ratings issued for **DZ BANK**. In September, **Standard & Poor's** confirmed its ratings for DZ BANK, but set the outlook for the long-term ratings to negative. The reason behind this was a change in the assessment of the German banking market, which was reflected in an adverse trend in the Banking Industry Country Risk Assessment (BICRA) on which the ratings are based. The BICRA is relevant to the anchor rating, which is used as the starting point for individual bank ratings. According to Standard & Poor's, the reason for this was the deterioration in the economic environment for German banks in view of the persistently low interest rates, challenging competitive and profitability conditions, and the economic slowdown in Germany.

In October, **Moody's** confirmed the ratings for DZ BANK, but nevertheless likewise set the outlook for the long-term ratings to negative because of changes in its view of the economic conditions surrounding the German banking market and an associated change in the outlook for the industry. The reasons given by Moody's for the downgrade were an increasingly challenging environment in terms of the profitability of German banks, a persistently high cost base, downward pressure on income because of the low interest rates, and flagging economic growth.

In the reporting year, **Fitch Ratings** confirmed its prior-year ratings for DZ BANK.

Fig. 10 provides an overview of DZ BANK's credit ratings.

As at December 31, 2019, the long-term credit rating for the **cooperative financial network** issued by Standard & Poor's and Fitch Ratings remained unchanged at AA. In September, the rating issued by Standard & Poor's was given a negative outlook, reflecting the change in the rating for DZ BANK. Again, the reasons were a change in the assessment of the German banking market, combined with a modified BICRA.

FIG. 10 – DZ BANK RATINGS

	Standard & Poor's		Moody's		Fitch	
	Dec. 31, 2019	Dec. 31, 2018	Dec. 31, 2019	Dec. 31, 2018	Dec. 31, 2019	Dec. 31, 2018
Issuer rating	AA-	AA-	Aa1	Aa1	AA-	AA-
Covered bonds (DZ BANK BRIEFE)	AA+	AA+	Aaa	Aaa	-	-
Long-term rating for deposits	-	-	Aa1	Aa1	AA-	AA-
Long-term counterparty risk assessment/ derivative counterparty rating	-	-	Aa1	Aa1	AA-	AA-
Long-term rating for unsecured, 'preferred' bonds	AA-	AA-	Aa1	Aa1	AA-	AA-
Long-term rating for unsecured, 'non-preferred' bonds	A+	A+	A1	A1	AA-	AA-
Short-term rating	A-1+	A-1+	P-1	P-1	F1+	F1+

5 General risk factors

The DZ BANK Group and DZ BANK are subject to a range of risk factors that apply generally to the German and European banking industry as a whole. These are regulatory and macroeconomic risk factors that have an impact on liquidity and capital adequacy. The factors can be classified under business risk but are addressed separately here because of their key importance.

5.1 Regulatory risk factors

The term 'regulation' refers to all the different types of governmental intervention in the organization and activities of the DZ BANK Group, DZ BANK, and its subsidiaries. In the context of regulatory risk factors, the term generally encompasses standards from the perspectives of prudential supervision, commercial law, capital markets law, stock corporation law, and tax law.

DZ BANK and its subsidiaries are exposed to the following risks as a result of changes to the regulatory frameworks, including increasing regulation of the financial services industry in countries in which they operate. Amendments to existing legislation and regulations for banking and financial services may lead to higher capital requirements or adversely impact the earnings of DZ BANK and its subsidiaries. These risks could have a detrimental impact on the business of the entities in the DZ BANK Group.

5.1.1 Basel IV

In the next 5 years, DZ BANK and its subsidiaries subject to banking supervision must implement the European rules and regulations (CRR II and III) amended as a result of the international regulatory reforms in Basel IV. This represents a huge challenge for the DZ BANK banking group. The first elements of the Basel IV reforms have already been introduced in the form of CRR II and will have to be applied by the entities in the DZ BANK banking group from the 2020 or 2021 financial years. Legislators intend to introduce the outstanding changes as part of CRR III.

The objective of the new regulations is to limit the use of internal models for determining regulatory capital adequacy and apply a higher degree of standardization to ensure that banks use uniform, comparable processes throughout the industry. One of the main aspects of the reforms is that they provide for a comprehensive revision of the procedures used to determine credit risk exposures. As part of its reporting system, DZ BANK makes considerable use of models approved by the supervisory authorities for determining credit risk with the application of the internal ratings-based approach (IRB approach).

Following the implementation of Basel IV, the current benefits for the affected entities in the DZ BANK banking group from using internal models could diminish because capital adequacy would be based to a greater extent on the revised standardized approaches. A core component of this revision is the introduction of an output floor for the amount of risk-weighted assets determined with internal models. This output floor would restrict the benefit from using internal models to 72.5 percent of the risk-weighted assets computed using the standardized approaches. This rule is expected to be introduced in stages from January 1, 2022, finally coming into force in full on January 1, 2027.

The capital requirements for market risk and operational risk are also affected by the output floor in addition to those for credit risk. DZ BANK uses internal models and will thus have to introduce the new market risk standardized approach so that it can then comply with the mandatory requirement to report its capital requirement for market risk in the trading book to the supervisory authorities in parallel to its calculations using the internal model. Implementation of the new rules entails extensive and time-consuming changes to the calculation of the capital requirement for market risk in the trading book at DZ BANK.

The planned new regulations could lead to a substantial rise in risk-weighted assets and capital requirements as well as to a fall in the capital ratios for the DZ BANK banking group and DZ BANK. There is a risk that DZ BANK would not be able to obtain the necessary additional own funds (or would only be able to obtain them at a higher cost) or would have to reduce its risk-weighted assets. This could limit the flexibility enjoyed by DZ BANK in the operation of its business.

5.1.2 Switch in interest-rate benchmarks

To implement Regulation (EU) No. 2016/1011 (Benchmarks Regulation) and to respond to international market developments, the German and European financial industry is currently pressing ahead with the replacement of the present interest-rate benchmarks (some of which do not comply with the EU Benchmarks Regulation) with (virtually) risk-free interest-rate benchmarks.

The reformed interest-rate benchmarks and the new risk-free interest-rate benchmarks are provided by central banks or administrators. Such administrators must be entered in the benchmarks register maintained by ESMA. This means that Euribor and – until its scheduled discontinuation at the end of 2021 – EONIA can continue to be used. In the case of Libor rates, which are already compliant with the EU benchmark requirements, the banks involved are expected to continue supplying the necessary data only up to the end of 2021. In these circumstances, market participants are assuming that Libor rates will no longer be published going forward.

The main reformed interest-rate benchmarks of significance for the entities in the DZ BANK Group are Euribor, EONIA, and Libor; the new risk-free interest-rate benchmarks of significance are €STR, SOFR, SONIA, and SARON. Assets and liabilities of entities in the DZ BANK Group in national and international interbank and customer business are linked to these interest-rate benchmarks. There is a lack of clarity about numerous aspects of the switch in interest-rate benchmarks in the transition phase, particularly concerning new market practices and the establishment of the interest-rate benchmarks in the markets.

The transition period for critical benchmarks has been extended by 2 years until December 31, 2021. If the changeover is not completed on time, there is a risk that the ability of the entities in the DZ BANK Group to handle the transactions concerned may be constrained. The transactions affected are, for example, the issuance of floating-rate securities referencing a Libor rate or interest-rate derivatives. In addition to the acquisition of new business, the calculation and billing of interest payments in connection with securities already issued by entities in the DZ BANK Group and the valuation of these securities could be adversely affected. This could give rise to business risks (such as a withdrawal from profitable areas of business), legal risks (such as compensation claims), and reputational risks for the entities in the DZ BANK Group.

5.2 Macroeconomic risk factors

5.2.1 Low interest rates

If there is a long period of low interest rates, the DZ BANK Group could face the risk of lower earnings, including lower earnings from BSH's extensive **building society operations**. When interest rates are very low, home savings loans lose their appeal for customers, while high-interest home savings deposits become more attractive. Consequently, interest income on home savings loans would fall and the interest cost for home savings deposits would rise. Furthermore, available liquidity could only be invested at low rates of return, an additional factor depressing earnings.

Because of the long period of low interest rates, the challenge faced by the DZ BANK Group's **asset management activities**, brought together under UMH, is to ensure that the guarantee commitments given to customers in respect of individual products can actually be met from the investment instruments in those products. This particularly affects the pension products and the guarantee fund product group. The pension products mainly consist of UniProfiRente, a retirement pension solution certified and subsidized by the German government. The amounts paid in during the contributory phase and the contributions received from the government are guaranteed to be available to the investor at the pension start date. The pension is then paid out under a payment plan with a subsequent life annuity. Guarantee funds are products for which

UMH guarantees that a minimum percentage of capital is preserved, depending on the precise product specification. If UMH is unable to draw some of the management fees, or has to inject fresh capital, so that it can meet its guarantee commitments, this could have a substantial detrimental impact on the financial performance of the DZ BANK Group.

The entire insurance industry is affected by the low interest rates in the capital markets. These low interest rates are having a particular effect on the **business model of the personal insurance companies** at R+V. Further details can be found in section 17.3.4.

A long period of low interest rates also increases the risk of **incorrect valuations** in financial and real estate markets in which the entities in the DZ BANK Group operate.

The developments described above affect market risk in the Bank sector, business risk in the Bank sector, and market risk in the Insurance sector.

5.2.2 Global trade disputes

If the United States were to further ramp up its protectionist action and Europe and China were to respond with retaliatory measures, the consequence could be escalation of the **trade disputes** that would have a huge negative impact on global trade as a whole. This would adversely affect the global economy and hit the heavily export-dependent German economy particularly hard.

DZ BANK, DZ HYP, and VR Smart Finanz grant a substantial number and volume of loans to German businesses. There is thus a risk that a deterioration in the credit quality of German businesses could lead to a greater credit risk and, if individual entities default, higher impairment losses in the Bank sector. Other potential consequences include a widening of credit spreads and a fall in the market liquidity of government and corporate bonds, which could cause a rise in market risk in both the Bank sector and the Insurance sector. This mainly affects DZ BANK, DZ HYP, and BSH in the Bank sector and R+V in the Insurance sector because these entities hold considerable portfolios of securities from German and European issuers.

There is also a risk that fair value losses on corporate bonds could have a temporary or permanent adverse impact on capital.

5.2.3 Economic divergence in the eurozone

DZ BANK, DZ HYP, and R+V hold significant investments in Italian and Spanish bonds. In addition, DZ BANK and DZ HYP have substantial investments in Portuguese bonds. DZ BANK has only entered into a small volume of derivatives and money market business with Italian and Spanish counterparties. Furthermore, DZ BANK operates a negligible volume of trading and lending business with short- and medium-term maturities involving counterparties in Italy, Spain, and Portugal; this business consists of trade finance and letters of credit.

The economies of Italy and Spain continue to be characterized by **government debt levels that are high** in relation to gross domestic product and are still proving difficult to bring down. Consequently, these countries remain vulnerable to fluctuation in investors' risk assessments.

In **Italy**, the coalition between the populist right-wing Lega and the likewise populist, but left wing, Five Star Movement collapsed at the beginning of September 2019. The new coalition between the Five Star Movement and the Social Democrats is expected to abandon the policy of confrontation with the EU. The areas of difficulty are the high level of government debt and the chronically weak growth in the Italian economy. If there are no lasting solutions to these problems, there could be perpetual concerns about whether the government debt could be sustained and/or refinanced. This could prejudice the ability of the country to obtain funding in international capital markets. As a result of the economic developments in Italy, the funding of **Italian banks** via the capital markets is becoming increasingly difficult. Moreover, the financial performance of these banks is hampered by continued high additions to loan provisions and by losses relating to the elimination of non-performing loans.

Since January 2020, the Socialist Workers' Party and the alternative left-wing Unidas Podemos alliance have been partners in a coalition forming a minority government in Spain. The direction of the government's fiscal policy is subject to significant uncertainty. Problem areas are the high level of government debt and weak growth in the Spanish economy, combined with a persistently high rate of unemployment. The tensions in Catalonia could give rise to further risks for the economy. This could prejudice the ability of the country and its banks to obtain funding in international capital markets.

Portugal's financial strength is weakened by its significant government indebtedness. The banking sector harbors further risks to financial stability. Even after capitalization, the banks are still carrying substantial portfolios of non-performing loans, although these are declining. To add to this, the earnings prospects for the sector are weak because of the current low level of interest rates. The Portuguese financial market is highly susceptible to volatility in investor confidence, but the country's ability to respond to negative shocks with fiscal policy measures is limited because of the high level of public debt.

In the last few years, the **ECB's expansionary monetary policy** and particularly its bond-buying program largely prevented the structural problems in some EMU member countries from being reflected in the capital markets. For Italy, Spain, and Portugal, there is a risk that this situation could change if the asset purchase program were to be brought to an end. Highly indebted countries could find it considerably more difficult to arrange funding through capital markets.

The developments described above could cause a deterioration in the credit standing of the countries concerned and of the businesses based in those countries, which would lead to heightened credit risk in the Bank sector. Other potential consequences of the sovereign debt crisis include a widening of credit spreads and a fall in the market liquidity of government and corporate bonds, which could cause a rise in market risk in both the Bank sector and the Insurance sector. There is also a risk that fair value losses on government and corporate bonds could have a temporary or permanent adverse impact on capital. If individual counterparties – for example, southern eurozone periphery countries – were to become insolvent, this would give rise to a requirement for additional impairment losses in the entities of the DZ BANK Group in respect of the financial instruments purchased from these countries.

5.2.4 Challenging shipping and offshore markets

In the Bank sector, the shipping finance business is mainly operated by DVB and, to a lesser degree, by DZ BANK. DVB also has offshore finance in its credit portfolio, consisting of various financing arrangements with broad links to the shipping sector. The portfolio includes finance for drilling platforms, drill ships, offshore construction ships, and supply ships for oil platforms. In the shipping finance business, an oversupply of tonnage continues to have a detrimental impact on asset values and customer credit quality in some cases. To add to the problems, the low price of oil is adversely affecting global offshore oil production, leading to lower demand for supply ships and other floating offshore equipment. The market values of the financed assets are subject to significant fluctuation because of market volatility. These trends could lead to increased credit risk and to a higher level of impairment losses in the Bank sector.

5.2.5 Climate change

The DZ BANK Group is exposed to medium- and long-term risks resulting from climate change. These risks comprise both physical risks, such as more occurrences of natural disasters and flooded buildings, and transition risks, which can arise particularly as a result of legislative initiatives and changes in consumer behavior.

Physical climate risks affect the lending business of the entities in the DZ BANK Group. They can give rise to credit risk if, for example, the recoverability of collateral for loan exposures is adversely impacted by climate events. In addition, as a result of transition effects such as the transformation to a carbon-neutral economy, there is a risk in the lending business that the profitability of corporate finance borrowers (mainly at DZ BANK) and of real estate finance borrowers (mainly at BSH and DZ HYP) could be decreased. These effects could lead to a deterioration of the borrowers' credit quality and thus to higher impairment losses. In the Insurance sector of the DZ BANK Group, non-life actuarial risk (premium and reserve risk, catastrophe risk) at R+V is the main type of risk that could be significantly affected by physical climate risk. Specifically, in any one year, the actual impact from the size and frequency of losses could exceed the forecast impact. In both the Bank sector and the Insurance sector, physical climate risk could also give rise to operational risk from the non-availability of buildings or IT systems, or from weather or environmental events.

If climate risks are relevant because of the business model, they are implicitly backed with capital within the risk types referred to above. If the specified risks were to materialize, DZ BANK would have to fall back on the capital concerned. Furthermore, negative effects on the reputation of individual entities in the DZ BANK Group or on the DZ BANK Group as a whole cannot be ruled out.

5.3 Rating downgrades

DZ BANK's credit rating and the credit ratings of its subsidiaries are an important element in any comparison with competitor banks. A downgrade or even just the possibility of a downgrade in the rating for DZ BANK or one of its subsidiaries could have a detrimental effect on the relationship with customers and on the sale of products and services at all entities in the DZ BANK Group.

If DZ BANK's credit rating or the network rating for the cooperative financial network were to be downgraded, this would have a negative impact on DZ BANK's costs of raising equity and borrowing. In the event of a rating downgrade, new liabilities could also arise, or liabilities dependent on the maintenance of a specific credit rating could become due for immediate payment.

Furthermore, if a rating downgrade were to occur, the DZ BANK Group or DZ BANK could face a situation in which it had to furnish additional collateral in connection with rating-linked collateral agreements for derivatives (regulated by a credit support annex to an appropriate master agreement for financial futures) or in which it was no longer considered a suitable counterparty for derivative transactions at all.

In 2019, the credit ratings for DZ BANK issued by rating agencies Standard & Poor's and Moody's were given a negative outlook. The reasons were the deteriorating economic conditions for German banks, partly because of the low interest rates and the accompanying decline in profitability. It is not possible to predict with any degree of certainty whether the negative outlook will actually result in a rating downgrade for DZ BANK. Its rating would probably be downgraded simultaneously with those of other German banks.

If the credit rating for DZ BANK or one of its subsidiaries were to fall out of the range covered by the top four rating categories (investment-grade ratings, disregarding rating subcategories), the operating business of DZ BANK or the subsidiaries concerned could be adversely affected. This could also lead to an increase in the liquidity requirement in relation to derivatives and to a rise in funding costs. There would be an additional risk that these negative effects could spread to the other entities in the DZ BANK Group.

6 Liquidity adequacy

6.1 Principles

The management of liquidity adequacy is an integral component of business management in the DZ BANK Group and at DZ BANK. Liquidity adequacy is defined as the holding of sufficient liquidity reserves in relation to the risks arising from future payment obligations. It is considered from both an economic and a regulatory perspective. Whereas the economic perspective implements the requirements of MaRisk BA, the regulatory perspective applies the requirements from the CRR and the German national requirements for the implementation of Capital Requirements Directive IV in the KWG.

Economic liquidity adequacy is managed on the basis of the internal liquidity risk model, which takes account of the impact on liquidity of other risks when measuring liquidity risk. The DZ BANK Group fulfills the regulatory liquidity adequacy requirements by managing economic liquidity adequacy.

6.2 Economic perspective

Owing to the close ties between management of economic liquidity adequacy at DZ BANK and that of the DZ BANK Group, the information below on economic liquidity adequacy also applies to DZ BANK. Liquidity risk is a key aspect of economic liquidity adequacy.

6.2.1 Risk definition

Liquidity risk is the risk that cash and cash equivalents will not be available in sufficient amounts to ensure that payment obligations can be met. It is therefore defined as insolvency risk. Liquidity risk is significantly influenced by the risks that are backed by capital and those that are not backed by capital. In particular, reputational risk is relevant to liquidity risk.

6.2.2 Business background and risk strategy

Business background

The activities of DZ BANK and the management units BSH, DVB, DZ HYP, DZ PRIVATBANK, TeamBank, and VR Smart Finanz are relevant to the level of liquidity risk in the DZ BANK Group.

Risk strategy

A key component of the liquidity risk strategy is the process of specifying and monitoring the risk appetite for liquidity risk. The liquidity risk strategy aims to establish a binding basis for implementing these requirements at operational level.

The entities in the DZ BANK Group operate on the principle that the assumption of liquidity risk is only permitted if it is considered together with the associated opportunities and complies with the **risk appetite** specified by the Board of Managing Directors. Solvency must be ensured, even in times of serious crisis. Risk appetite is expressed in the form of crisis scenarios, and stress tests must demonstrate that there is adequate cover for these scenarios. The crisis scenarios also take into account the specific MaRisk BA requirements for the structure of stress scenarios at capital-market-oriented banks.

However, further **extreme scenarios** are not covered by the risk appetite. The risks arising in this regard are accepted and therefore not taken into account in the management of risk. Examples of such scenarios are a run on the bank, i.e. an extensive withdrawal of customer deposits as a result of damage to the reputation of the banking system, or a situation in which all non-collateralized funding sources on money markets completely dry up over the long term, also encompassing transactions with those corporate customers, institutional customers, and customer banks that have close ties to the entities in the DZ BANK Group. On the other hand, the risk of a short-term and complete loss, or the risk of a medium-term and substantial loss, of unsecured funding from institutional investors is not accepted and this risk is the subject of relevant stress scenarios.

Liquidity reserves in the form of liquid securities are held by the entities so that they can remain solvent, even in the event of a crisis. Potential sources of funding in the secured and unsecured money markets are safeguarded by maintaining a broadly diversified national and international customer base. The local cooperative banks also provide a significant source of funding.

DZ BANK aims to ensure that the liquidity risk strategy is consistent with the **business strategies**. To this end, the liquidity risk strategy is reviewed at least once a year with due regard to the business strategies and adjusted as necessary.

6.2.3 Specific risk factors

The following factors, alone or in combination with each other, could lead to an increase in liquidity risk, adversely affect financial position and, in an extreme case, cause the insolvency of DZ BANK:

- Funding is withdrawn but cash nevertheless still flows out when legally due.
- Derivatives result in greater collateral requirements that involve cash outflows.
- Changes in the fair value of financial instruments mean that less liquidity can be generated.
- Cash is paid out earlier than expected because drawing rights are exercised.
- Cash outflows are earlier than expected or cash inflows later than expected because termination rights are exercised.
- New business is entered into to safeguard the reputation of the DZ BANK Group, resulting in cash outflows.
- Products are repurchased to safeguard the reputation of the DZ BANK Group, resulting in cash outflows.
- The liquidity requirement to ensure intraday payment obligations can be satisfied is greater than expected.
- There has been a negative impact on opportunities for generating currency-related liquidity through currency swaps.

6.2.4 Organization, responsibility, and risk reporting

Organization and responsibility

The strategic guidelines for the management of liquidity risk by the entities in the DZ BANK Group are established by the **Group Risk and Finance Committee**. At the level of DZ BANK, this is the responsibility of the **Treasury and Capital Committee**.

Liquidity risk control in the DZ BANK Group is coordinated by the Group Risk Management working group and carried out in Risk Controlling at DZ BANK independently of the units that are responsible for liquidity risk management. The risk data calculated by the subsidiaries on the basis of intra-group guidelines is aggregated to provide a group perspective.

Risk reporting

Liquidity up to 1 year and structural liquidity of 1 year or more are reported on a daily basis to the **members of the Board of Managing Directors** of DZ BANK responsible for Group Treasury and Group Risk Controlling. The **Board of Managing Directors** receives a monthly report on liquidity risk.

The DZ BANK **Group Treasury** division and the units in the subsidiaries responsible for the management of liquidity risk also receive detailed daily information showing the contribution from each individual position to the aggregate position.

The DZ BANK **Group Treasury** division also has read-only access to the IT system used for measuring liquidity risk on a day-to-day basis and has set up its own analysis functionality within the system.

The **Group Risk and Finance Committee** receives a quarterly report on the liquidity risk of the DZ BANK Group and the individual management units, including DZ BANK.

The **entities in the DZ BANK Group** have their own corresponding reporting procedures that help to manage and monitor liquidity risk at individual entity level.

Group Treasury is informed on a daily basis of the largest providers of liquidity to DZ BANK in the unsecured money markets. This is reported to the **Treasury and Capital Committee** and the **Board of Managing Directors** on a monthly basis. The reports make a distinction between customers and banks and relate to DZ BANK in Frankfurt and to each foreign branch. These reports ensure that any possible concentration risk as regards sources of liquidity can be clearly identified at an early stage.

6.2.5 Risk management

Measurement of liquidity risk

DZ BANK uses an **internal risk model** to determine liquidity risk over a time horizon of 1 year. The same model is used to determine liquidity risk at the level of the DZ BANK Group. All entities in the DZ BANK Group with a significant impact on liquidity risk are integrated into the model, which is used to simulate one risk scenario and four stress scenarios a day.

A **minimum liquidity surplus** figure is calculated for each scenario. This figure quantifies the minimum surplus cash that would be available if the scenario were to materialize suddenly within the next 12 months. To carry out this calculation, cumulative cash flow (forward cash exposure) is compared against available liquidity reserves (counterbalancing capacity) on a day-by-day basis. The minimum liquidity surplus expresses economic liquidity adequacy. **Forward cash exposure** includes both expected and unexpected payments.

The **counterbalancing capacity** includes balances on nostro accounts, liquid securities, and unsecured funding capacity with customers, banks, and institutional investors. By including the counterbalancing capacity, the calculation of the minimum liquidity surplus already takes into account the effect on liquidity of the measures that could be implemented to generate liquidity in each scenario. These measures include collateralized funding of securities in the repo market.

Stress tests are conducted for the forward cash exposure and for the counterbalancing capacity using the following four scenarios with defined limits: ‘downgrading’, ‘corporate crisis’, ‘market crisis’, and ‘combination crisis’. The stress scenarios look at sources of crises in both the market and the institution itself. A combination of market-specific and institution-specific sources is also taken into consideration. In crisis scenarios with institution-specific causes, such as a deterioration in the institution’s reputation, it is assumed for example that it will be very difficult to obtain unsecured funding from customers, banks, and institutional investors in the 1-year forecast period. The simulated event in each stress scenario represents a serious deterioration in conditions.

The stress scenario with the lowest minimum liquidity surplus is deemed to be the squeeze scenario. Economic liquidity adequacy is determined as the amount of the minimum liquidity surplus in the squeeze scenario.

In addition to the existing stress scenarios with defined limits, **foreign currency stress tests** simulate what would happen if the currency swap market also defaulted. The currencies in the major locations are examined (US dollar, pound sterling, Swiss franc, Hong Kong dollar, Singapore dollar). The currency limits relate only to the critical first month.

Further stress scenarios in addition to the scenarios with defined limits are analyzed, and a **reverse stress test** is carried out and reported on a monthly basis. The reverse stress test shows which stress events (changes in risk factors) could still occur without liquidity falling below the limit in a subsequent liquidity risk measurement and triggering the need for a business model adjustment.

The internal liquidity risk model is constantly revised using an **appropriateness test** and adjusted in line with changes in the market, products, and processes.

The appropriateness test is conducted for each entity in the DZ BANK Group and aggregated at group level.

Management of limits for liquidity risk

Liquidity risk is monitored and managed with the aim of ensuring economic liquidity adequacy at every measurement date. This is based on the minimum liquidity surplus calculated for the four stress scenarios with defined limits. The Board of Managing Directors of DZ BANK has set, at the level of the **DZ BANK Group**, a **limit** (€1.0 billion) for liquidity risk and an **observation threshold** (€4.0 billion) that is higher than the limit. The observation threshold equates to the threshold value for economic liquidity adequacy specified in the risk appetite statement. The observation threshold and limit were unchanged compared with December 31, 2018. The Board of Managing Directors of DZ BANK has also specified a limit for **each management unit**. The observation threshold and the limits are monitored by the liquidity risk control function at DZ BANK both at group level and also for the management units.

The limit system aims to ensure that the DZ BANK Group remains solvent even in serious stress scenarios. **Emergency liquidity plans** are in place so that the group is able to respond to crisis events rapidly and in a coordinated manner. The emergency plans are revised annually.

Liquidity risk mitigation

Within liquidity management activities, measures to reduce liquidity risk are initiated by the treasuries of the management units. Active liquidity risk management is made possible by holding a large number of instruments in the form of cash and liquid securities, and by managing the maturity profile of money market and capital market transactions.

Liquidity transfer pricing system

The DZ BANK Group aims to use liquidity – which is both a resource and a success factor – in line with opportunities and risks. Liquidity costs, benefits, and risks are allocated among the entities in the DZ BANK Group based on the liquidity transfer pricing system using internal prices charged by the units generating liquidity and paid by those consuming liquidity. Care is taken to ensure that the transfer prices are consistent with risk measurement and risk management.

Transfer prices are set at DZ BANK for the liquidity costs of all the main products. The transfer pricing system takes into account the maturity period and market liquidity of the products and has a significant impact on risk/return management.

6.2.6 Quantitative variables

The available liquid securities and the availability and composition of the sources of funding have a significant influence on the minimum liquidity surplus of the DZ BANK Group and at DZ BANK. These factors are presented below.

Liquid securities

Liquid securities form part of the available liquidity reserves, which are referred to as **counterbalancing capacity**. Liquid securities are largely held in the portfolios held by DZ BANK's Capital Markets Trading division or in the portfolios of the treasury units at the subsidiaries of DZ BANK. Only bearer bonds are eligible as liquid securities.

Liquid securities comprise highly liquid securities that are suitable for collateralizing funding in private markets, securities eligible as collateral for central bank loans, and other securities that can be liquidated in the 1-year forecast period that is relevant for liquidity risk.

Securities are only eligible provided they are not pledged as collateral, e.g. for secured funding. Securities that have been borrowed or taken as collateral for derivatives business or in connection with secured funding only become eligible when they are freely transferable. Eligibility is recognized on a daily basis and also takes into account factors such as restrictions on the period in which the securities are freely available.

Fig. 11 shows the liquidity value of the liquid securities that would result from secured funding or if the securities were sold.

FIG. 11 – LIQUID SECURITIES

€ billion	Dec. 31, 2019	Dec. 31, 2018
Liquid securities eligible for GC Pooling (ECB Basket)[1]	**26.3**	23.4
Securities in own portfolio	**27.6**	22.7
Securities received as collateral	**9.4**	9.7
Securities provided as collateral	**-10.7**	-9.0
Liquid securities eligible as collateral for central bank loans	**16.8**	12.3
Securities in own portfolio	**17.7**	13.4
Securities received as collateral	**6.0**	4.9
Securities provided as collateral	**-6.9**	-6.0
Other liquid securities	**6.5**	6.0
Securities in own portfolio	**5.5**	5.4
Securities received as collateral	**1.2**	0.9
Securities provided as collateral	**-0.2**	-0.2
Total	**49.6**	41.8
Securities in own portfolio	50.8	41.5
Securities received as collateral	16.6	15.5
Securities provided as collateral	-17.7	-15.3

1 GC = general collateral, ECB Basket = eligible collateral for ECB funding.

As at December 31, 2019, the total liquidity value at the level of the **DZ BANK Group** was €49.6 billion (December 31, 2018: €41.8 billion). The total liquidity value attributable to **DZ BANK** as at December 31, 2019 was €39.0 billion (December 31, 2018: €30.2 billion). The year-on-year rise in the volume of liquid securities as at December 31, 2019 was attributable to expansion in securities portfolios, mainly at DZ BANK.

Consequently, liquid securities represented the largest proportion of the counterbalancing capacity for both the DZ BANK Group and DZ BANK, and made a major contribution to ensuring that they remained solvent in the stress scenarios with defined limits at all times during the relevant forecast period. In the first month, which is a particularly critical period in a crisis, liquid securities were almost exclusively responsible for maintaining solvency in the stress scenarios with defined limits.

Funding

The short-term and medium-term funding structure is a determining factor in the level of liquidity risk in the DZ BANK Group and at DZ BANK. The main sources of funding on the unsecured money markets are shown in Fig. 12.

FIG. 12 – UNSECURED SHORT-TERM AND MEDIUM-TERM FUNDING

	DZ BANK banking group		DZ BANK	
%	**Dec. 31, 2019**	Dec. 31, 2018	**Dec. 31, 2019**	Dec. 31, 2018
Local cooperative banks	**43**	55	**45**	59
Other banks, central banks	**11**	14	**11**	14
Corporate customers, institutional customers	**12**	15	**11**	14
Commercial paper (institutional investors)	**34**	16	**33**	13

Changes in the composition of the main sources of funding were attributable to a change in the behavior of customers and investors resulting from money market policy implemented by the ECB.

Further details on funding are provided in the business report (section II.5 (Financial position) of the (group) management report).

Liquidity maturities

The maturity analysis of contractual cash inflows and cash outflows is set out in note 86 of the notes to the consolidated financial statements. The cash flows in these disclosures are not the same as the expected and unexpected cash flows used for internal management purposes in the DZ BANK Group.

6.2.7 Risk position

Economic liquidity adequacy is assured if none of the four stress scenarios with defined limits exhibit a negative value for the internal key risk indicator 'minimum liquidity surplus'. Fig. 13 shows the results of measuring liquidity risk. The results are based on a daily calculation and comparison of forward cash exposure and counterbalancing capacity. The values reported are the values that occur on the day on which the liquidity surplus calculated over the forecast period of 1 year is at its lowest point.

The liquidity risk value measured for the **DZ BANK Group** as at December 31, 2019 for the stress scenario with defined limits with the lowest minimum liquidity surplus (squeeze scenario) was €12.5 billion (December 31, 2018: €12.0 billion). The minimum liquidity surplus as at December 31, 2019 thus remained roughly at the level of the prior-year reporting date. During the year under review, liquidity at the level of the DZ BANK Group did not, in any of the stress scenarios with defined limits, fall below the observation threshold of €4.0 billion set by the Board

FIG. 13 – LIQUIDITY UP TO 1 YEAR IN THE STRESS SCENARIOS WITH DEFINED LIMITS: MINIMUM LIQUIDITY SURPLUSES

	Forward cash exposure		Counterbalancing capacity		Minimum liquidity surplus	
€ billion	Dec. 31, 2019	Dec. 31, 2018	Dec. 31, 2019	Dec. 31, 2018	Dec. 31, 2019	Dec. 31, 2018
Downgrading	-76.1	-39.3	105.7	61.8	29.6	22.5
Corporate crisis	-74.5	-37.1	88.0	50.1	13.5	13.0
Market crisis	-80.7	-42.5	97.2	58.2	16.4	15.7
Combination crisis	-80.2	-42.1	92.7	54.1	12.5	12.0

of Managing Directors as the internal threshold value for 2019. Furthermore, it did not fall below the limit of €1.0 billion or the external minimum target of €0.0 billion on any measurement date in the reporting period. The observation threshold, limit, and external minimum target remained unchanged compared with 2018.

The corresponding liquidity risk value attributable to **DZ BANK** as at December 31, 2019 was €3.0 billion (December 31, 2018: €2.1 billion). The value is derived from the stress scenario with defined limits that has the lowest minimum liquidity surplus (squeeze scenario). The rise in the minimum liquidity surplus at DZ BANK resulted primarily from issuing activities.

The value fell below the limit applicable to DZ BANK from mid-June to mid-November in the reporting period. The temporary drop below the limit was largely attributable to a lower level of issuing activities, which was deliberately scheduled because of an anticipated liquidity inflow in November 2019 from the disposal of DVB's aviation portfolio. Until the completion date of the transaction, the disposal was not reported as a liquidity inflow to DZ BANK in the economic liquidity risk measurement at DVB.

The minimum liquidity surplus as at December 31, 2019 for both the DZ BANK Group and DZ BANK was positive in the stress scenarios with defined limits that were determined on the basis of risk appetite. This is due to the fact that the counterbalancing capacity was above the cumulative cash outflows on each day of the defined forecast period for each scenario, which indicates that the cash outflows assumed to take place in a crisis could be comfortably covered.

6.2.8 Possible impact from crystallized liquidity risk

One of the main operating activities of the management units is to make long-term liquidity available to their customers for different maturity periods and in different currencies, for example in the form of loans. The units generally organize their funding to match these transactions that tie up liquidity. Any funding needs that are not covered by the local cooperative banks are met by obtaining additional funding in the money and capital markets, with the deposit base from money market funding reducing the need for long-term funding. When funding matures, it is therefore possible that the replacement funding required to fund transactions with longer maturities has to be obtained at **unfavorable terms and conditions**.

The entities in the DZ BANK Group are also exposed to the risk that the minimum liquidity surplus will fall below the limit. If the minimum liquidity surplus were to fall below the limit for an extended period, the possibility of **reputational damage and a ratings downgrade** could not be ruled out.

Crystallization of liquidity risk causes an unexpected **reduction in the liquidity surplus**, with potential negative consequences for DZ BANK's financial position and enterprise value. If a crisis were to occur in which the circumstances were more serious or the combination of factors were significantly different from those assumed in the stress scenarios, there would be a risk of **insolvency**.

6.3 Normative internal perspective

6.3.1 Regulatory framework

Internal liquidity risk management is supplemented by the liquidity coverage ratio (LCR) specified in the Basel III framework, which was transposed into law with the CRR and Commission Delegated Regulation (EU) No. 2015/61, and by the net stable funding ratio (NSFR), which is based on the Basel III framework (BCBS 295).

The **liquidity coverage ratio** has a short-term focus and is intended to ensure that institutions can withstand a liquidity stress scenario lasting 30 days. This KPI is defined as the ratio of available liquid assets (liquidity buffer) to total net cash outflows in defined stress conditions over the next 30 days. The external minimum target for the LCR specified by the supervisory authorities in 2019 was 100 percent. DZ BANK reports its own LCR and that of the DZ BANK banking group, calculated in accordance with the CRR in conjunction with Commission Delegated Regulation (EU) No. 2015/61, to the supervisory authority on a monthly basis.

The **net stable funding ratio** has a long-term focus and is intended to ensure that institutions restrict mismatches between the maturity structures of their assets-side and liabilities-side business. This ratio is the amount of available stable funding (equity and liabilities) relative to the amount of required stable funding (assets-side business). The funding sources are weighted according to their degree of stability and assets are weighted according to their degree of liquidity based on factors defined by the supervisory authority. Unlike the liquidity coverage ratio, compliance with the NSFR will only become mandatory from the 2021 financial year with the application of CRR II. From this point, it is planned to manage the NSFR within the groupwide liquidity risk management system.

6.3.2 Organization, responsibility, and reporting

The liquidity ratios reported for supervisory purposes resulting from the CRR, the Basel III framework, and Commission Delegated Regulation (EU) No. 2015/61 are calculated for DZ BANK by the **Group Finance** division and aggregated at the level of the DZ BANK banking group with the corresponding values for the management units.

Both the **Treasury and Capital Committee** and the **Board of Managing Directors** are notified of the LCR and the NSFR each month.

6.3.3 Liquidity coverage ratio

The LCRs for the **DZ BANK banking group** and **DZ BANK** calculated in accordance with Commission Delegated Regulation (EU) No. 2015/61 are shown in Fig. 14.

The increase in the LCR measured for the DZ BANK banking group from 141.4 percent as at December 31, 2018 to 144.6 percent as at December 31, 2019 was largely attributable to higher excess cover at DZ BANK, although some of the gain was offset by countervailing effects in the subsidiaries.

FIG. 14 – LIQUIDITY COVERAGE RATIOS AND THEIR COMPONENTS

	DZ BANK banking group		DZ BANK	
	Dec. 31, 2019	Dec. 31, 2018	**Dec. 31, 2019**	Dec. 31, 2018
Total liquidity buffer (€ billion)	**84.1**	78.7	**63.4**	58.0
Total net liquidity outflows (€ billion)	**58.2**	55.6	**46.1**	45.8
Liquidity coverage ratio (%)	**144.6**	**141.4**	**137.5**	**126.7**

The increase in the LCR measured for DZ BANK from 126.7 percent as at December 31, 2018 to 137.5 percent as at December 31, 2019 was attributable to higher excess cover, which was derived from the funding with commercial paper with maturities of more than 30 days. Excess cover in relation to the LCR is the difference between the liquidity buffer and the net liquidity outflows.

In the reporting period, the regulatory minimum requirement for the LCR of 100 percent was exceeded on every reporting date at the level of the DZ BANK banking group and at DZ BANK.

7 Capital adequacy

7.1 Strategy, organization, and responsibility

The management of capital adequacy is an integral component of business management in the DZ BANK Group and at DZ BANK. Capital adequacy is defined as the holding of sufficient capital to cover the risks assumed by the business. It is considered from both an economic and a regulatory perspective. Whereas the economic perspective takes into account the requirements of MaRisk BA, the regulatory perspective applies the requirements from the CRR and the German national requirements for the implementation of CRR IV (KWG and German Solvency Regulation (SolvV)).

DZ BANK and all other management units are included in the groupwide management of capital adequacy. Management of economic capital adequacy on the basis of both internal risk measurement methods and regulatory capital adequacy requirements aims to ensure that the assumption of risk is consistent with the capital resources of the DZ BANK Group, the DZ BANK financial conglomerate, and the DZ BANK banking group at every measurement date and at every reporting date.

Regulatory solvency requirements for the DZ BANK financial conglomerate, the DZ BANK banking group, and the R+V Versicherung AG insurance group are observed in economic capital management.

The **Board of Managing Directors of DZ BANK** defines the corporate objectives and the capital requirement in the DZ BANK Group and at DZ BANK in terms of both risks and returns. In managing the risk profile, the Board of Managing Directors strives for an appropriate ratio between risk and available internal capital. DZ BANK is responsible for risk and capital management, and for compliance with capital adequacy at group level.

The management of economic and regulatory capital adequacy is based on internal target values. To avoid any unexpected adverse impact on **target values and capital ratios** and ensure that any changes in risk are consistent with corporate strategy, groupwide economic limits and risk-weighted assets are planned as limits for the risk capital requirement on an annual basis as part of the **strategic planning process**. This process results in a requirements budget for the economic and regulatory capital needed by the group. The implementation of any corresponding measures to raise capital is approved by the Treasury and Capital Committee and then coordinated by **Group Treasury** at DZ BANK. The integration of economic risk capital requirements planning into the strategic planning process aims to ensure that the risk strategy for types of risk covered by capital is closely linked with the business strategies.

At DZ BANK, the **Group Finance** division is responsible for monitoring regulatory capital adequacy. Regular monitoring is designed to ensure that the applicable minimum regulatory requirements for solvency are met at every reporting date. Monitoring takes place monthly for the DZ BANK financial conglomerate, the DZ BANK banking group and DZ BANK, and at least quarterly for the R+V Versicherung AG insurance group. The Board of Managing Directors and the supervisory authority are notified of the results within the monthly reports on capital management.

7.2 Economic perspective

Owing to the close ties between the management of economic capital adequacy at DZ BANK and that of the DZ BANK Group, the information below also applies to DZ BANK.

7.2.1 Measurement methods

Economic capital management is based on internal risk measurement methods that take into account all types of risk that are material from a capital adequacy perspective. The risk capital requirement is determined by aggregating the relevant risk types of all management units. The methods selected serve to meet the statutory requirements for a groupwide integrated risk capital management system.

In the **risk-bearing-capacity analysis**, the risk capital requirement (including capital buffer) is compared with the available internal capital in order to determine the economic capital adequacy. The Board of Managing Directors determines the limits for a particular year on the basis of the available internal capital. These limits then restrict the risk capital requirement (including capital buffer). If necessary, the limits can be adjusted during the year, e.g. if economic conditions change.

Available internal capital comprises equity and hidden reserves. It is reviewed on a quarterly basis. The available internal capital is determined as follows:

– The available internal capital from the **Bank sector** is calculated on the basis of the IFRS data in accordance with regulatory financial reporting. In this process, R+V is not fully consolidated but taken into account using the equity method.

– The available internal capital from the **Insurance sector** is based on the own funds of the R+V Versicherung AG insurance group in accordance with Solvency II.

– The available internal capital from the two sectors is combined to produce the available internal capital of the DZ BANK Group. During this process, the effects of consolidation between the Bank and Insurance sectors are taken into account, resulting in a reduction in the available internal capital at group level.

The purpose of the **capital buffer** (also referred to below as the capital buffer requirement) is to cover the lack of precision in some areas of risk measurement. This applies to migration risk on traditional loans and the risk arising from defined benefit obligations, for example. The latter, in the form of longevity risk, is one aspect of actuarial risk and is particularly important for the Bank sector. The individual components of the capital buffer are quantified using a method based on scenarios and models with input from experts.

A distinction is made between centralized and decentralized capital buffer requirements. Decentralized capital buffer requirements are managed within the limits for the individual risk types, whereas the centralized capital buffer is managed on the basis of a limit covering all sectors and risk types.

7.2.2 Traffic light system

Economic capital adequacy is monitored and managed using a traffic light system based on the ratio of available internal capital to aggregate risk (expressed as a percentage).

The switch from green to amber in the traffic light system (**amber threshold**) is set at the internal threshold value for economic capital adequacy specified in the risk appetite statement, which in 2019 was unchanged compared with the previous year at 120 percent. The amber threshold serves as an early warning indicator. The **red threshold**, i.e. the borderline between amber and red in the traffic light system, was set at 110.0 percent in the year under review, again unchanged compared with 2018.

The threshold values for economic capital adequacy are reviewed annually and adjusted if necessary.

7.2.3 Risk-bearing capacity

Retrospective recalculation of the overall solvency requirement

It was necessary to recalculate the overall solvency requirement as at December 31, 2018 owing to scheduled changes to the parameters for the risk measurement procedures and the updating of actuarial assumptions carried out in the second quarter of 2019 for the Insurance sector on the basis of R+V's 2018 consolidated financial statements. The recalculation reflects updated measurements of insurance liabilities based on annual actuarial analyses and updates to parameters in the risk capital calculation. Because of the complexity and the amount of time involved, the parameters are not completely updated in the in-year calculation and an appropriate projection is made.

The recalculation led to changes in the available internal capital, the key risk indicators at the level of the DZ BANK Group, and economic capital adequacy. The figures as at December 31, 2018 given in this opportunity and risk report have been restated accordingly and are not directly comparable with the figures in the 2018 opportunity and risk report.

Available internal capital

The DZ BANK Group's **available internal capital** as at December 31, 2019 was measured at €26,968 million. The comparable figure as at December 31, 2018 was €27,954 million. The figure originally measured as at December 31, 2018 and disclosed in the 2018 opportunity and risk report came to €28,562 million. The reduction in available internal capital was largely because capital components were no longer included following implementation of the new requirements in the ECB's ICAAP guide.

The limit derived from the available internal capital amounted to €21,723 million as at December 31, 2019 (December 31, 2018: €24,276 million). The lower limit arose because unneeded sub-limits were relinquished.

As at the reporting date, **aggregate risk** was calculated at €16,932 million. The comparable figure as at December 31, 2018 was €16,418 million. The figure originally measured as at December 31, 2018 and disclosed in the 2018 opportunity and risk report came to €17,025 million. The increase in risk, which was mainly attributable to the Insurance sector, was due to portfolio growth and the level of interest rates. This trend was accompanied by a sharp rise in own funds in the Insurance sector.

Economic capital adequacy

As at December 31, 2019, the economic capital adequacy ratio for the **DZ BANK Group** was calculated at 159.3 percent. The comparable figure as at December 31, 2018 was 170.3 percent. The figure originally measured as at December 31, 2018 and disclosed in the 2018 opportunity and risk report was 167.8 percent. During the reporting year, the economic capital adequacy ratio was higher than the internal threshold value of 120.0 percent and the external minimum target of 100.0 percent at every measurement date. The reduction in economic capital adequacy compared with the end of 2018 was largely because capital components were no longer included in available internal capital following implementation of the requirements in the ECB's new ICAAP guide.

Fig. 15 provides an overview of the components of economic capital adequacy.

The limits and risk capital requirements including the capital buffer requirements for the **Bank sector**, broken down by risk type, are shown in Fig. 16.

Fig. 17 sets out the limits and overall solvency requirements for the **Insurance sector**, broken down by risk type, and includes policyholder participation. The definition of the limits and determination of overall solvency requirements take into account the ability to offset deferred taxes against losses (which arises where deferred tax liabilities can be eliminated in the loss scenario). Diversification effects between the risk types are also taken into consideration. Owing to these effects of correlation, the overall solvency requirement and limit for each risk type are not cumulative. The rise in the overall solvency requirement compared with the prior year resulted first and foremost from the trend in interest rates and business growth.

In addition to the figures shown in Fig. 16 and Fig. 17, the aggregate risk includes **a centralized capital buffer requirement across all types of risk**, which was calculated at €526 million as at December 31, 2019 (December 31, 2018: €301 million). The corresponding limit was €620 million (December 31, 2018: €340 million). This increase was predominantly the result of the specifications in the ECB's new ICAAP guide.

7.2.4 Possible impact from crystallized risk covered by capital

If risk covered by capital actually materializes, this has a negative impact on both financial performance and financial position as well as on the enterprise value of the DZ BANK Group and DZ BANK. In the income statement in this situation, the recognized expenses are higher and/or the recognized income is lower than originally expected. This is accompanied by a decrease in the net assets on the balance sheet because assets are unexpectedly lower and/or liabilities are unexpectedly higher. A widening of spreads on fungible financial instruments may also lead to a deterioration in the financial position, which is reflected in other comprehensive income.

If there is a deterioration in financial performance, there is the risk of long-term **negative risk-adjusted profitability** where the cost of capital cannot then be covered, and economic value added (EVA) becomes negative. If this situation arose, there would no longer be any point in continuing business operations from a business management perspective.

FIG. 15 – COMPONENTS OF ECONOMIC CAPITAL ADEQUACY OF THE DZ BANK GROUP

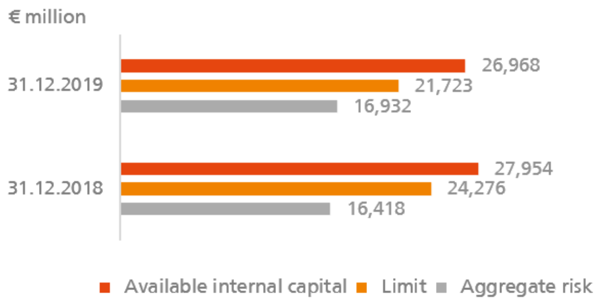


FIG. 16 – LIMITS AND RISK CAPITAL REQUIREMENTS INCLUDING CAPITAL BUFFER REQUIREMENTS IN THE BANK SECTOR

	Limit		Risk capital requirement[3]	
€ million	Dec. 31, 2019	Dec. 31, 2018	Dec. 31, 2019	Dec. 31, 2018
Credit risk	7,189	8,238	5,484	5,541
Equity investment risk	1,063	1,341	850	1,091
Market risk	5,646	6,768	3,860	4,030
Technical risk of a home savings and loan company[1]	706	667	397	553
Business risk[2]	1,016	1,118	837	857
Operational risk	926	1,030	859	804
Total (after diversification)	**15,201**	18,236	**11,289**	11,600

1 Including business risk and reputational risk of BSH.
2 Apart from that of BSH, reputational risk is contained in the risk capital requirement for business risk.
3 Including decentralized capital buffer requirement.

FIG. 17 – LIMITS AND OVERALL SOLVENCY REQUIREMENTS IN THE INSURANCE SECTOR

	Limit		Overall solvency requirement	
€ million	Dec. 31, 2019	Dec. 31, 2018	Dec. 31, 2019	Dec. 31, 2018
Life actuarial risk	1,200	1,100	977	921
Health actuarial risk	410	350	244	234
Non-life actuarial risk	3,960	3,650	3,597	3,300
Market risk	3,850	4,350	3,575	3,205
Counterparty default risk	100	100	90	64
Operational risk	680	640	644	557
Risks from entities in other financial sectors	112	145	111	111
Total (after diversification)	**5,902**	5,700	**5,116**	4,517

Viewed in isolation and assuming there are no other influencing factors, this chain of events would apply particularly in a scenario where the equity holder is simply seeking to maximize profits. In the case of DZ BANK, however, there is another significant factor in that the intention of the equity holders (who in many cases are also customers of DZ BANK and its subsidiaries) in committing equity to DZ BANK is not only to achieve, as far as possible, market-level returns commensurate with the risk involved, but also to utilize the decentralized services that DZ BANK provides as the central institution in the cooperative financial network. The return on capital that forms part of any purely monetary analysis therefore needs to be adjusted in the case of DZ BANK to add the effects of the extra benefits. Given this background, EVA is only of limited use for assessing the advantages of the investment in DZ BANK. Thus, a negative EVA is not necessarily associated with the discontinuation of business activities undertaken by DZ BANK or its subsidiaries.

If risk were to materialize and associated losses be incurred, there would be a risk that the DZ BANK Group would **miss its economic capital adequacy target**. However, this situation could also occur with an increase in risk arising from heightened market volatility or as a consequence of changes in the business structure. In addition, a decrease in available internal capital, for example because its components have expired or are no longer eligible, could mean that the risk capital requirement exceeds the available internal capital. Additional or more stringent regulatory requirements could also have a negative impact on the economic capital adequacy of the DZ BANK Group.

In a situation in which the economic capital adequacy of the DZ BANK Group could not be guaranteed, there would be insufficient capital available to meet the group's own standards with regard to the coverage of risk. This could lead to a **deterioration in the credit ratings** for DZ BANK and its subsidiaries. If there is also insufficient capital to meet the level of protection demanded by the supervisory authority, this authority could initiate action, which in extreme cases could lead to the **resolution** of DZ BANK or its subsidiaries.

7.3 Normative internal perspective

7.3.1 Principles

The regulatory ratios presented below are used as part of the internal management of the DZ BANK financial conglomerate, the DZ BANK banking group, and DZ BANK. The procedures used to determine these ratios are predominantly those that will be required by the full application of the CRR going forward.

7.3.2 DZ BANK financial conglomerate

The FKAG forms the main legal basis for the supervision of the DZ BANK financial conglomerate. The calculation methodology for the coverage ratio is taken from Commission Delegated Regulation (EU) No. 342/2014 in conjunction with article 49 (1) CRR.

The financial conglomerate coverage ratio is the ratio between the total of own funds in the financial conglomerate and the total of solvency requirements for the conglomerate. The resulting ratio must be at least 100 percent. The changes in the **eligible own funds** and the **solvency requirements** are shown in Fig. 18. According to current projections, the requirements will also be satisfied in 2020.

These components gave a preliminary **coverage ratio** of 171.9 percent as at December 31, 2019 (final figure as at December 31, 2018: 174.0 percent), which was in excess of the regulatory minimum requirement (100.0 percent) and the internal threshold value (120.0 percent). According to current projections, the requirements are also expected to be satisfied in 2020.

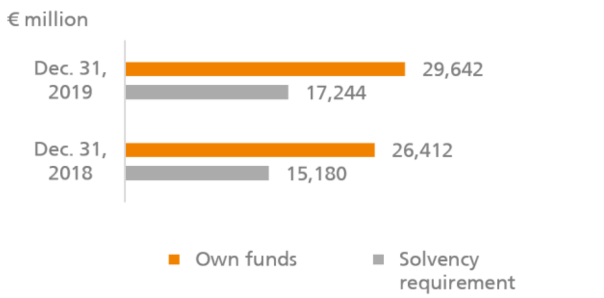
7.3.3 DZ BANK banking group

Regulatory framework

The DZ BANK banking group uses the following methods to calculate the regulatory risk-weighted assets in accordance with the CRR:

- Credit risk: Primarily the foundation IRB approach and the IRB approach for the retail business (the regulatory credit risk measurement methods used by DVB are based on the advanced IRB approach)
- Market risk: Predominantly the group's own internal models and, to a minor extent, the Standardized Approaches
- Operational risk: Standardized Approach.

FIG. 18 – COMPONENTS OF THE REGULATORY CAPITAL ADEQUACY OF THE DZ BANK FINANCIAL CONGLOMERATE[1]



1 December 31, 2019: Preliminary figures; December 31, 2018: Final figures.

Regulatory minimum capital requirements

The minimum capital requirements that the DZ BANK banking group had to comply with in 2019 comprised those components of Pillar 1 laid down as mandatory by law and those individually specified by the banking supervisor. Institution-specific requirements under the additional capital requirements in Pillar 2, determined in the outcome of the SREP conducted for the DZ BANK banking group in 2018, also had to be satisfied. In this process, the banking supervisor specified a mandatory add-on (Pillar 2 requirement) that is factored into the basis of calculation used to determine the threshold for the maximum distributable amount (MDA). Distributions are restricted if capital falls below the MDA threshold.

In addition to this mandatory component, there is a recommended own funds amount under Pillar 2 (Pillar 2 guidance), which likewise is determined from the SREP, but unlike the mandatory component relates only to common equity Tier 1 capital. Failure to comply with the own funds guidance under Pillar 2 does not constitute a breach of regulatory capital requirements. Nevertheless, this figure is relevant as an early warning indicator for capital planning.

The mandatory minimum capital requirements and their components applicable to 2019, 2018, and 2020 are shown in Fig. 19.

FIG. 19 – REGULATORY MINIMUM CAPITAL REQUIREMENTS OF THE DZ BANK BANKING GROUP [1]

%	2019	2018
Minimum requirement for common equity Tier 1 capital	4.50	4.50
Additional Pillar 2 capital requirement	1.75	1.75
Capital conservation buffer	2.50	1.88
Countercyclical capital buffer	0.04	0.05
O-SII capital buffer	1.00	0.66
Mandatory minimum requirement for common equity Tier 1 capital	**9.79**	**8.84**
Minimum requirement for additional Tier 1 capital[1]	1.50	1.50
Mandatory minimum requirement for Tier 1 capital	**11.29**	**10.34**
Minimum requirement for Tier 2 capital[2]	2.00	2.00
Mandatory minimum requirement for total capital	**13.29**	**12.34**

1 The minimum requirement can also be satisfied with common equity Tier 1 capital.
2 The minimum requirement can also be satisfied with common equity Tier 1 capital or additional Tier 1 capital.

The internal threshold values at the level of the DZ BANK banking group for the common equity Tier 1 capital ratio, the Tier 1 capital ratio, and the total capital ratio were satisfied at all times during the reporting period. The internal threshold values are shown in Fig. 7 in section 2.4.2.

Applying the CRR in full, the mandatory minimum capital requirements stipulated by the supervisory authorities and the recommended minimum capital requirements were also complied with on every reporting date in 2019. According to current projections, the requirements will also be satisfied in 2020.

BaFin has classified DZ BANK as an other systemically important institution (O-SII). The DZ BANK banking group had to comply with an **O-SII capital buffer** (comprising common equity Tier 1 capital) as defined in section 10g (1) KWG at a level of 1.0 percent in 2019.

Regulatory capital ratios

The regulatory **own funds** of the **DZ BANK banking group** as at December 31, 2019 determined in accordance with full application of the CRR amounted to a total of €25,690 million (December 31, 2018: €22,210 million).

This equates to a **rise in own funds** of €3,480 million compared with the end of 2018, comprising an increase in common equity Tier 1 capital of €2,547 million and in additional Tier 1 capital of €1,401 million. Some of the increase in these capital components was offset by a decrease in Tier 2 capital of €469 million.

In the case of **common equity Tier 1 capital**, net profits eligible for retention had a particularly positive impact. Conversely, a contraction in securitization exposures and the shortfall resulting from the comparison between expected losses and the loss allowances recognized in this regard for IRB approach exposures led to a reduction in common equity Tier 1 capital. The increase in additional Tier 1 capital was attributable to a new issue in this class of capital amounting to €1,401 million.

Tier 2 capital declined from €3,344 million as at December 31, 2018 to €2,875 million as at December 31, 2019, a year-on-year decrease of €469 million. This change was mainly attributable to the reduced level of eligibility under CRR rules for own funds instruments in this capital category in the last 5 years before their maturity date and to the reduced possibilities for including minority interests.

Regulatory **risk-weighted assets** in the DZ BANK banking group went up from €132,152 million as at December 31, 2018 to €143,800 million as at December 31, 2019, a rise of €11,648 million. This increase was primarily due to a greater level of credit risk and a higher amortized carrying amount for R+V.

As at December 31, 2019, the DZ BANK banking group's **common equity Tier 1 capital ratio** was 14.4 percent and therefore higher than the ratio of 13.7 percent at the end of 2018. The **Tier 1 capital ratio** of 15.9 percent calculated as at the reporting date was also up compared with the figure at December 31, 2018. The figure as at December 31, 2019 was 14.3 percent. The **total capital ratio** also went up year on year from 16.8 percent as at December 31, 2018 to 17.9 percent as at the reporting date.

Fig. 20 provides an overview of the DZ BANK banking group's regulatory capital ratios.

The figures below are based on full application of the CRR. The **common equity Tier 1 capital ratio** for **DZ BANK** was calculated at 14.5 percent as at December 31, 2019, which was lower than the equivalent figure of 15.4 percent as at December 31, 2018. In contrast, the **Tier 1 capital ratio** (calculated on the same legal basis) was up, from 16.3 percent as at December 31, 2018 to 16.7 percent as at December 31, 2019. The **total capital ratio** declined from 19.7 percent as at December 31, 2018 to 19.5 percent as at the reporting date. The fall in the Tier 1 capital ratio and total capital ratio was attributable to the rise of €4,774 million in risk-weighted assets. The increase in the Tier 1 capital ratio was largely attributable to the issuance of new AT1 bonds. DZ BANK exceeded the regulatory minimum capital ratios at every reporting date in 2019.

Leverage ratio

The leverage ratio shows the ratio of a bank's Tier 1 capital to its total exposure. In contrast to credit-risk-related capital requirements for which the assumptions are derived from models, the individual line items in the calculation of the leverage ratio are not given their own risk weighting but are generally included in the total exposure without any weighting at all.

The leverage ratios determined for the DZ BANK banking group and DZ BANK with the full application of the CRR are shown in Fig. 21.

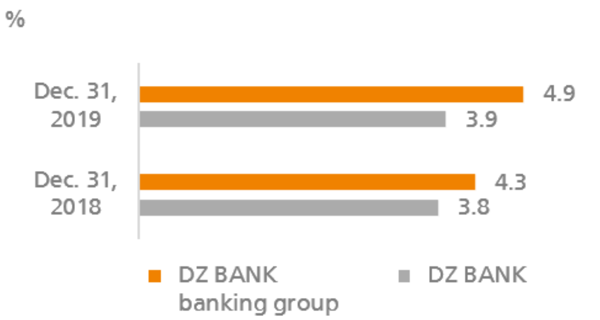
In the reporting period, the leverage ratio of the **DZ BANK banking group** determined with **full application of the CRR regulations** went up by 0.6 percentage points from 4.3 percent as at December 31, 2018 to 4.9 percent as at December 31, 2019. This increase resulted primarily from the rise in Tier 1 capital of €3.9 billion. In addition, the total exposure as at the reporting date had risen by €25.0 billion year on year. The growth of the total exposure was mainly attributable to the expansion of on-balance-sheet business at DZ BANK.

FIG. 20 – REGULATORY CAPITAL RATIOS OF THE DZ BANK BANKING GROUP WITH FULL APPLICATION OF THE CRR[1]

	Dec. 31, 2019	Dec. 31, 2018
Capital		
Common equity Tier 1 capital (€ million)	20,705	18,158
Additional Tier 1 capital (€ million)	2,109	708
Tier 1 capital	22,814	18,866
Total Tier 2 capital (€ million)	2,875	3,344
Own funds	25,690	22,210
Risk-weighted assets		
Credit risk including long-term equity investments (€ million)	124,734	112,425
Market risk (€ million)	8,350	9,104
Operational risk (€ million)	10,716	10,623
Total	143,800	132,152
Capital ratios		
Common equity Tier 1 capital ratio (%)	14.4	13.7
Tier 1 capital ratio (%)	15.9	14.3
Total capital ratio (%)	17.9	16.8

1 The figures as at December 31, 2018 differ from the corresponding figures disclosed in the opportunity and risk report for the first half of 2019 and in the opportunity and risk report for 2018 due to the transition to disclosure based on full application of the CRR and due to regulatory requirements.

FIG. 21 – LEVERAGE RATIOS OF THE DZ BANK BANKING GROUP AND DZ BANK WITH FULL APPLICATION OF THE CRR



The **DZ BANK banking group's** leverage ratio calculated in accordance with the currently applicable **CRR transitional guidance** was 5.0 percent as at December 31, 2019 (December 31, 2018: 4.5 percent).

DZ BANK's leverage ratio as at December 31, 2019 was calculated at 3.9 percent (December 31, 2018: 3.8 percent). The leverage ratio was the same whether the CRR was applied in full or with the transitional guidance. The increase was attributable to the rise in Tier 1 capital of €1,216 million. On the other side of the ratio, the total exposure grew by €29.6 billion, which was mainly attributable to expansion of on-balance-sheet business.

Using both calculation methods, the internal **threshold value** of 3.5 percent applicable to the leverage ratio of the DZ BANK banking group was met on every reporting date in 2019. According to current projections, the requirements will also be satisfied in 2020.

From June 2021, both the DZ BANK banking group and DZ BANK will have to comply with a **minimum target** for the leverage ratio of 3 percent, which has been set externally by the banking supervisor.

At the same time, the **calculation of total exposure** will be adjusted as part of the introduction of CRR II. As a consequence, it is anticipated that the leverage ratio for the DZ BANK banking group will increase by approximately 1 percentage point based on full application of the CRR. A significant factor in the forecast increase is that loans and advances within the cooperative network will no longer have to be included, which will lead to a significant reduction in the total exposure measure.

Minimum requirement for own funds and eligible liabilities

The BRRD, Regulation (EU) No. 806/2014 establishing a Single Resolution Mechanism, and the transposition of the BRRD into German law in the form of the SAG have created the legal basis at European and national level for a single resolution mechanism for banks and the MREL regulatory ratio.

The MREL is intended to ensure that banks hold a sufficiently large volume of own funds and liabilities that can be 'bailed-in' to make it possible at all times to carry out an orderly resolution. 'Bail-in-able' liabilities are those that provide for creditors to take an interest in losses incurred and recapitalization if a bank gets into financial difficulties, enabling resolution to take place on the basis of the bail-in and other instruments without recourse to government help and without jeopardizing the stability of the financial system.

The MREL ratio is the ratio of the total of own funds and eligible bail-in-able liabilities of the DZ BANK banking group to the total liabilities and own funds of the DZ BANK banking group.

The internal threshold value for the DZ BANK banking group's MREL ratio set by DZ BANK's Board of Managing Directors was 8.5 percent in 2019. In June 2019, BaFin notified DZ BANK that the Single Resolution Board had set an MREL ratio of 8.2 percent for the DZ BANK banking group, which was unchanged compared with the prior-year figure.

The MREL ratio measured for the DZ BANK banking group was 11.4 percent as at September 30, 2019 (December 31, 2018: 14.4 percent). The fall in the ratio compared with the figure as at the prior-year reporting date was attributable to the non-eligibility of existing non-preferred and non-subordinated issues because of their remaining term to maturity and to a significant increase in total assets. The measured MREL ratio was therefore above the internal threshold value and the external minimum target. These requirements were met at every reporting date during the year up to September 30, 2019. It is reasonable to assume that the requirements were also met as at December 31, 2019 and – according to current projections – will be satisfied in 2020.

The MREL ratio disclosed for 2019 relates to September 30, 2019 because the relevant figures for the end of the year were not yet available at the deadline date for the publication of this opportunity and risk report.

7.3.4 R+V Versicherung AG insurance group

The regulatory solvency requirements for insurance companies and insurance groups provide a means of evaluating the overall risk position in the R+V Versicherung AG insurance group.

The group's risk-bearing capacity for regulatory purposes is defined as the eligible own funds at group level in relation to the risks arising from operating activities. The changes in the regulatory risk-bearing capacity of the R+V Versicherung AG insurance group as a whole and each of its constituent entities are analyzed at least once a quarter.

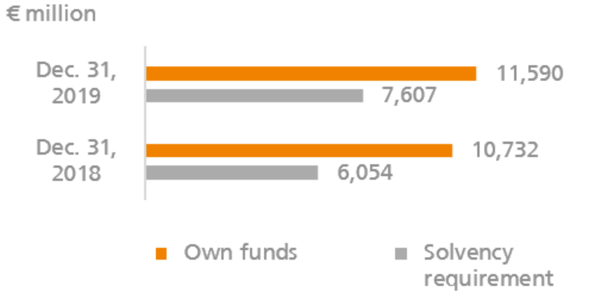
Fig. 22 shows how the solvency requirements are covered by eligible own funds.

As at December 31, 2019, the preliminary figure for the regulatory risk-bearing capacity of the R+V Versicherung AG insurance group was 152.4 percent (final figure as at December 31, 2018: 177.3 percent).

The recalculation of the overall solvency requirement described in section 7.2.3 also affected the regulatory risk-bearing capacity of the R+V Versicherung AG insurance group and led to retrospective changes in the solvency requirements as at the end of 2018. The figures as at December 31, 2018 given in this opportunity and risk report have been restated accordingly and are not directly comparable with the figures in the 2018 opportunity and risk report.

The project accounting applied in the internal planning shows that the R+V Versicherung AG insurance group's solvency ratio will continue to exceed the minimum statutory requirement as at December 31, 2020.

FIG. 22 – REGULATORY CAPITAL ADEQUACY OF THE R+V VERSICHERUNG AG INSURANCE GROUP[1]



1 December 31, 2019: Preliminary figures; December 31, 2018: Final figures.

7.4 Stress tests for types of risk covered by capital

7.4.1 Adverse stress tests

Adverse stress tests are used to examine the impact on capital and risk from potential **crisis scenarios** that are exceptional, but plausible, and particularly relevant to the DZ BANK Group's value and risk drivers. The **KPIs** relating to economic and regulatory capital adequacy are analyzed in this context. However, the stress tests also reflect events that go beyond the methods established for calculating capital adequacy. The term 'adverse stress tests' encompasses those stress scenarios that represent negative macroeconomic trends or events from the perspective of the DZ BANK Group. In this context, 'adverse' indicates that the scenarios may be particularly disadvantageous or even harmful.

Adverse stress tests can provide information on whether the level of capital resources – especially the buffer held to cover crisis situations – is also sufficient to cover various types of moderate to serious crisis scenario. The stress test results also facilitate an assessment of the extent to which the analyzed value and risk drivers are material for the DZ BANK Group.

The adverse stress tests include a number of **scenarios across all risk types** and are generally designed for a 1-year scenario horizon as a minimum. They take into account both macroeconomic scenarios and historical situations that are particularly relevant for the DZ BANK Group's business model and portfolios.

The adverse scenarios are based on macroeconomic factors from both the real economy and financial markets or they consist of specific events that are particularly relevant for the DZ BANK Group but not of a macroeconomic nature; some scenarios combine both macroeconomic and specific events.

The methods used are designed so that the specific features of R+V's business model and its risk and capital management systems are taken into account when determining the results of stress testing in the DZ BANK Group.

For the adverse stress tests, DZ BANK has put in place a system of threshold values as an **early-warning mechanism**. The threshold values for the scenarios across all risk types are monitored in the ongoing reporting system. These early-warning signals trigger various risk management processes so that there can be an early response to the potential risks highlighted by the stress tests. Control measures potentially available for the crisis scenario in question are also taken into account so that there is a comprehensive, critical evaluation of the stress test results.

The adverse stress tests are carried out quarterly. The results are noted by the **Board of Managing Directors** and by the DZ BANK Supervisory Board's **Risk Committee**.

7.4.2 Reverse stress tests

Reverse stress tests complement the adverse stress tests and are used to investigate which of the hypothetical scenarios could conceivably be sufficiently plausible and relevant to jeopardize the ability of the DZ BANK Group to **continue as a going concern**.

'Reverse' indicates that the tests are in the opposite direction and distinguishes them from the adverse stress tests. In adverse stress tests, scenarios are defined and the corresponding KPIs determined in order to assess whether there is a sufficient level of capital resources available to cover moderate or serious crisis scenarios. Reverse stress tests, on the other hand, examine which scenarios would have to occur to jeopardize the survival of the bank as a going concern.

In reverse stress tests, the risk particularly to the regulatory KPIs is simulated with scenarios in which it would no longer be feasible to **continue the business model** or in which the business model would prove to be no longer sustainable. In the case of reverse stress tests, the priorities are therefore as follows: firstly, to identify relevant scenario approaches that could have the potential to jeopardize the bank's survival as a going concern, and secondly, to estimate the probability and plausibility of a specific, sufficiently serious scenario of this nature.

The reverse stress tests are carried out annually. The results are noted by the **Board of Managing Directors** and by the DZ BANK Supervisory Board's **Risk Committee**.

7.4.3 Scenario analyses in the risk types

In the economic perspective, the quarterly report on adverse stress tests in the DZ BANK Group is supplemented by various scenario analyses in the risk types. These analyses serve as a link between risk drivers and sensitivities, and between potential events and adverse scenarios. The scenario analyses also enhance the risk quantification for each risk type by including an alternative perspective.

In the scenario analyses, specific risk drivers, risk concentrations, or events are examined in detail for each type of risk by simulating economic losses and comparing them against the relevant risk limit.

Bank sector

8 Credit risk

8.1 Definition

Credit risk is defined as the risk of losses arising from the default of counterparties (borrowers, issuers, other counterparties) and from the migration of the credit ratings of these counterparties.

Credit risk may arise in traditional lending business and also in trading activities. **Traditional lending business** is for the most part commercial lending, including financial guarantee contracts and loan commitments. In the context of credit risk management, **trading activities** refers to capital market products such as securities (in both the banking book and the trading book), promissory notes, derivatives, secured money market business (such as repo transactions), and unsecured money market business.

In **traditional lending business**, credit risk arises mainly in the form of default risk and migration risk. In this context, default risk refers to the risk that a customer may be unable to settle receivables arising from loans or advances made to the customer (including lease receivables) or make overdue payments, or that losses may arise from contingent liabilities or from lines of credit committed to third parties. Migration risk is a sub-risk within traditional credit risk and reflects changes in the fair value of types of exposure subject to credit risk caused by a change in the rating for a borrower (rating migration).

Credit risk in connection with **trading activities** arises in the form of default risk, which can be subdivided into issuer risk, replacement risk, and settlement risk, depending on the type of transaction involved.

Issuer risk is the risk of incurring losses from the default of issuers of tradable debt or equity instruments (such as bonds, shares, profit-participation certificates), losses from a default in connection with the underlying instrument in derivatives (for example, credit or equity derivatives), or losses from a default in connection with fund components.

Replacement risk on derivatives is the risk of a counterparty defaulting during the term of a trading transaction where entities in the Bank sector can only enter into an equivalent transaction with another counterparty by incurring an additional expense in the amount of the positive fair value at the time of default.

Recovery risk forms part of credit risk and increases the risk capital requirement for traditional credit risk, issuer risk, and replacement risk. Recovery risk arises from uncertainty relating to the recovery rates for collateral received. It also reflects the uncertainty regarding the recovery rate for unsecured receivables and the cure rate following counterparty default.

Settlement risk arises when there are two mutually conditional payments and there is no guarantee that when the outgoing payment is made the incoming payment will be received. Settlement risk is the risk of a loss if counterparties do not meet their obligations, counter-performance already having taken place.

Country risk is also included within credit risk. Country risk in the narrower sense of the term refers to conversion, transfer, payment prohibition, or moratorium risk. It is the risk that a foreign government may impose restrictions preventing a debtor in the country concerned from transferring funds to a foreign creditor. This type of risk is taken into account by means of the ratings used in credit risk measurement and specific modeling in the credit portfolio model. It increases the risk capital requirement for traditional credit risk, issuer risk, and replacement risk. In the broader sense of the term, country risk forms part of credit risk. In this case, it refers to the risk arising from exposure to the government itself (sovereign risk) and the risk that the quality of the overall exposure in a country may be impaired as a result of country-specific events.

8.2 Specific risk factors

Key values used in determining credit risk include the concentrations of lending volume in terms of counterparties, sectors, countries, and maturities, and the credit quality structure of the credit portfolio. **Significant concentrations of volume** in counterparties, sectors, or countries increase the risk that an accumulation of credit risk will become critical, for example if there are defaults among greater concentrations of counterparties or, in economic crises, defaults in sectors or countries with significant concentrations in the credit portfolio. The term of loan agreements is also a key credit risk factor because the probability of a deterioration in credit rating and therefore of a counterparty default during the term of an agreement generally increases over time. Particularly in the case of an **accumulation of exposures that have longer terms to maturity** and a non-investment-grade rating, there is a danger that the credit risk will materialize and the recognition of impairment losses will become necessary.

8.3 Business background and risk strategy

The DZ BANK Group is exposed to considerable credit risk in the Bank sector. The lending business is one of the most important core activities of the entities in the Bank sector. In its role as the central institution, DZ BANK covers the entire range of lending business, either in partnership with the local cooperative banks or in direct business, and provides its customers with financing solutions. Its customers include the local cooperative banks themselves, corporate customers, international companies, and banks and institutions both in Germany and abroad.

Default risk from traditional lending business arises primarily at DZ BANK, BSH, DVB, DZ HYP, and TeamBank. The risk results from the specific transactions in each management unit and therefore has varying characteristics in terms of diversification and size in relation to the volume of business.

Default risk relating to trading transactions arises from issuer risk, particularly in connection with the trading activities and investment business of DZ BANK, BSH, and DZ HYP. Replacement risk arises for the most part at DZ BANK and DZ PRIVATBANK. The entities in the Bank sector pursue a strictly decentralized business policy aimed at promoting the cooperative banks and are bound by the core strategic guiding principle of a 'network-oriented central institution and financial services group'. The business and risk policy for the credit-risk-bearing core businesses in the group is formulated on the basis of risk-bearing capacity. The credit risk strategy therefore forms the basis for credit risk management and reporting across the whole group and ensures that there is a standard approach to credit risk within the group. It takes into account the business models of each of the management units.

Lending throughout the group is predominantly based on the 'VR rating' system, a rating procedure developed by DZ BANK in collaboration with the BVR.

Both DZ BANK and the subsidiaries with a material credit risk seek to maintain a good rating and risk structure in their credit portfolios at all times. In the future, the portfolios will continue to be characterized by a high degree of diversification.

Where required, the Board of Managing Directors of DZ BANK makes decisions during the course of the year to ensure that the rules for the medium-term and long-term credit risk strategy are adjusted in line with changing circumstances and current developments.

The credit risk strategy specifies that the entities in the Bank sector must treat their partners fairly and, as part of the sustainability strategy, not enter into any lending arrangement that could prejudice the reputation of the DZ BANK Group or DZ BANK. A sustainable lending policy developed on the basis of this strategy is applied in the majority of the management units involved in lending.

The entities in the Bank sector are not involved in providing finance for the construction of new coal-fired power plants.

8.4 Sustainability review in the lending process

In the lending evaluation process, **DZ BANK** systematically reviews loan applications from relevant sustainability perspectives in order to limit any detrimental impact from its financing activities. All factors relevant to the financing arrangement in question are assessed in relation to environmental and social risks using a sustainability checklist based on the 10 principles of the **UN Global Compact** and the **Equator Principles**, the latter forming a global project finance standard for evaluating environmental and social risks. Loans to cooperative banks and to entities in the DZ BANK Group are exempt from the checks, as are exposures that are being restructured. Further exemptions apply to certain product types in the joint credit business with the cooperative banks, to loans under blanket approval agreements, and to exposures that are below the rating threshold.

At DZ BANK, industry-related principles are used in addition to the sustainability checklist when reviewing loan applications from sensitive industries (forestry, commodities mining/extraction, dam construction, fishing, and maritime industries). These principles specify the details to be reviewed with reference to international industry-specific conventions, recognized standards, certification, and optimum production processes.

8.5 Organization, responsibility, and risk reporting

Responsibilities in the lending process have been laid down and are documented in a written set of procedural rules. These responsibilities cover loan applications, approvals, and processing, including periodic credit control with regular analysis of ratings. Decision-making authority levels are specified by the relevant **rules** based on the risk content of lending transactions.

Established **reporting and monitoring processes** help to provide decision-makers with information about changes in the risk structure of credit portfolios and form the basis for managing credit risk.

The **credit risk report** keeps the Board of Managing Directors, the Group Risk and Finance Committee, and the Supervisory Board's Risk Committee informed of the economic capital required to cover credit risk. In addition to providing management with recommendations for action, internal reporting also includes an in-depth analysis of the portfolio structure in regard to risk concentrations based on key risk characteristics such as country, asset class, industry, rating class, and the lending volume to single borrowers. In addition, the reports include details on specific exposures. In the context of the risk limit, the credit value-at-risk is also included in the credit risk report.

8.6 Risk management

8.6.1 Rating systems

Use and characteristics of the rating systems

The generation of internal credit ratings for the counterparties of entities in the Bank sector helps to provide a solid basis for lending decisions in the management of transactions, in that the expected losses from defaults in the lending business are then factored into pricing. In addition, internal ratings are used to incorporate the credit quality of the counterparties when calculating unexpected losses in the credit portfolio.

The **VR rating system** used as standard throughout the cooperative financial network ensures that all the entities in the network apply a sophisticated uniform methodology producing ratings that are comparable.

DZ BANK primarily uses VR rating systems in its credit risk management system to assess large and medium-sized companies, major corporate customers, banks, investment funds, and project finance. The internal assessment approach is also used to evaluate the liquidity lines and credit enhancements made available by DZ BANK to programs for the issuance of asset-backed commercial paper (ABCP). These rating systems have been approved by the competent supervisory authority for the purposes of calculating regulatory capital using the **foundation IRB approach**.

For **internal management purposes**, DZ BANK uses further rating systems to assess SMEs (German Mittelstand), countries, asset finance, acquisition financing, agricultural businesses, public-sector entities, not-for-profit organizations, foreign SMEs, and insurance companies.

Most of the other entities in the Bank sector use the DZ BANK rating systems for banks, countries, and major corporate customers. Rating systems for specific business segments are also used by individual subsidiaries.

Development and expansion of rating systems

All internal **rating systems** approved by the banking supervisor for solvency reporting were **validated** in 2019. Validation processes at DZ HYP have not yet been completed in full for all rating systems because of merger activities. The revision of the **rating system for project finance** and of the **slotting approach for project finance**, which was completed in 2018, successfully underwent a supervisory review in the first half of 2019, focusing on the slotting approach. It is planned to use the slotting approach from 2020 when determining the regulatory capital requirement.

The new default definition as specified in the EBA's 'Guidelines on PD estimation, LGD estimation and the treatment of defaulted exposures' (EBA/GL/2017/16) was implemented in September of the reporting year. The revision of the IRB approach rating systems in accordance with EBA/GL/2017/16 is scheduled for 2020.

The rating system for major corporations is currently being redeveloped and the testing phase is planned to start in 2020. The supervisory review of this rating system is scheduled for 2021.

DZ BANK credit rating master scale

The credit rating master scale serves as a groupwide rating benchmark with which to standardize the different rating systems used by the entities in the Bank sector as a result of differences in their business priorities. It thereby provides all management units with a uniform view of counterparties' credit ratings.

Fig. 23 shows DZ BANK's credit rating master scale, in which internal credit ratings are matched to the ratings used by Moody's, Standard & Poor's, and Fitch Ratings. It should be noted that some internal ratings cannot be matched with a particular external rating because of the greater degree of refinement in the credit rating master scale. The ratings for securitization exposures are matched to various different external ratings depending on the asset class and region.

In DZ BANK's master scale, the default bands remain unchanged to ensure comparability over the course of time, whereas some fluctuation in default rates can be seen in external ratings. Therefore, it is not possible to map the internal ratings directly to the ratings used by the rating agencies. Consequently, the scale can only be used as a starting point for comparison between internal and external credit ratings.

DZ BANK rating desk

The VR rating systems for banks and countries are also available to DZ BANK subsidiaries and the cooperative banks. Users can enter into a master agreement to access the ratings via an IT application (Rating Desk), which is available throughout the cooperative financial network, in return for the payment of a fee. Any accessed ratings are first validated by the entities in the Bank sector or the cooperative banks before they are included in the user's credit procedures.

FIG. 23 – BANK SECTOR: DZ BANK'S VR CREDIT RATING MASTER SCALE AND EXTERNAL CREDIT RATINGS

Internal rating class	Average default probability	External rating classes			Rating category
		Moody's	Standard & Poor's	Fitch	
1A	0.01%	Aaa to Aa2	AAA to AA	AAA to AA	Investment grade
1B	0.02%	Aa3	AA-	AA-	
1C	0.03%				
1D	0.04%	A1	A+	A+	
1E	0.05%				
2A	0.07%	A2	A	A	
2B	0.10%	A3	A-	A-	
2C	0.15%	Baa1	BBB+	BBB+	
2D	0.23%	Baa2	BBB	BBB	
2E	0.35%				
3A	0.50%	Baa3	BBB-	BBB-	
3B	0.75%	Ba1	BB+	BB+	Non-investment grade
3C	1.10%	Ba2	BB	BB	
3D	1.70%				
3E	2.60%	Ba3	BB-	BB-	
4A	4.00%	B1	B+	B+	
4B	6.00%	B2	B	B	
4C	9.00%	B3	B-	B-	
4D	13.50%				
4E	30.00%	Caa1 or lower	CCC+ or lower	CCC+ or lower	
5A	DPD default				Default
5B	Specific loan loss allowance / internal neutralization of interest / rating-related sale with significant loss / further bank-internal criteria				
5C	Distressed restructuring				
5D	Insolvency				
5E	Direct impairment / workout				
NR	Not rated				

8.6.2 Lending business pricing

The management units in the Bank sector use the risk-adjusted pricing of the financing as a criterion in lending decisions. Adequate standard risk costs and risk-adjusted capital costs are taken into account. The methods used by the management units to manage transactions reflect the particular features of the product or business concerned.

To ensure that lending business remains profitable, **standard risk costs** are determined in the management of individual transactions in many parts of the **Bank sector**. The purpose of these costs is to cover average expected losses from borrower defaults. The aim is to ensure that the net loss allowances recognized in the financial statements are covered on average over the long term in an actuarial-type approach by the standard risk costs included in the pricing.

In addition to standard risk costs, **an imputed economic cost of capital** based on the capital requirement is integrated into **DZ BANK's** contribution margin costing. This enables DZ BANK to obtain a return on the capital tied up that is in line with the risk involved and that covers any unexpected losses arising from the lending business. Pricing also includes an appropriate amount to cover the costs of risk concentration.

8.6.3 Credit-portfolio management

Credit portfolio models are used together with value-at-risk methods to quantify unexpected losses that may arise from the credit portfolio for lending and for trading business. Credit value-at-risk reduced by the expected loss describes the risk of unexpected losses arising should a default or migration event occur in the credit portfolio. This calculation is based on one-year default probabilities, taking into account additional transaction-specific features and reflecting the current rating of the borrower.

When determining credit value-at-risk, recovery risk is taken into account as the amount by which the actual loss deviates from the expected recovery rate or – in the case of transactions already in default – from the specific loan loss allowances. Existing netting agreements are included in the measurement of trading exposures subject to default risk. The risk capital requirement is determined in the management units on a decentralized basis.

The credit portfolio is managed by restricting the credit value-at-risk to the limit set for credit risk. A traffic light system is used to monitor Bank sector management units' compliance with the limits specified for credit risk.

8.6.4 Management of exposure in traditional lending business

Measuring exposure in traditional lending business

Individual lending exposures are managed on the basis of an analysis of gross lending exposure. The period taken into account in this case is equivalent to the monitoring cycle of 1 year. Together with risk-related credit-portfolio management, volume-oriented credit risk management is one of the components in the management of risk concentrations in the lending business.

In traditional lending business, the credit exposure or lending volume is generally the same as the nominal value of the total loan book and reflects the maximum volume at risk of default. The credit exposure is a gross value because risk-bearing financial instruments are measured before the application of any credit risk mitigation and before the recognition of any loss allowances.

In building society operations, nominal amounts are used as a basis for measuring the gross lending volume. In addition, loans and advances to customers in building society operations are reduced by the associated deposits. The maximum credit exposure comprises the total lines of credit committed to third parties, or in the case of limit overruns, the higher amounts already drawn.

Limit system for managing exposures in traditional lending business

Limits are set in the relevant entities in the Bank sector for individual borrowers and groups of connected customers. Counterparties are also managed centrally at the level of the Bank sector, depending on the limit level and credit rating.

As a prerequisite for prompt monitoring of limits, suitable **early-warning processes** have been established in the management units that are of material significance for the Bank sector's credit risk. In this context, financial covenants are often incorporated into loan agreements to act as early-warning indicators for changes in credit standing and as a tool for the proactive risk management of lending exposures.

In addition, processes have been set up in the Bank sector to handle instances in which limits are **exceeded**. Such excess exposures must be approved by the relevant level of authority in the management units concerned and in accordance with applicable internal requirements, and must be reduced if necessary.

Country exposure in the traditional lending business is managed by setting **country limits** for industrialized countries and emerging markets at the Bank sector level.

8.6.5 Management of credit exposure in trading transactions

Measuring credit exposure in trading transactions

Issuer risk, replacement risk, and settlement risk are exposure-based measurements of the potential loss in trading transactions. These are determined without taking into account the likelihood of a default. In order to determine the credit exposure, securities in the banking book and trading book are predominantly measured at fair value (nominal amounts are used in building society operations), while derivatives are measured at fair value and, in respect of settlement risk, at the cash-flow-based accepted value.

The fair value of a securities exposure is used to determine the **issuer risk**. Risks relating to the underlying instruments in derivative transactions are also included in issuer risk.

At the level of the **Bank sector**, **replacement risk** is generally determined on the basis of fair value, taking into account appropriate add-ons. At **DZ BANK**, which is of particular significance as far as replacement risk is concerned, the risk is determined primarily according to each individual transaction as part of a portfolio simulation. The portfolio simulation models future exposures, taking into account a large number of risk factors. Replacement risk resulting from remaining over-the-counter (OTC) derivatives is calculated on the basis of fair value and the add-ons for individual transactions. The add-ons take into account specific risk factors and residual maturities.

With regard to exchange-traded derivatives, the replacement risk vis-à-vis the customer in customer brokerage business consists of the actual collateral exchanged (the variation margin for the daily settlement of profits and losses, and the initial margin as the collateral to be provided in advance to cover the loss risk), the fair value, and additional collateral requirements. To calculate the replacement risk vis-à-vis stock exchanges, additional potential for changes in value or add-ons for individual transactions are also taken into consideration. Where legally enforceable, netting agreements and collateral agreements are used at counterparty level for all derivatives in order to reduce exposure. In the case of repos and securities lending transactions, haircuts are applied instead of add-ons. Unsecured money market transactions are measured at fair value.

As regards **settlement risk**, the risk amount is the expected payment due. Settlement risk is recognized for the specified settlement period. It takes into account the amount and timing of outstanding cash flows for the purposes of managing the risk associated with mutual settlement at some point in the future. These future cash flows are already factored into the replacement risk through the fair value measurement and are therefore included in the risk capital requirement. As a result, settlement risk does not need to be covered with risk capital in addition to that for the other types of credit risk related to trading activities.

Limit system for managing trading exposure

DZ BANK has established an exposure-oriented **limit system** related to credit ratings to limit the default risk arising from trading business. Replacement risk is managed via a structure of limits broken down into maturity bands. Unsecured money market transactions are subject to separate limits. A daily limit is set in order to manage settlement risk. A specific limit for each issuer or, in certain circumstances, a general limit is determined as the basis for managing issuer risk. Covered bonds are subject to separate limits. The main subsidiaries have their own comparable limit systems.

The issuer risk in treasury's investment book is restricted by means of portfolio limits in addition to the individual issuer limits.

Exposure in connection with DZ BANK's trading business is measured and monitored using a standard method and a central, IT-supported limit management system to which all relevant trading systems are connected. Furthermore, the trading exposure in the Bank sector is managed on a decentralized basis at management unit level.

As in the traditional lending business, appropriate processes have also been established for the trading business to provide **early warnings and notification of limit overruns**. The member of the Board of Managing Directors responsible for risk monitoring is sent a daily list of significant exceeded trading limits. A monthly report is prepared covering the utilization of replacement and issuer risk in connection with trading activities.

Country exposure in the trading business is managed in the same way as in the traditional lending business by setting **limits for countries** at the Bank sector level.

8.6.6 Management of risk concentrations and correlation risks

Identifying risk concentrations

In order to highlight concentrations of credit risk, the exposure at portfolio level is categorized by, among other things, asset class, industry sector, country group, term to maturity, size category, and rating. In addition, risks resulting from large exposures to individual single borrower units are closely monitored and managed. The key factor to be considered when determining concentrations of credit risk is the possibility of a simultaneous default by a number of borrowers who share the same characteristics. This is why determining the correlated exposure to loss as a part of the calculation of the risk capital required for credit risk is essential for managing risk concentrations.

Risk concentrations in credit and collateral portfolios

In managing the traditional lending business and its trading business, DZ BANK takes into account the correlation between collateral and the borrower pledging the collateral or between the collateral and the counterparty whose replacement risk the collateral is intended to mitigate. If there is a significant positive correlation between the collateral and the borrower or the counterparty pledging the collateral, the collateral is disregarded or accorded a reduced value as collateral. This situation arises, for example, where a guarantor, garnishee, or issuer forms a group of connected clients or a similar economic entity with the borrower or counterparty.

Wrong-way risk

General wrong-way risk can arise as a result of DZ BANK's trading activities. This is defined as the risk of a positive correlation between the default probability of a counterparty and the replacement value (replacement risk exposure) of a (hedging) transaction entered into with this counterparty because of a change in the macroeconomic market factors of the traded underlying instrument (e.g. price changes for exchange rates).

Specific wrong-way risk can also occur. This is the risk of a positive correlation between the default probability of a counterparty and the replacement value (replacement risk exposure) of a (hedging) transaction entered into with this counterparty because of an increase in the default probability of the issuer of the traded underlying instrument. This type of risk largely arises in connection with OTC equity and credit derivatives in which the underlying instrument is a (reference) security or (reference) issuer.

The measures described below are used to appropriately monitor these risks and significantly reduce them. As a result, wrong-way risk, in particular, is not material at DZ BANK.

Measures to prevent concentration risk and wrong-way risk

In order to prevent unwanted risks that may arise from the concentration or correlation of collateral in the trading business or from general wrong-way risk, DZ BANK has brought into force a collateral policy and its own internal 'minimum requirements for bilateral reverse repo transactions and securities lending transactions'.

These requirements are based on the Credit Support Annex (ISDA Master Agreement) and the Collateralization Annex (German Master Agreement for Financial Futures) and stipulate that, in accordance with the collateral policy, only collateral in the form of cash (mainly in euros or US dollars), investment-grade government bonds, and/or Pfandbriefe can be used for mitigating risks arising from **OTC derivatives**. Exceptions to this rule are permitted, mainly for local cooperative banks, although a very good credit rating (at least 2B on DZ BANK's credit rating master scale) is still required for the relevant securities collateral. The collateral must also be eligible for use as collateral at the ECB.

High-grade collateral is also required for **repo and securities lending transactions** in compliance with DZ BANK's own internal minimum requirements and the generally accepted master agreements, although the range of collateral is somewhat broader here than in the case of OTC derivatives. Furthermore, the 'minimum requirements for bilateral reverse repos and securities lending transactions' exclude prohibited correlations and specify collateral quality depending on the credit rating of the counterparties. The relevant rules are monitored on a daily basis and any infringements of the requirements are reported each month to the Risk Committee.

If material specific wrong-way risk arises in connection with a bilateral OTC trading transaction, it is taken into account when the exposure is calculated.

The Risk Committee receives quarterly reports on relevant wrong-way risk and concentration risk arising in connection with derivatives and securities financing, including any necessary exposure adjustments.

8.6.7 Mitigating credit risk

Collateral strategy and secured transactions

In accordance with the credit risk strategy, **customer credit quality** forms the main basis for any lending decision; collateral has no bearing on the borrower's credit rating. However, depending on the structure of the transaction, collateral may be of material significance in the assessment of risk in a transaction.

Collateral in line with the level of risk in medium-term or long-term financing arrangements is generally sought. In particular, recoverable collateral equivalent to 50 percent of the finance volume is required for new business with SME customers in rating category 3D or below on the credit rating master scale.

Collateral is used as an appropriate tool for the management of risk in export finance or structured trade finance transactions. In the case of project finance, the financed project itself or the assignment of the rights in the underlying agreements typically serve as collateral.

Secured transactions in traditional lending business encompass commercial lending including financial guarantee contracts and loan commitments. In order to protect transactions against default risk, traditional collateral is obtained, the decision being made on a case-by-case basis.

Types of collateral

The entities in the Bank sector use all forms of **traditional loan collateral**. Specifically, these include mortgages on residential and commercial real estate, registered ship and aircraft mortgages, guarantees (including sureties, credit insurance, and letters of comfort), financial security (certain fixed-income securities, shares, and investment fund units), assigned receivables (blanket and individual assignments of trade receivables), and physical collateral.

Privileged mortgages, registered ship and aircraft mortgages, guarantees, and financial collateral are the main sources of collateral recognized for regulatory purposes under the CRR.

In accordance with DZ BANK's collateral policy, only cash, investment-grade government bonds, and/or Pfandbriefe are normally accepted as **collateral for trading transactions** required by the collateral agreements used to mitigate the risk attaching to OTC derivatives. DZ BANK also enters into netting agreements to reduce the credit risk arising in connection with OTC derivatives. The prompt evaluation of collateral within the agreed margining period also helps to limit risk.

In order to reduce the issuer risk attaching to bonds and derivatives, use is made of credit derivatives, comprising credit-linked notes, credit default swaps, and total return swaps. Macro hedges are used dynamically to mitigate spread risk and migration risk as well as risks attaching to underlying assets. In isolated cases, transactions are conducted on a back-to-back basis. For risk management purposes, the protection provided by credit derivatives is set against the reference entity risk, thereby mitigating it. The main protection providers/counterparties in credit derivatives are financial institutions, mostly investment-grade banks in the VR rating classes 1A to 2C.

Management of traditional loan collateral

Collateral management is the responsibility mainly of **specialist units**, generally outside the front-office divisions. The core tasks of these units include providing, inspecting, measuring, recording, and managing collateral and providing advice to all divisions in related matters.

To a large extent, standardized contracts are used for the provision of collateral and the associated declarations. Specialist departments are consulted in cases where customized collateral agreements are required. Collateral is managed in separate IT systems.

Collateral **is measured** in accordance with internal guidelines and is usually the responsibility of back-office units. As a minimum, carrying amounts are normally reviewed annually or on the agreed submission date for documents relevant to measurement of the collateral. Shorter monitoring intervals may be specified for critical lending exposures. Regardless of the specified intervals, collateral is tested for impairment without delay if any indications of impairment become evident.

The workout units are responsible for **recovering collateral**. In the case of non-performing loans, it is possible to depart from the general measurement guidelines and measure collateral on the basis of its likely recoverable value and time of recovery. Contrary to the general collateralization criteria, collateral involved in restructuring exposures can be measured using market values or the estimated liquidation proceeds.

Collateral management

In addition to **netting agreements** (ISDA Master Agreement and German Master Agreement for Financial Futures), **collateral agreements** (Credit Support Annex to the ISDA Master Agreement and Collateralization Annex to the German Master Agreement for Financial Futures) are entered into as instruments to reduce credit exposure in OTC transactions.

DZ BANK's **collateral policy** regulates the content of collateral agreements and the responsibilities and authorities for implementing the rights and obligations they confer within the bank. This policy specifies contractual parameters, such as the quality of collateral, frequency of transfer, minimum transfer amounts, and thresholds. DZ BANK regularly uses bilateral collateral agreements. Exceptions apply to cover assets and special-purpose entities, as the special legal status of the counterparties means that only unilateral collateral agreements can be usefully enforced, and to supranational or government entities.

Any decision not to use a bilateral collateral agreement for counterparties not subject to the European Market Infrastructure Regulation (EMIR) rules must be approved by a person with the relevant authority.

Netting and collateralization generally result in a significant reduction in the exposure from trading business. IT systems are used to measure exposures and collateral. **Margining** is carried out on a daily basis for the vast majority of collateral agreements in accordance with the collateral policy.

Collateral agreements generally include minimum transfer amounts and, in some cases, also **thresholds** that are independent of the credit rating. There are also some agreements with triggers based on the credit rating. In these agreements, for example, the unsecured part of an exposure is reduced in the event of a ratings downgrade or the borrower is required to make additional payments (for example, payments known as 'independent amounts'). Since the EMIR collateral agreement obligation came into force on March 1, 2017, the supervisory authorities have specified these contractual provisions as standard.

EMIR requires the exchange of an initial margin in bilateral OTC derivatives transactions in addition to the variation margin. The **initial margin exchange** will be mandatory for the entities in the Bank sector from September 2020.

Central counterparties

EMIR has permanently changed the environment in which banks, insurance companies, and investment funds conduct OTC derivative transactions. Under this regulation, market players must report all exchange-traded and OTC derivatives to central trade repositories and use predefined steps to settle certain standardized OTC derivatives via central counterparties (known as clearing houses). Furthermore, risk mitigation methods have to be used for OTC derivatives that are not settled centrally through a clearing house. This is intended to minimize counterparty risk.

Any market players not exempted from this new clearing obligation must be connected to a central counterparty. The market player concerned may be a direct member of a clearing house or may process its derivative contracts using a bank that is a member of a central counterparty.

DZ BANK is a direct member of the London Clearing House, which is Europe's largest clearing house for interest-rate derivatives, and of Eurex Clearing AG. The bank therefore has direct access to central counterparties for derivatives for the purposes of clearing derivative transactions. In the case of credit derivatives, it also has indirect access to the Intercontinental Exchange clearing house via clearing broker Deutsche Bank.

8.6.8 Management of non-performing lending exposures

Managing and monitoring non-performing exposures

Identified non-performing loans are transferred to the **workout units** at an early stage. By providing intensified loan management for critical exposures and applying tried-and-tested solutions, these special units lay the basis for securing and optimizing non-performing risk positions.

In its traditional lending business, DZ BANK has a comprehensive range of tools at its disposal for the early identification, close support, and high-quality monitoring of non-performing exposures. The sub-portfolio of non-performing loans is reviewed, updated, and reported on a quarterly basis. The process is also carried out at shorter intervals if required. This process is comprehensively supported by IT systems. Meaningful, prompt internal reporting focused on target groups is a key component of this approach. If necessary, the intensified loan management put in place for individual borrowers is transferred to task forces specially set up for this purpose. The risks in sub-portfolios are monitored and analyzed by means of regular reports.

Where required, similar procedures have been implemented in the main subsidiaries, which adapt them to the characteristics of the risks faced in their particular business.

Policies and procedures for the recognition of loss allowances

The description required by GAS 20 A1.7(c) of the methods used for recognizing loss allowances is included in note 5 of the notes to the consolidated financial statements.

Non-performing loans

The entities in the Bank sector classify a loan as non-performing if it has been rated between 5A and 5E on the VR credit rating master scale. This corresponds to the definition of default specified by the CRR. Non-performing loans are also referred to by the abbreviation NPLs.

The following key figures are used to manage non-performing loans:

– Loss allowance ratio (balance of loss allowances as a proportion of total lending volume)
– Risk cover ratio (balance of loss allowances as a proportion of the volume of non-performing loans)
– NPL ratio (volume of non-performing loans as a proportion of total lending volume).

The management of non-performing loans at DZ BANK is currently being updated in line with the requirements specified in the NPL guidance issued by the ECB.

8.7 Lending volume

8.7.1 Reconciliation of lending volume to the consolidated financial statements

For the purposes of internal credit risk management in the Bank sector, the lending volume is broken down by credit-risk-bearing instrument – traditional lending, securities business, and derivatives and money market business. This breakdown corresponds to the risk classes required for the external reporting of risks arising from financial instruments. The credit-risk-bearing instruments are classified by sector, country group, credit rating, and term to maturity so that volume concentrations can be identified.

Fig. 24 shows a reconciliation of the gross lending volume on which the risk management is based to individual balance sheet items in order to provide a transparent illustration of the link between the consolidated financial statements and risk management.

FIG. 24 – BANK SECTOR: RECONCILIATION OF THE LENDING VOLUME

€ billion Lending volume for internal management accounts			Reconciliation: Scope of consolidation		Reconciliation: Carrying amount and measurement					
	Dec. 31, 2019	Dec. 31, 2018	Dec. 31, 2019	Dec. 31, 2018	Dec. 31, 2019	Dec. 31, 2018	Dec. 31, 2019		Dec. 31, 2018	
Traditional lending business	299.6	289.3	2.3	2.4	26.2	20.3	328.1	**81.3**	312.0	79.2
								81.3		79.2
								--		-
								181.0		170.3
								183.2		172.6
								-2.2		-2.2
								65.8		62.4
Securities business	82.7	73.0	0.3	0.3	-16.5	-16.6	66.5	**66.5**	56.6	56.6
								11.7		10.8
								1.0		0.7
								53.8		45.1
Derivatives business	11.4	13.7	-0.1	0.1	-12.0	-15.9	-0.7	**-0.7**	-2.1	-2.1
								0.2		0.9
								19.3		15.6
								-1.3		-2.5
								-18.9		-16.1
Money market business	4.6	3.0	-	-	26.6	21.6	31.3	**31.3**	24.6	24.6
								16.2		12.4
								3.1		1.9
								1.0		0.2
								10.6		9.6
								0.4		0.5
Total	398.3	378.9	2.5	2.8	24.3	9.4	425.1		391.1	
								Balance as at Dec. 31, 2019	26.8	6.7%
								Balance as at Dec. 31, 2018	12.2	3.2%

Not relevant

There are discrepancies between the internal management and external consolidated financial reporting measurements for some products owing to the focus on the risk content of the items. The other main reasons for the discrepancies between the internal management figures and those in the external consolidated financial statements are differences in the scope of consolidation and differences in recognition and measurement methods.

Differences in the **scope of consolidation** result from the fact that, in internal credit risk management, only the entities in the Bank sector that contribute significantly to the aggregate risk of the sector are included.

The discrepancy in the **securities business** is mainly due to the variations in carrying amounts that arise because credit derivatives are offset against the issuer risk attaching to the underlying transaction in the internal management accounts, whereas such derivatives are recognized at their fair value as financial assets or financial liabilities held for trading in the consolidated financial statements.

The differences between the measurements in the **derivatives business** and those in the **money market business** arise because of differences in the treatment of offsetting items in internal risk management and in external financial reporting. Offsetting items are actually netted for the purposes of risk management, whereas netting of this nature is not permitted in the consolidated financial statements. In addition, add-ons are attached to the current fair values of derivative positions in the internal management accounts to take account of potential future changes in their fair value. By contrast, the external (consolidated) financial statements focus exclusively on the fair values determined on the valuation date, and, unlike in the internal accounts, collateral must not be recognized for risk mitigation purposes.

Lending volume for the consolidated financial statements	Note
Loans and advances to banks	
of which: loans and advances to banks excluding money market placements	52
of which: loss allowances for loans and advances to banks	61
Loans and advances to customers	
Loans and advances to customers excluding money market placements	53
of which: loss allowances for loans and advances to customers	61
Financial guarantee contracts and loan commitments	89
Bonds and other securities	
of which: financial assets held for trading/bonds excluding money market placements	55
of which: financial assets held for trading/promissory notes, registered bonds, and loans and advances	55
of which: investments/bonds excluding money market placements	56
Derivatives	
of which: derivatives used for hedging (positive fair values)	54
of which: financial assets held for trading/derivatives (positive fair values)	55
of which: derivatives used for hedging (negative fair values)	67
of which: financial liabilities held for trading/derivatives (negative fair values)	68
Money market placements	
of which: loans and advances to banks/money market placements	52
of which: loans and advances to customers/money market placements	53
of which: financial assets held for trading/money market instruments	55
of which: financial assets held for trading/money market placements	55
of which: investments/money market instruments	56

In money market business, further discrepancies arise between the consolidated financial statements and internal risk management due to the method used for the recognition of repo transactions. In contrast to the treatment in the consolidated financial statements, securities provided or received as collateral are offset against the corresponding assets or liabilities for the purposes of the internal analysis.

8.7.2 Change in lending volume

The **total lending volume** of the **Bank sector** increased by 5 percent overall in the year under review, from €378.9 billion as at December 31, 2018 to €398.3 billion as at December 31, 2019. One of the factors behind this increase was a rise of 4 percent in the lending volume in the **traditional lending business**, from €289.3 billion as at December 31, 2018 to €299.6 billion as at December 31, 2019. This uptrend was driven mainly by the retail sector. There was also an increase in the volume of the **securities business**, which advanced by 13 percent, from €73.0 billion as at December 31, 2018 to €82.7 billion as at December 31, 2019; this growth was focused in the financial sector. At €16.0 billion, the lending volume in the **derivatives and money market business** was down by 4 percent as at December 31, 2019 compared with the figure of €16.7 billion as at December 31, 2018.

At **DZ BANK**, the **total lending volume** rose by 9 percent, from €198.3 billion as at December 31, 2018 to €216.5 billion as at December 31, 2019. This was mainly due to an increase in volume in the traditional lending business, which went up from €146.7 billion as at the prior-year reporting date to €156.5 billion as at December 31, 2019. **Securities business** also saw growth, rising to €45.8 billion as at December 31, 2019 compared with €36.8 billion as at December 31, 2018; this was primarily attributable to higher exposure in financial-sector and public-sector bonds. However, **derivatives and money market business** at DZ BANK declined to €14.3 billion as at December 31, 2019 compared with the December 31, 2018 figure of €14.9 billion.

8.7.3 Sector structure of the credit portfolio

Fig. 25 shows the breakdown of the credit portfolio by sector, in which the lending volume is classified according to the industry codes used by Deutsche Bundesbank. This also applies to the other sector breakdowns related to credit risk in this opportunity and risk report.

As at December 31, 2019, a significant proportion (unchanged at 36 percent) of the lending volume in the **Bank sector** continued to be concentrated in the financial sector. In addition to the local cooperative banks, the borrowers in this customer segment comprised banks from other sectors of the banking industry and other financial institutions.

As at December 31, 2019, a significant proportion (59 percent) of **DZ BANK's** lending volume was also concentrated in the financial sector (December 31, 2018: 60 percent). The composition of this customer segment is the same both at DZ BANK and in the Bank sector. Loans and advances to public-sector borrowers rose by €1.3 billion year on year.

In its role as central institution for the Volksbanken Raiffeisenbanken cooperative financial network, DZ BANK provides funding for the entities in the Bank sector and for the cooperative banks. For this reason, the cooperative banks account for one of the largest receivables items in the DZ BANK Group's credit portfolio. DZ BANK also supports the cooperative banks in the provision of larger-scale funding to corporate customers. The resulting syndicated business, the direct business of DZ BANK and DZ HYP, the real-estate lending business brought together in BSH, and DZ HYP's local authority lending business determine the industry breakdown for the remainder of the portfolio.

8.7.4 Geographical structure of the credit portfolio

Fig. 26 shows the geographical distribution of the credit portfolio by country group. The lending volume is assigned to the individual country groups using the International Monetary Fund's breakdown, which is updated annually. This also applies to the other country-group breakdowns related to credit risk in this opportunity and risk report.

As at December 31, 2019, 97 percent of the lending in the **Bank sector** (December 31, 2018: 96 percent) and also 95 percent of the total lending by **DZ BANK** (unchanged on the figure as at December 31, 2018) was concentrated in Germany and other industrialized countries.

FIG. 25 – BANK SECTOR: LENDING VOLUME, BY SECTOR

	Traditional lending business		Securities business		Derivatives and money market business		Total	
€ billion	Dec. 31, 2019	Dec. 31, 2018	Dec. 31, 2019	Dec. 31, 2018	Dec. 31, 2019	Dec. 31, 2018	Dec. 31, 2019	Dec. 31, 2018
Financial sector	100.6	98.3	32.0	25.7	10.2	12.8	142.8	136.8
Public sector	10.7	10.4	38.1	35.9	0.7	0.4	49.5	46.7
Corporates	107.3	114.9	8.5	7.6	4.6	3.0	120.4	125.5
Retail	69.8	57.2	1.5	2.4	-	-	71.4	59.6
Industry conglomerates	10.5	7.8	2.7	1.5	0.5	0.4	13.6	9.7
Other	0.6	0.7	-	-	-	-	0.6	0.7
Total	299.6	289.3	82.7	73.0	16.0	16.6	398.3	378.9

FIG. 26 – BANK SECTOR: LENDING VOLUME, BY COUNTRY GROUP

	Traditional lending business		Securities business		Derivatives and money market business		Total	
€ billion	Dec. 31, 2019	Dec. 31, 2018	Dec. 31, 2019	Dec. 31, 2018	Dec. 31, 2019	Dec. 31, 2018	Dec. 31, 2019	Dec. 31, 2018
Germany	269.4	254.3	47.7	43.1	10.7	10.1	327.8	307.4
Other industrialized countries	20.9	23.5	31.0	26.1	4.8	5.5	56.7	55.2
Advanced economies	1.9	2.5	0.8	0.8	0.1	0.1	2.8	3.4
Emerging markets	7.3	9.0	0.9	0.9	0.2	0.2	8.5	10.1
Supranational institutions	-	-	2.3	2.1	0.3	0.6	2.6	2.8
Total	299.6	289.3	82.7	73.0	16.0	16.6	398.3	378.9

8.7.5 Residual maturity structure of the credit portfolio

The breakdown of the credit portfolio by residual maturity for the **Bank sector** as at December 31, 2019 presented in Fig. 27 shows that the lending volume had increased by €14.0 billion in the short-term maturity band and by €23.0 billion in the medium-term maturity band compared with the figures as at December 31, 2018. By contrast, the lending volume in the longer-term maturity band contracted by €17.6 billion. The shift between the maturity bands is primarily attributable to updates to the methodology used at DZ BANK as part of its activities to implement the requirements of BCBS 239 (Principles for effective risk data aggregation and risk reporting).

8.7.6 Rating structure of the credit portfolio

Fig. 28 shows the Bank sector's consolidated lending volume by rating class according to the VR credit rating master scale.

In the **Bank sector**, the proportion of the total lending volume accounted for by rating classes 1A to 3A (investment grade) as at December 31, 2019 was unchanged year on year at 78 percent. Rating classes 3B to 4E (non-investment grade) represented 21 percent of the total lending volume as at the reporting date, which was also unchanged compared with the end of 2018. The proportion of the total lending volume in the Bank sector accounted for by defaults, represented by rating classes 5A to 5E, was unchanged year on year at 1 percent as at December 31, 2019.

Rating classes 1A to 3A (investment grade) also dominated lending at **DZ BANK**, where they accounted for 87 percent of the total lending volume, which was down slightly compared with a year earlier (December 31, 2018: 88 percent). Rating classes 3B to 4E (non-investment grade) represented 11 percent of the total lending volume as at the reporting date, which equated to an increase of 10 percent compared with the figure as at December 31, 2018. Defaults (rating classes 5A to 5E) accounted for 1 percent of the total lending volume as at December 31, 2019, which was unchanged year on year.

As at December 31, 2019, the **10 counterparties associated with the largest lending volumes** accounted for 6 percent of total lending in the **Bank sector** (December 31, 2018: 7 percent). These borrowers were predominantly in the public sector and had investment-grade ratings. The equivalent proportion for **DZ BANK** was 5 percent (December 31, 2018: 7 percent). In this case, these counterparties largely comprised borrowers from the financial sector (including the cooperative banks) and public sector with investment-grade ratings.

FIG. 27 – BANK SECTOR: LENDING VOLUME, BY RESIDUAL MATURITY

	Traditional lending business		Securities business		Derivatives and money market business		Total	
€ billion	Dec. 31, 2019	Dec. 31, 2018	Dec. 31, 2019	Dec. 31, 2018	Dec. 31, 2019	Dec. 31, 2018	Dec. 31, 2019	Dec. 31, 2018
≤ 1 year	69.3	53.6	15.3	13.2	7.8	11.6	92.4	78.4
> 1 year to ≤ 5 years	73.9	53.2	26.9	26.3	3.2	1.4	104.0	81.0
> 5 years	156.4	182.4	40.5	33.5	5.0	3.6	201.9	219.5
Total	299.6	289.3	82.7	73.0	16.0	16.6	398.3	378.9

FIG. 28 – BANK SECTOR: LENDING VOLUME, BY RATING CLASS

		Traditional lending business		Securities business		Derivatives and money market business		Total	
€ billion		Dec. 31, 2019	Dec. 31, 2018	Dec. 31, 2019	Dec. 31, 2018	Dec. 31, 2019	Dec. 31, 2018	Dec. 31, 2019	Dec. 31, 2018
Investment grade	1A	5.0	5.1	32.6	30.8	1.0	1.2	38.6	37.1
	1B	1.8	1.6	2.9	2.8	0.9	2.5	5.6	6.9
	1C	97.4	91.8	10.7	8.2	4.0	3.4	112.1	103.4
	1D	7.4	6.8	2.4	2.0	0.4	0.2	10.2	9.0
	1E	11.7	11.5	3.2	2.0	1.5	1.9	16.5	15.4
	2A	10.8	9.9	5.0	5.8	1.0	1.4	16.8	17.1
	2B	10.6	11.4	8.4	6.1	1.8	2.1	20.9	19.7
	2C	15.6	14.9	2.4	2.5	1.1	1.0	19.1	18.4
	2D	17.4	17.1	4.2	2.9	0.9	0.7	22.6	20.7
	2E	18.7	17.6	3.7	2.5	1.4	0.8	23.8	20.9
	3A	20.2	21.8	4.5	3.8	0.6	0.6	25.4	26.2
Non-investment grade	3B	25.1	22.9	0.6	1.4	0.5	0.3	26.3	24.7
	3C	21.4	16.3	0.5	0.3	0.1	0.1	22.0	16.7
	3D	13.5	15.0	0.2	0.5	0.1	0.1	13.8	15.5
	3E	5.9	5.7	0.2	0.2	-	-	6.2	6.0
	4A	3.4	2.3	-	-	-	-	3.5	2.3
	4B	3.3	5.1	-	-	-	-	3.3	5.1
	4C	1.7	2.6	-	0.1	-	-	1.8	2.7
	4D	0.5	0.6	-	-	-	-	0.5	0.6
	4E	1.7	2.2	-	-	-	-	1.8	2.2
Default		4.3	4.8	0.1	0.1	-	-	4.5	5.0
Not rated		1.9	2.5	0.8	0.8	0.5	0.3	3.2	3.5
Total		299.6	289.3	82.7	73.0	16.0	16.6	398.3	378.9

8.7.7 Collateralized lending volume

Fig. 29 shows the breakdown of the collateralized lending volume at overall portfolio level by type of collateral and by risk-bearing instrument.

In the case of **traditional lending business**, lending volume is generally reported as a gross figure before the application of any offsetting agreements, whereas the gross lending volume in the **derivatives and money market business** is shown on a netted basis. In the derivatives and money market business, collateral values are relatively low and are in the form of personal and financial collateral. In the **securities business**, there is generally no further collateralization to supplement the collateral already taken into account. For this reason, securities business is not included in the presentation of the collateralized lending volume.

As at December 31, 2019, the total collateral value in the **Bank sector** had risen to €124.3 billion as at December 31, 2019 from €121.5 billion as at December 31, 2018. The collateralization rate was 39.4 percent as at the reporting date (December 31, 2018: 39.7 percent).

In the **traditional lending business**, most of the collateral value (87 percent as at December 31, 2019) continued to be accounted for by charges over physical assets such as land charges, mortgages, and registered ship and aircraft mortgages (December 31, 2018: 85 percent). These types of collateral are particularly important for BSH, DZ HYP, and DVB. In contrast, charges over physical assets are of lesser importance at DZ BANK because DZ BANK bases its lending decisions primarily on borrower credit quality.

FIG. 29 – BANK SECTOR: COLLATERAL VALUE, BY TYPE OF COLLATERAL

€ billion	Traditional lending business		Derivatives and money market business		Total	
	Dec. 31, 2019	Dec. 31, 2018	Dec. 31, 2019	Dec. 31, 2018	Dec. 31, 2019	Dec. 31, 2018
Guarantees, indemnities, risk subparticipation	6.5	6.4	0.4	0.3	7.0	6.7
Credit insurance	4.0	3.7	-	-	4.0	3.7
Land charges, mortgages, registered ship and aircraft mortgages	107.4	103.5	-	-	107.4	103.5
Pledged loans and advances, assignments, other pledged assets	3.5	6.0	-	-	3.5	6.0
Financial collateral	2.2	1.3	0.1	0.1	2.3	1.3
Other collateral	0.1	0.2	-	-	0.1	0.2
Total collateral	**123.7**	**121.1**	**0.6**	**0.4**	**124.3**	**121.5**
Lending volume	299.6	289.3	16.0	16.6	315.6	305.9
Uncollateralized lending volume	**175.9**	**168.2**	**15.4**	**16.2**	**191.3**	**184.4**
Collateralization rate (%)	**41.3**	**41.9**	**3.7**	**2.4**	**39.4**	**39.7**

In **securities transactions**, there is generally no further collateralization to supplement the collateral already taken into account. Equally, in the **derivatives and money market business**, collateral received under collateral agreements is already factored into the calculation of gross lending volume with the result that only a comparatively low level of collateral (personal and financial collateral) is then additionally reported.

At €11.9 billion, **DZ BANK's** total collateral value as at December 31, 2019 was down year on year (December 31, 2018: €12.6 billion). The collateralization rate had declined to 7.0 percent as at the reporting date (December 31, 2018: 7.8 percent).

8.7.8 Securitizations

The following figures are not directly comparable with the corresponding figures in the 2018 annual opportunity and risk report or in the 2019 half-yearly opportunity and risk report because the base data has been adjusted from a fair value analysis to a nominal amount analysis in line with the internal reporting system.

The Bank sector's **asset-backed securities (ABS) portfolio** is predominantly held by DZ BANK and DZ HYP. This portfolio at **Bank sector** level had a nominal amount of €2,797 million as at the reporting date (December 31, 2018: €2,756 million). The nominal amount for **DZ BANK** was €2,323 million as at the reporting date (December 31, 2018: €2,196 million). The highest internal rating class 1A accounted for 57 percent of the nominal amount as at December 31, 2019 (December 31, 2018: 45 percent). This year-on-year improvement largely arose because new investments in the ABS portfolio were focused only on unencumbered high-quality liquid assets (HQLAs) in accordance with the requirements of the credit risk strategy.

The above figures included the **ABS wind-down portfolio** from the period before the financial crisis with a nominal amount of €1,178 million (December 31, 2018: €1,464 million) at **Bank sector** level and €705 million (December 31, 2018: €903 million) in respect of **DZ BANK**. As in the previous year, the volume of the wind-down portfolio contracted during the reporting year, primarily because of regular redemptions.

In addition, **DZ BANK** acts as a **sponsor** in ABCP programs that are funded by issuing money market-linked ABCP or liquidity lines. The ABCP programs are made available for DZ BANK customers who then securitize their own assets via these companies.

As at December 31, 2019, the securitization exposures arising from **DZ BANK's** activities in which it acts as a sponsor amounted to €1,442 million (December 31, 2018: €1,398 million). The increase in the exposures was due to new business and to fluctuations in the drawdown of liquidity lines.

8.8 Credit portfolios with increased risk content

The credit portfolios with increased risk content are analyzed separately because of their significance for the risk position. The figures presented here are included in the above analyses of the total lending volume.

8.8.1 Loans and advances to borrowers in eurozone periphery countries

As at December 31, 2019, loans and advances to borrowers in the countries directly affected by the **economic divergence in the eurozone** attributable to the **Bank sector** and to **DZ BANK** amounted to €7,505 million (December 31, 2018: €7,355 million) and €2,175 million (December 31, 2018: €2,165 million) respectively.

Fig. 30 shows the borrower structures of the entities in the Bank sector for the eurozone periphery countries by credit-risk-bearing instrument.

8.8.2 Shipping finance and offshore finance

Business background

Within the DZ BANK Group's Bank sector, the **shipping finance business** is mainly operated by DVB and, to a lesser degree, by DZ BANK. At DVB and DZ BANK, the lending volume associated with shipping finance comprises loans and advances to customers, guarantees and indemnities, irrevocable loan commitments, and derivatives.

DVB had decided to implement a run-off strategy in 2019 for its shipping finance business with the aim of scaling back its portfolio in an orderly fashion as the individual finance contracts matured. Key components were the discontinuation of new business and a run-off plan designed to preserve value. Separately from the above, DVB will participate in necessary restructuring measures to improve the collection of outstanding loans and receivables.

DVB also has **offshore finance** business in its credit portfolio. This business consists of various financing arrangements with broad links to the shipping sector. The portfolio includes finance for drilling platforms, drill ships, offshore construction ships, and supply ships for oil platforms. No further new business has been taken on in the business since 2017.

DZ BANK offers **shipping finance** as part of its joint credit business with the local cooperative banks. Shipping finance in the narrow sense refers to capital investment in mobile assets involving projects that are separately defined, both legally and in substance, in which the borrower is typically a special-purpose entity whose sole business purpose is the construction and operation of ships. In such arrangements, the debt is serviced from the cash flows generated by the ship. The assessment of the credit risk is therefore based not only on the recoverability of the asset, but also in particular on the capability of the ship to generate earnings.

To reduce risk, finance provided by DZ BANK must normally be secured by a first mortgage on the vessel and the assignment of insurance claims and proceeds. A distinction is made between shipping finance in the narrow sense and finance provided for shipyards and shipping companies. The following disclosures for DZ BANK relate solely to shipping finance in the narrow sense.

FIG. 30 – BANK SECTOR: LOANS AND ADVANCES TO BORROWERS IN EUROZONE PERIPHERY COUNTRIES

	Traditional lending business[1]		Securities business		Derivatives and money market business		Total	
€ million	Dec. 31, 2019	Dec. 31, 2018	Dec. 31, 2019	Dec. 31, 2018	Dec. 31, 2019	Dec. 31, 2018	Dec. 31, 2019	Dec. 31, 2018
Portugal	41	62	1,104	1,026	-	-	1,146	1,089
of which: public sector	-	-	1,030	925	-	-	1,030	925
of which: non-public sector	41	62	74	101	-	-	116	164
of which: financial sector	-	1	-	-	-	-	-	1
Italy	92	148	3,094	2,847	70	70	3,256	3,065
of which: public sector	-	-	2,856	2,599	-	-	2,856	2,599
of which: non-public sector	92	148	238	248	70	70	400	465
of which: financial sector	34	32	68	59	70	70	172	161
Spain	169	222	2,830	2,850	104	129	3,104	3,201
of which: public sector	6	13	2,006	1,859	-	-	2,012	1,872
of which: non-public sector	163	210	824	991	104	129	1,091	1,330
of which: financial sector	31	28	263	364	99	126	393	518
Total	302	432	7,029	6,723	174	199	7,505	7,355
of which: public sector	6	13	5,892	5,383	-	-	5,898	5,396
of which: non-public sector	296	419	1,137	1,341	174	199	1,607	1,959
of which: financial sector	66	61	331	423	169	196	566	680

1 Unlike the other presentations of lending volume, traditional lending business in this case includes long-term equity investments.

Crisis management

In the shipping finance business, an oversupply of tonnage continued to have a detrimental impact on asset values and customer credit quality. In the offshore business, there was no increase in the demand for vessels, despite the rise in the oil price in the reporting year. The global bulk cargo, container, and tanker markets presented a mixed picture in 2019. Fleet growth was limited because of preparations for an International Maritime Organization regulation due to come into force in 2020 and because of the removal of tanker tonnage for floating storage. In many of the sectors, this helped to offset the weaker market fundamentals.

At **DVB** and **DZ BANK**, shipping finance is deemed to be non-performing if it has been rated between 5A and 5E on the VR credit rating master scale. The two banks aim to secure and optimize the non-performing exposures within their management system for handling problem loans.

Conditions in the **offshore finance** market remained tough in the reporting year and the market is not expected to bounce back significantly in the short term. For this reason, all offshore finance had been moved to the NCA portfolio in 2018.

Shipping finance lending volume

As at December 31, 2019, the **Bank sector's** shipping finance portfolio had a total value of €6,334 million (December 31, 2018: €8,692 million). The breakdown of the lending volume between the two management units as at December 31, 2019 was as follows (corresponding figures as at December 31, 2018 in parentheses):

- DVB: €5,648 million (€8,084 million), of which €5,060 million (€6,922 million) is core business not classified as non-performing
- DZ BANK: €686 million (€608 million), of which €351 million (€313 million) is business not classified as non-performing.

The lending volume of **DVB** shipping finance exposed to heightened risk (NCA portfolio) consists solely of traditional lending business. It declined from €1,162 million as at December 31, 2018 to €558 million as at December 31, 2019, a year-on-year decrease of 49 percent. This decrease was primarily attributable to early redemptions and (partial) workout of individual large-volume exposures.

The breakdown by country group of DVB's NCA shipping finance portfolio as at December 31, 2019 was as follows (corresponding figures as at December 31, 2018 in parentheses):

- Germany: €96 million (€136 million)
- Other industrialized countries: €348 million (€820 million)
- Advanced economies: €60 million (€150 million)
- Emerging markets: €84 million (€56 million).

As at December 31, 2019, DVB's NCA shipping finance portfolio included 70 financed vessels (December 31, 2018: 135 vessels). The average exposure as at the reporting date was €15 million

(December 31, 2018: €26 million) and the largest single exposure was €40 million (December 31, 2018: €115 million).

The largest proportion of the NCA shipping finance portfolio was attributable to the financing of bulk carriers. As at December 31, 2019, this proportion had risen to 51 percent of DVB's total NCA shipping finance volume (December 31, 2018: 40 percent) as a consequence of the disproportionate level of redemptions in other shipping finance segments. The portfolio was almost fully collateralized in compliance with DVB strategy.

At **DZ BANK**, shipping loans with a value of €335 million were classified as non-performing as at December 31, 2019 (December 31, 2018: €295 million). These exposures consisted almost entirely of traditional lending business, most of which was operated jointly with the local cooperative banks. Broken down by type of ship, DZ BANK's non-performing portfolio was focused mainly on multifunctional merchant vessels. In terms of carrying capacity, these ships were almost exclusively small- to medium-sized vessels. As in 2018, DZ BANK's shipping finance portfolio in 2019 was mainly concentrated in Germany but broadly diversified by type of vessel, borrower, charterer, and shipping activity.

Offshore finance lending volume

As at December 31, 2019, the Bank sector's lending volume in the offshore finance business, which is attributable exclusively to **DVB** and is classified as traditional lending business, amounted to €921 million (December 31, 2018: €1,335 million).

8.9 Volume of non-performing loans

The fall in the volume of non-performing loans reported for the **Bank sector** from €5.0 billion as at December 31, 2018 to €4.5 billion as at December 31, 2019 in conjunction with the increase in the total lending volume from €378.9 billion to €398.3 billion caused the NPL ratio to go down year on year to 1.1 percent at the end of 2019 (December 31, 2018: 1.3 percent).

At **DZ BANK**, there was a rise in the volume of non-performing loans, which went up from €1.9 billion as at December 31, 2018 to €2.1 billion as at the 2019 balance sheet date. Combined with a rise in the total lending volume from €198.3 billion to €216.5 billion, this resulted in a higher NPL ratio of 1.0 percent (December 31, 2018: 0.9 percent).

Fig. 31 shows key figures relating to the volume of non-performing loans.

8.10 Risk position

The risk capital requirement (including capital buffer requirement) for credit risk is based on a number of factors, including the size of single-borrower exposures, individual ratings, and the industry sector of each exposure.

As at December 31, 2019, the **credit value-at-risk including capital buffer requirement** in the **Bank sector** was €5,484 million (December 31, 2018: €5,541 million) with a limit of €7,189 million (December 31, 2018: €8,238 million).

FIG. 31 – BANK SECTOR: KEY FIGURES FOR THE VOLUME OF NON-PERFORMING LOANS

	Bank sector		DZ BANK	
	Dec. 31, 2019	Dec. 31, 2018	**Dec. 31, 2019**	Dec. 31, 2018
Total lending volume (€ billion)	**398.3**	378.9	**216.5**	198.3
Volume of non-performing loans (€ billion)[1]	**4.5**	5.0	**2.1**	1.9
Balance of loss allowances (€ billion)	**2.7**	2.7	**1.2**	1.2
Loss allowance ratio (%)[2]	**0.7**	0.7	**0.6**	0.6
Coverage ratio (%)[3]	**59.3**	54.5	**59.5**	65.2
NPL ratio (%)[4]	**1.1**	1.3	**1.0**	0.9

1 Volume of non-performing loans excluding collateral.
2 Balance of loss allowances as a proportion of total lending volume.
3 Balance of loss allowances as a proportion of the volume of non-performing loans.
4 Volume of non-performing loans as a proportion of total lending volume.

The contraction in the credit value-at-risk including capital buffer requirement resulted largely from the reduction in the DVB portfolio.

As at December 31, 2019, the credit value-at-risk including capital buffer requirement at **DZ BANK** was €2,297 million (December 31, 2018: €2,166 million) with a limit of €2,674 million (December 31, 2018: €2,674 million).

The credit values-at-risk including capital buffer requirement for the Bank sector and for DZ BANK were within the applicable limit at every measurement date during 2019.

Fig. 33 shows the credit value-at-risk together with the average probability of default and expected loss. Because of the breakdown by credit-risk-bearing instrument, the risk capital requirement is presented without the capital buffer requirement.

The risk capital required in the **Bank sector** and at **DZ BANK** for credit portfolios exposed to increased credit risk is shown in Fig. 32, again without the capital buffer requirement.

Compared with December 31, 2018, the credit value-at-risk for the Bank sector entities' exposure in the peripheral countries of the eurozone had increased as at December 31, 2019.

The credit value-at-risk for the overall shipping finance portfolio in the Bank sector amounted to €132 million as at December 31, 2019 (December 31, 2018: €194 million). These figures consist of the DVB core business and DZ BANK business, in either case not classified as non-performing.

The credit value-at-risk in the Bank sector for shipping finance and offshore finance stemmed primarily from DVB. The decline in the credit value-at-risk for the shipping finance portfolio compared with the end of 2018 arose predominantly because of the scaling back of DVB's NCA portfolio.

FIG. 32 – BANK SECTOR: CREDIT VALUE-AT-RISK[1] FOR CREDIT PORTFOLIOS WITH INCREASED RISK CONTENT

	Bank sector		DZ BANK	
€ million	Dec. 31, 2019	Dec. 31, 2018	Dec. 31, 2019	Dec. 31, 2018
Eurozone periphery countries portfolio	1,288	1,079	21	14
Shipping finance portfolio[2]	57	98	36	38
Offshore finance portfolio	73	118		

1 Excluding capital buffer requirement.
2 DVB: NCA portion; DZ BANK: Rating classes 5A–5E on the VR credit rating master scale.

Not relevant

FIG. 33 – BANK SECTOR: FACTORS DETERMINING THE CREDIT VALUE-AT-RISK

	Average probability of default (%)				Expected loss (€ million)				Credit value-at-risk[1] (€ million)			
	Bank sector		DZ BANK		Bank sector		DZ BANK		Bank sector		DZ BANK	
	Dec. 31, 2019	Dec. 31, 2018	Dec. 31, 2019	Dec. 31, 2018	Dec. 31, 2019	Dec. 31, 2018	Dec. 31, 2019	Dec. 31, 2018	Dec. 31, 2019	Dec. 31, 2018	Dec. 31, 2019	Dec. 31, 2018
Traditional lending business	0.5	0.5	0.2	0.2	418	405	138	122	2,493	2,568	1,168	950
Securities business	0.1	0.2	0.2	0.2	48	49	28	28	1,733	1,511	299	226
Derivatives and money market business	0.1	0.1	0.2	0.1	11	10	10	9	226	453	148	365
Total					477	464	176	159	4,452	4,532	1,614	1,541
Average	0.4	0.4	0.2	0.2								

1 Excluding capital buffer requirement.

Not relevant

9 Equity investment risk

9.1 Definition

Equity investment risk is defined as the risk of losses arising from negative changes in the fair value of that portion of the long-term equity investments portfolio for which the risks are not included in other types of risk.

9.2 Specific risk factors

Key factors when determining equity investment risk are the equity investment's industry sector, the location of its registered office, and the nominal amount of the investment. The possibility cannot be ruled out that a future impairment test on the long-term equity investments held by the entities in the Bank sector could lead to a significant reduction in the carrying amounts of these investments reported on the balance sheet. In the case of non-controlling interests, there is also a risk that key information may not be available or cannot be obtained promptly by virtue of the fact that the investment is a minority stake and this could result in a need to recognize impairment losses.

9.3 Business background, risk strategy, and responsibility

In the Bank sector, equity investment risk arises primarily at DZ BANK, BSH, and DVB.

The entities in the Bank sector hold long-term equity investments largely for strategic reasons, especially to cover markets, market segments, or parts of the value chain in which they themselves or the cooperative banks are not active. These investments therefore support the sales activities of the cooperative banks or help reduce costs by bundling functions. The investment strategy is continuously aligned with the needs of cooperative financial network policy.

Risk strategy requirements must be observed in the management of long-term equity investments. Such management is subject to the principle that equity investment risk (measured as risk capital requirement) may be taken on only if this risk is considered together with the associated opportunities and only if the risk remains below the existing limits.

Decisions on whether to acquire or dispose of **long-term equity investments** are made by the Board of Managing Directors of the entities in the Bank sector in consultation with the relevant committees.

At DZ BANK, the Strategy & Group Development division is responsible for **supporting these investments**, whereas at BSH the task falls within the scope of the Central Services/Policy/International division and the Financial Controlling division. At DVB, the investments are the responsibility of the Accounting and Legal Affairs departments.

Equity investment risk is **measured** and **monitored** at Bank sector level by DZ BANK. Details are reported within the DZ BANK Group's overall risk report.

9.4 Risk management

The carrying amounts of the long-term equity investments are regularly tested for possible impairment in the last quarter of the financial year. If there are any indications during the course of the year of possible impairment, more frequent impairment tests are also carried out. In the impairment tests, the carrying amounts of the long-term equity investments are compared against the amount that could be realized on the market on the same date.

The risk capital requirement for the vast majority of the long-term equity investments in the **Bank sector** including **DZ BANK** is determined using a Monte Carlo simulation. In this method, portfolio concentrations in sectors and individual counterparties are taken into account by simulating industry-wide and individual investment-related risk factors.

The risk capital requirement is influenced, in particular, by the market values of the long-term equity investments, the volatility of the market values, and the correlations between the market values, with market price fluctuations mainly derived from reference prices listed on an exchange.

At **DVB**, the risk capital requirement for long-term equity investments in the transport sector is determined using an earnings-at-risk approach.

The measurement of equity investment risk takes into account both the equity-accounted investments and the fully consolidated investees. As part of acquisition accounting and during the course of preparing the consolidated financial statements, the investment carrying amounts for consolidated subsidiaries are offset against the relevant share of net assets. Consequently, the investment carrying amounts disclosed in the notes to the consolidated financial statements are considerably lower than the carrying amounts used for determining risk.

9.5 Risk position

The **carrying amounts of long-term equity investments** in the **Bank sector** relevant for the measurement of equity investment risk amounted to €2,392 million as at December 31, 2019 (December 31, 2018: €2,776 million). As at December 31, 2019, the carrying amounts of the long-term equity investments of **DZ BANK** totaled €1,509 million (December 31, 2018: €1,697 million).

As at the reporting date, the **risk capital requirement including capital buffer requirement** for equity investment risk in the **Bank sector** was measured at €850 million, which was lower than the corresponding figure at the end of 2018 of €1,091 million. The limit was €1,063 million (December 31, 2018: €1,341 million). The limit was not exceeded at any time in 2019. The decline in the risk and the limit was attributable to the disposal of long-term equity investments.

As at December 31, 2019, the **risk capital requirement including capital buffer requirement** for equity investment risk at **DZ BANK** amounted to €503 million (December 31, 2018: €685 million). The limit at December 31, 2019 was €640 million (December 31, 2018: €800 million).

10 Market risk

10.1 Definition

Market risk in the Bank sector comprises market risk in the narrow sense of the term, and market liquidity risk.

Market risk in the narrow sense of the term – referred to below as market risk – is the risk of losses arising from adverse movements in market prices or in the parameters that influence prices.

Market risk in the Bank sector is broken down into general market risk, spread and migration risk, and asset management risk. General market risk comprises the following components: interest-rate risk, equity risk, fund price risk, currency risk, and commodity risk.

Market liquidity risk is the risk of losses arising from adverse changes in market liquidity, for example as a result of a reduction in market depth or of market disruption. Market liquidity risk arises primarily in connection with securities already held in the portfolio as well as funding and money market business.

10.2 Specific risk factors

Interest-rate risk, spread and migration risk, equity risk, fund price risk, currency risk, and asset-management risk are caused by changes in the yield curve, credit spreads, exchange rates, and share prices. Credit spreads and market liquidity squeezes are the critical risk factors for the overall market risk in the Bank sector, including DZ BANK.

Spread risk, including migration risk, is the most significant type of market risk for the entities in the Bank sector and DZ BANK. A significant proportion of the spread and migration risk is attributable to securities issued by southern eurozone periphery countries and held by the entities in the Bank sector. **Wider credit spreads** are an indication that markets believe credit quality has deteriorated. If credit spreads were to widen, this would therefore lead to a fall in the fair value of the government and corporate bonds affected.

A **liquidity squeeze throughout the market** could also mean that assets held by the entities in the Bank sector could only be liquidated in markets if they were discounted and that it would only possible to carry out active risk management on a limited basis. There is also a risk that the business activities of the entities in the Bank sector could be adversely impacted as a result of these effects, which could arise particularly in periods when markets are subject to significant stress.

10.3 Business background and risk strategy

10.3.1 Business background

The DZ BANK Group is exposed to considerable market risk in the Bank sector. Market risk arises mainly in connection with BSH, DZ HYP, and UMH in addition to DZ BANK. The assumption of market risk by these entities in the Bank sector is primarily attributable to the DZ BANK Group's strategic focus on the cooperative financial network. This strategy means that each entity in the DZ BANK Group specializes in certain types of product with a corresponding impact on the respective entity's risk profile.

Market risk thus arises mainly from DZ BANK's own trading activities and its traditional lending business with non-retail customers, BSH's traditional lending business aimed at financing privately owned real estate, DZ HYP's traditional lending business involving finance for real estate and local authorities, together with its portfolios of securities held to manage liquidity and cover assets, and UMH's own-account investing activities and its guarantee obligations to customers linked to fund-based investment products.

Liabilities and – where present in a group entity – assets related to direct pension commitments are a further source of market risk. Market liquidity risk arises primarily in connection with securities already held in the portfolio as well as funding and money market business.

10.3.2 Risk strategy

The following principles for managing market risk apply to the **Bank sector** and **DZ BANK**:

- Market risk is only taken on to the extent that it is necessary to facilitate attainment of business policy objectives.
- The assumption of market risk is only permitted within the existing limits and only provided that it is considered together with the associated opportunities.
- Statutory restrictions, provisions in the Articles of Association, or other limitations enshrined in the risk strategy that prohibit the assumption of certain types of market risk for individual management units are observed.

DZ BANK and the subsidiaries pursue the following strategies in relation to the individual **types of market risk**:

- Spread and migration risk is assumed.
- Interest-rate risk associated with the original business purpose of the management units is largely eliminated.
- In contrast, interest-rate risk from pension obligations is accepted and included in the calculation of risk-bearing capacity.
- Virtually all currency risk is eliminated.
- Commodity risk is assumed only to a very small degree.

Market liquidity risk is consciously assumed following an analysis that takes into account the prevailing market liquidity.

10.4 Organization, responsibility, and risk reporting

Market risk in the **Bank sector** is managed on a decentralized basis by the individual management units within the centrally specified limits for the capital requirement for market risk. Each unit bears responsibility for the risk and performance associated with each portfolio. Responsibility for managing risk within a management unit is normally brought together under a local treasury unit.

One exception is **DZ BANK**, where portfolios are managed at the level of subordinate organizational units (group, department, division). In this case, the relevant traders bear direct responsibility for risk and performance. The organizational units are structured in such a way that the responsibility for the marketing of certain types of product is assigned in each case to a trading division with product responsibility.

Key figures for market risk are reported at **sector level** and for **DZ BANK** to the Group Risk and Finance Committee within the overall risk report for the DZ BANK Group.

10.5 Management of market risk

10.5.1 Central market risk measurement

Central market risk measurement in the overall portfolio

Various components are used to quantify market risk in the Bank sector from a present value perspective. These components are combined to determine the aggregate risk capital requirement for market risk, taking into account the effects of concentration and diversification. The risks arising in connection with the assets and liabilities associated with direct pension commitments are also factored in. Since the start of 2019, the models have been operated centrally by DZ BANK and are fed with input data provided by the management units on each trading day. Sector-wide standards and rules ensure that the modeling is appropriate.

The **first component** of the measurement approach creates a spread and migration risk model based on a Monte Carlo simulation. It determines the combined spread and migration risk over a longer-term (strategic) horizon of 1 year with a confidence level of 99.9 percent. Whereas spread risk quantifies credit-risk-related losses from financial instruments in a short-term view of value-at-risk, this becomes the combined spread and migration risk in the risk capital requirement over a longer-term perspective. For this reason, migration risk is not shown in the table of values-at-risk in Fig. 35.

The **second component** is a value-at-risk model based on a historical simulation in which the general market risk is determined from a short-term (operational) perspective over 1 day and with a confidence level of 99.0 percent. The model calculated day by day is based on a historical observation period of 250 trading days and includes a number of risk factors. The most important risk factor groups include money market and swap interest rates, basis and credit spreads, share prices, exchange rates, and commodity prices. The model also includes implied volatility in the risk measurement. Drawing on the results of the value-at-risk measurement, a transformation model scales up the operational key risk indicators (also taking account of stress events) to a strategic perspective in which a 1-year holding period and a confidence level of 99.9 percent is assumed.

In the **last step**, the results from the spread and migration risk model and from the transformation model are then combined to give the aggregate risk capital requirement for market risk.

Central market risk measurement for interest-rate risk in the banking book

For internal sector-wide management purposes, the banking book and trading book are treated in the same way in terms of the models used, key risk indicators, frequency of risk measurement, and main risk measurement parameters. To supplement this risk management approach in which the banking and trading books are analyzed holistically, interest-rate risk in the banking book from a regulatory perspective within the Bank sector and at DZ BANK is managed separately using a present-value approach.

On behalf of the other management units in the Bank sector, DZ BANK also operates a partially centralized model for quantifying periodic interest-rate risk.

Overall, these methods are used to record the impact from changes in interest rates, both from an economic perspective (based on present value) and from the angle of net interest income.

Concentrations of market risk

Concentrations in the portfolio affected by market risk are identified by classifying the exposure in accordance with the risk factors associated with interest rates, spreads, migration, equities, currencies, and commodities. This incorporates the effects of correlation between these different risk factors, particularly in stress phases.

10.5.2 Decentralized market risk measurement

In addition to the models specified in section 10.5.1, the main **management units** operate their own risk models to satisfy ICAAP requirements from the perspective of the individual institution. The results from these models are not used to manage market risk in the Bank sector and therefore do not form part of this opportunity and risk report.

10.5.3 Backtesting and stress tests

The central value-at-risk model is subject to **backtesting**, the purpose of which is to verify the predictive quality of the model. Changes in the value of portfolios on each trading day are usually compared against the value-at-risk calculated using risk modeling.

Risks arising from extreme market situations are primarily recorded using **stress tests**. The crisis scenarios underlying the stress tests include the simulation of significant fluctuations in risk factors and serve to highlight potential losses not generally recognized in the value-at-risk approach. Stress tests are based on extreme market fluctuations that have actually occurred in the past together with crisis scenarios that – regardless of market data history – are considered to be economically relevant. The crisis scenarios used in this case are regularly reviewed to ensure they are appropriate. The following are deemed to be risk factors: interest-rate risk, spread risk, migration risk, equity risk, and currency risk.

10.5.4 Management of limits for market risk

The starting point for limiting market risk is a limit for the capital requirement for market risk in the **Bank sector** specified as part of operational planning. This limit is broken down into an individual limit for the market risk capital requirement in each management unit.

Within **DZ BANK**, this limit is then further subdivided into a system of limits for the divisions, departments, and groups to appropriately reflect the decentralized portfolio responsibility assigned to these units and the nature of the bank from a regulatory perspective as a trading book institution. Limits are monitored on every trading day.

10.5.5 Mitigating market risk

The entities in the Bank sector use various approaches to mitigate market risk. For example, some market risk from the assets-side business (such as traditional lending business) or from the liabilities-side business (such as home savings deposits) is offset by suitable countervailing liability or asset transactions (such as own issues or securities). These activities are carried out as part of asset/liability management. In other cases, financial derivatives are used for hedging purposes.

As the measurement of market risk is based on the inclusion of the individual items subject to market risk, there is no need to monitor the economic effectiveness of hedges.

10.5.6 Managing the different types of market risk

Management of spread risk and migration risk

Most of the spread and migration risk in the **Bank sector** and at **DZ BANK** arises from non-trading portfolios and is consciously assumed within the established limits in accordance with the associated long-term investment strategy. Hedging instruments are also used in carefully selected trading book portfolios. The central measurement of this risk means that the level of the risk on every trading day is transparent. If there is any indication that the ability of the Bank sector or DZ BANK to bear the spread and migration risk is in jeopardy, Group Treasury at DZ BANK will initiate corrective measures across the sector.

Management of interest-rate risk

Interest-rate risk arising from operating activities at **DZ BANK** and **DZ HYP** is mitigated primarily by means of hedging using interest-rate derivatives, either on the basis of individual transactions or portfolios.

At **BSH**, an asset/liability management approach based on the maturities of the securities in the investment portfolio is used to manage interest-rate risk arising from the collective building society operations and the traditional lending business, including the interest-rate risk associated with direct pension commitments. Interest-rate derivatives are of minor significance.

DZ BANK is notably exposed to significant interest-rate risk from direct pension commitments in addition to the interest-rate risk arising from operating activities. This risk is consciously assumed within the existing limits.

Management of equity risk and fund price risk

Equity risk and fund price risk from the non-trading portfolios are managed first and foremost by directly changing the underlying exposure. Derivative products are also used within the trading portfolio to keep the type of risk involved within the allocated limits.

Some funds are broken down into their constituent parts for the purposes of measuring the risk. In such cases, the risk is not treated as part of fund price risk, but is managed within the type of market risk determined for the constituent part concerned.

Management of asset-management risk

Asset-management risk arises from minimum payment commitments given by **UMH** and/or its subsidiaries for guarantee products. The risks from these guarantee products are managed mainly by using asset allocation.

The launch of new guarantee products is governed by the guidelines for medium-term planning that apply to UMH and takes into account the risk capital required and the available internal capital. Before new products are launched, the risks associated with them are analyzed and assessed. Management mechanisms embedded in the products aim to prevent the value of an individual product from falling below its guaranteed level during its lifetime.

Asset-management risk is reported using a separate internal system and is monitored regularly at individual product level by UMH.

10.6 Management of market liquidity risk

The calculation of general market risk in the Bank sector and at DZ BANK using the transformation model and the spread and migration risk model takes market liquidity risk into account.

Within the transformation model, stress events are expressly integrated into the analysis when market risk is scaled up from an operating perspective to a strategic perspective. The change in risk factors in these events is based on the assumption that it is not possible to make changes to the exposures in the portfolio of the Bank sector and DZ BANK over a specified period.

The spread and migration risk model implicitly factors in phases of diminishing market liquidity via the calibration of the credit spread volatility included in the model. The estimation of volatility based on market data from the recent past also uses a lower limit determined from longer-term data. This prevents any low level of credit spread volatility in a calm market environment with normal liquidity from being transferred directly into the model parameters.

10.7 Risk position

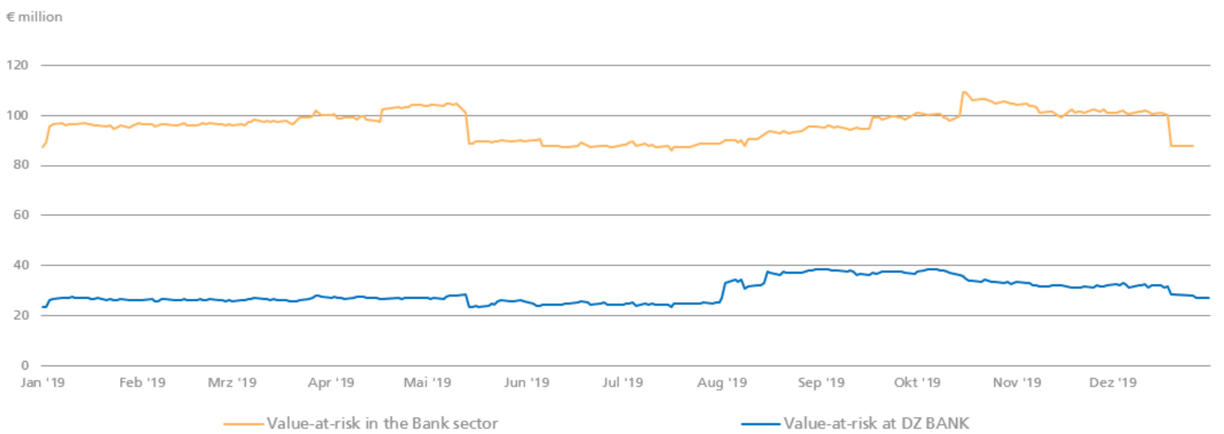
10.7.1 Value-at-risk

Since the start of 2019, DZ BANK has been using a central, sector-wide market risk model for the short-term (operational) management of market risk in the Bank sector and at DZ BANK. Because of this change of management system, the aggregate risk is no longer separated into trading and non-trading portfolios. This has resulted in changes to the chart and table of risk values compared with the presentation in the 2018 opportunity and risk report.

The changes in market risk by trading day for the **Bank sector** and **DZ BANK** in 2019 are shown in Fig. 33.

Fig. 35 shows the average, maximum, and minimum values-at-risk measured for the **Bank sector** and **DZ BANK** over the reporting year, including a further breakdown by type of market risk.

FIG. 34 – BANK SECTOR: CHANGE IN MARKET RISK BY TRADING DAY[1]



1 Value-at-risk with 99.00% confidence level, 1-day holding period, 1-year observation period, based on a central market risk model for the Bank sector. Concentrations and effects of diversification were taken fully into account when calculating the risks.

FIG. 35 – BANK SECTOR: CHANGE IN MARKET RISK BY TYPE OF RISK[1 2]

€ million	Interest-rate risk		Spread risk		Equity risk[3]		Currency risk		Commodity risk		Diversification effect[4]		Total	
	Bank sector	DZ BANK	Bank sector	DZ BANK	Bank sector	DZ BANK	Bank sector	DZ BANK	Bank sector	DZ BANK	Bank sector	DZ BANK	Bank sector	DZ BANK
Dec. 31, 2018	23	7	76	19	7	1	1	2	-	-	-19	-6	88	23
Average	20	11	88	22	6	2	2	3	-	-	-20	-8	96	29
Maximum	30	17	103	25	8	3	5	4	-	-	-37	-11	109	39
Minimum	11	7	73	18	5	1	-	2	-	-	-3	14	86	23
Dec. 31, 2019	11	9	88	21	6	2	4	4	-	-	-21	15	88	27

1 Value-at-risk with 99.00% confidence level, 1-day holding period, 1-year observation period, based on a central market risk model for the Bank sector. Concentrations and effects of diversification were taken fully into account when calculating the risks.
2 The minimum and maximum amounts for the different subcategories of market risk may stem from different points in time during the reporting period. Consequently, they cannot be aggregated to produce the minimum or maximum aggregate risk due to the diversification effect.
3 Including funds, if not broken down into constituent parts.
4 Total effects of diversification between the types of market risk for all consolidated management units.

The following value-at-risk figures were measured as at December 31, 2019 for the **interest-rate risk in the banking book for regulatory purposes** (corresponding figures as at December 31, 2018 in parentheses):

- Bank sector: €11 million (€23 million)
- DZ BANK: €8 million (€7 million)

The decline in the interest-rate risk in the Bank sector was attributable to changes in positions at BSH.

10.7.2 Risk capital requirement

One of the tools used to quantify market risk from a longer-term (strategic) perspective is a spread and migration risk model. This model determines the combined spread and migration risk with a 1-year horizon and a confidence level of 99.9 percent. A value-at-risk model is also used. It determines the general market risk from a short-term (operational) perspective over 1 day with a confidence level of 99.0 percent. Drawing on the results of the value-at-risk measurement, a transformation model scales up the operational key risk indicators (also taking account of stress events) to a strategic perspective with a 1-year holding period and a confidence level of 99.9 percent. The results from the spread and migration risk model and from the transformation model are then combined to give the aggregate risk capital requirement for market risk. The aggregate risk capital requirement is compared with the related limits every month to ensure there is capacity to bear market risk.

As at December 31, 2019, the **risk capital requirement (including capital buffer requirement)** for market risk in the **Bank sector** amounted to €3,860 million (December 31, 2018: €4,030 million with a **limit** of €5,646 million (December 31, 2018: €6,768 million). The decrease in the risk was largely due to the introduction of the central market risk model.

As at December 31, 2019, **DZ BANK's risk capital requirement (including capital buffer requirement)** for market risk amounted to €1,698 million (December 31, 2018: €1,150 million) with a **limit** of €2,220 million (December 31, 2018: €2,000 million). The increase in the risk was attributable to a change in the reporting methodology. DZ BANK is not exposed to any asset-management risk.

Throughout the year under review, the risk capital requirement (including capital buffer requirement) remained below the relevant limit at the levels of both the Bank sector and DZ BANK.

11 Technical risk of a home savings and loan company

11.1 Definition

Technical risk of a home savings and loan company is subdivided into two components: new business risk and collective risk.

New business risk is the risk of a negative impact from possible variances compared with the planned new business volume.

Collective risk refers to the risk of a negative impact that could arise from variances between the actual and forecast performance of the collective building society operations caused by significant long-term changes in customer behavior unrelated to changes in interest rates. It can be distinguished from interest-rate risk by incorporating a change in customer behavior unrelated to interest rates in the collective simulation. Conversely, only changes in customer behavior induced by changes in interest rates are relevant to interest-rate risk.

11.2 Specific risk factors

A variance between the actual and planned new business volume (**new business risk**) could lead to lower deposits from banks and customers over the short to medium term. Over the medium to long term, the lower level of new business could also lead to a decrease in loans and advances to banks and customers.

Variances between the actual and forecast performance of the collective building society business caused by significant long-term changes in customer behavior unrelated to changes in interest rates (**collective risk**) could also lead to lower loans and advances to banks and customers and to lower deposits from banks and customers.

Over the medium to long term, there is a risk that a lower level of new business and change in customer behavior could cause net interest income to taper off.

11.3 Business background, risk strategy, and responsibility

Technical risk of a home savings and loan company arises in the Bank sector in connection with the business activities of BSH. This risk represents the entity-specific business risk of BSH. A home savings arrangement is a system in which the customer accumulates savings earmarked for a specific purpose. The customer enters into a home savings contract with fixed credit balance and loan interest rates, so that when the savings phase is completed at a later point and a loan is allocated under the contract, he/she can receive a home savings loan at a favorable interest rate. A home savings agreement is therefore a combined asset/liability product with a very long maturity.

Technical risk of a home savings and loan company is closely linked with the BSH business model and cannot therefore be avoided. Against this backdrop, the **risk strategy** aims to prevent an uncontrolled increase in risk.

BSH is **responsible** for managing the technical risk of a home savings and loan company within the Bank sector. This includes measuring the risk and communicating risk information to the risk management committees at BSH and to the Board of Managing Directors and Supervisory Board of BSH. Technical risk of a home savings and loan company forms an integral part of the DZ BANK Group's internal risk reporting system.

11.4 Risk management

A special collective simulation, which includes the integrated effects of a (negative) change in customer behavior and a drop in new business, is used to **measure the technical risk of a home savings and loan company** on a quarterly basis. The results from the collective simulation for the technical risk of a home savings and loan company are fed into a long-term forecast of earnings. The variance between the actual earnings in the risk scenario and the earnings in a base forecast with the same reference date is used as a risk measure. The variance is discounted to produce a present value. The total present value of the variances represents the technical risk of a home savings and loan company and therefore the risk capital requirement for this type of risk. **Concentrations** of this risk are most likely to arise from new business risks.

In order to determine the technical risk of a home savings and loan company in a **stress scenario**, the stress parameters (customer behavior and new business) are severely impaired. An appropriate collective simulation is then generated on this basis and is analyzed using the same methodology used for the measurement of current risk. Stress tests are carried out quarterly.

The risk is managed in particular through a forward-looking policy for products and scales of rates and charges, and through appropriate marketing activities and sales management.

11.5 Risk position

As at December 31, 2019, the **capital requirement** for the technical risk of a home savings and loan company amounted to €397 million (December 31, 2018: €553 million) with a **limit** of €706 million (December 31, 2018: €667 million). A capital buffer requirement was not calculated for the technical risk of a home savings and loan company as at the reporting date. The decrease in the risk was due to the course of business and the general conditions.

12 Business risk

12.1 Definition and business background

Business risk denotes the risk of losses arising from earnings volatility for a given business strategy and not covered by other types of risk. In particular, this comprises the risk that, as a result of changes in material circumstances (for example, the regulatory environment, economic conditions, product environment, customer behavior, market competitors) corrective action cannot be taken at an operational level to prevent the losses.

DZ BANK's core functions as a central institution, corporate bank, and holding company mean that it focuses closely on the local cooperative banks, which are its customers and owners. In this context, business risk can arise from corporate banking, retail banking, capital markets business, and transaction banking.

Business risk mainly affects DVB and DZ PRIVATBANK in addition to DZ BANK.

12.2 Specific risk factors

Business risk in the Bank sector of the DZ BANK Group is shaped by the following factors:

Costs of regulation

Over the next few years, the DZ BANK Group is likely to continue to face increased costs, and thus reduced profits, in connection with implementing the requirements resulting from regulatory legislative initiatives (see section 5.1).

Competition based on pricing and terms

Fiercer competition in retail and corporate banking based on pricing and terms could give rise to margins that are economically unattractive for the entities in the Bank sector or that do not adequately cover the risk arising from the corresponding transactions.

Greater competition in capital markets business

DZ BANK's capital markets business is faced with the ongoing challenges presented by **low interest rates**, accompanied by a fall in market liquidity and historically low risk premiums. In DZ BANK's own-account investing activities with the local cooperative banks, there is an evident rise in price sensitivity caused by a contraction in operating profits and increases in the size of the banks resulting from mergers. DZ BANK's customers have the option of conducting transactions in selected financial instruments using **electronic trading platforms**. For certain products, this is likely to lead to a shift in trading volume to such trading platforms. It is predicted that this will bring about a change in competitor structure, with competition becoming fiercer in the trading of certain financial instruments for customer account, resulting in the risk of a reduction in margins and revenue going forward.

New competitors in transaction banking

In transaction banking, the entities in the Bank sector are increasingly finding themselves up against less regulated global competitors, often from outside the banking sector and offering innovative solutions to meet the changes in customer needs. These developments are changing the role played by the management units as product providers and are likely to reduce fee and commission income from the transaction banking activities of the entities in the Bank sector.

12.3 Organization and risk management

The management of business risk is a primary responsibility of the **Board of Managing Directors of DZ BANK** and is carried out in consultation with the senior management of the main subsidiaries and the heads of the DZ BANK divisions involved. Group management is integrated into a committee structure, headed by the **Group Coordination Committee**. The Strategy & Group Development division supports the Board of Managing Directors as part of its role in supervising the activities of the subsidiaries.

The **Central Advisory Council** plays a key role in providing ideas and advice for the members of the Group Coordination Committee and the Board of Managing Directors of DZ BANK. The council facilitates in-depth discussion of key strategic issues in the DZ BANK Group. These issues include the fundamental ongoing development of the entities in the DZ BANK Group, strategic planning considerations, and current business performance. The Central Advisory Council also addresses key questions relating to the design of new products and services, and their marketing to cooperative banks and their customers.

The management of business risk is closely linked with the **management of opportunities** and the tools used in the strategic planning process. It is based on setting targets for the subsidiaries involved in active management and for the divisions of DZ BANK.

Business risk is quantified using a risk model based on an earnings-at-risk approach. Risk concentrations may arise if business activities are focused on a small number of areas. Concentrations of business risk are limited by using qualitative criteria in strategic management.

To identify regulatory initiatives with a material impact on the DZ BANK Group, DZ BANK, and the other management units, a centralized **regulation management** office has been set up at DZ BANK. This office establishes direct contact with the relevant units at DZ BANK and in the other management units, organizes regular bank-wide and groupwide dialog on identified and new strategic regulatory initiatives, and uses a 'regulatory map' to report to the responsible steering committees, the Board of Managing Directors, and the Supervisory Board of DZ BANK.

12.4 Risk position

As at December 31, 2019, the **Bank sector's risk capital requirement (including capital buffer requirement)** for business risk (including reputational risk) amounted to €837 million (December 31, 2018: €857 million). The **limit** was €1,016 million as at the reporting date (December 31, 2018: €1,118 million).

As at December 31, 2019, the economic capital requirement for **DZ BANK** was calculated at €673 million (December 31, 2018: €686 million). The limit as at December 31, 2019 was €770 million (December 31, 2018: €800 million).

The limits for the Bank sector and for DZ BANK were not exceeded at any measurement date during 2019.

13 Reputational risk

13.1 Definition and business background

Reputational risk refers to the risk of losses from events that damage confidence, mainly among customers (including the cooperative banks), shareholders, employees, the labor market, the general public, and the supervisory authorities, in the entities in the Bank sector or in the products and services that they offer. Reputational risk can arise as an independent risk (primary reputational risk) or as an indirect or direct consequence of other types of risk, such as liquidity risk, business risk, and operational risk (secondary reputational risk).

13.2 Specific risk factors

If the Bank sector as a whole or the individual management units acquire a negative reputation, there is a risk that existing or potential customers will be unsettled with the result that existing business relationships might be terminated or it might not be possible to carry out planned transactions. There is also a risk that it will no longer be possible to guarantee the backing of stakeholders, such as shareholders and employees, necessary to conduct business operations.

13.3 Risk strategy and responsibility

Reputational risk is incorporated into the risk strategy by pursuing the following objectives:

- Avoiding loss resulting from reputation-damaging incidents by taking preventive action
- Mitigating reputational risk by taking preventive and responsive action
- Raising awareness of reputational risk within the Bank sector, e.g. by defining the people responsible for risk and establishing a sector-wide reporting system and set of rules for reputational risk.

These objectives are applicable both at the Bank sector level and in the management units. The management units are responsible for complying with the rules and for deciding what suitable preventive and responsive action to take.

The reputational risk strategy is based on the business strategies in each management unit and to this end is reviewed at least once a year and adjusted as necessary.

Each management unit is responsible for managing its reputational risk and must comply with the requirements laid down in the set of rules for reputational risk. The principle of **decentralized** responsibility applies equally within all the management units, including DZ BANK. Based on this approach, responsibility for managing reputational risk lies with each division with the involvement of other functions such as communications, marketing, corporate security, and compliance.

13.4 Risk management

Reputational risk in the Bank sector is generally taken into account within business risk and is therefore implicitly included in the measurement of risk and assessment of capital adequacy. At BSH, reputational risk is measured and the capital requirement determined mainly as part of the technical risk of a home savings and loan company. In addition, the risk that obtaining funding may become more difficult as a consequence of reputational damage is specifically taken into account in liquidity risk management.

Crisis communications aimed at mitigating reputational risk are designed to prevent greater damage to the entities in the Bank sector if a critical event occurs. The management units therefore follow a stakeholder-based approach in which reputational risk is identified and evaluated from a qualitative perspective depending on the stakeholder concerned.

14 Operational risk

14.1 Definition

Operational risk – also referred to below as OpRisk – is defined as the risk of loss from human behavior, technological failure, weaknesses in process or project management, or external events. This closely resembles the regulatory definition. Legal risk is included in this definition.

Operational risk in the Bank sector is broken down into the following components:

- HR risk
- IT risk
- Outsourcing risk
- Legal risk

- Tax risk
- Compliance risk
- Risks in connection with the (consolidated) financial reporting process.

14.2 Business background and risk strategy

Operational risk can arise in any division of the entities in the Bank sector. DZ BANK as well as DVB, DZ HYP, DZ PRIVATBANK, and UMH are particularly subject to operational risk.

The Bank sector entities aim to manage operational risk efficiently. They apply the following principles:

- Reinforce risk awareness
- Handle operational risk openly and largely without penalties
- Avoid, reduce, transfer, or accept risk as optional courses of action
- Ensure that the impact of decisions on operational risk is taken into account
- Manage operational risk on a decentralized basis but within the limits set out in the framework for operational risk.

14.3 Organization, responsibility, and risk reporting

Each management unit is responsible for managing its operational risk. The principle of **decentralized** responsibility applies equally within all the management units, including DZ BANK.

One of the purposes of the **framework for operational risk** is to harmonize organizational structures throughout the sector. The sector-wide coordinated approach to operational risk is also managed by a **committee** assigned to the Group Risk Management working group and comprising representatives from DZ BANK and its main subsidiaries.

A **DZ BANK** unit responsible for controlling operational risk located within the Group Risk Controlling division develops the management and control methods based on regulatory requirements and business needs applicable to the Bank sector. The unit ensures that operational risk is monitored independently and it is responsible for central reporting.

Corresponding organizational units are also in place at the other main entities in the **Bank sector**.

In most of the management units in the **Bank sector**, including **DZ BANK**, specialist divisions with central risk management functions manage some operational risk tasks. As part of their overarching responsibility, these specialist divisions in each entity also perform an advisory and guiding function for the matters within their remit.

Because operational risk can affect all divisions, local operational risk coordinators are located in each division of the main **management units** and they act as interfaces with Central Risk Controlling. This also applies to **DZ BANK**.

Regular **reports** on loss data, risk self-assessments, risk indicators, and risk capital are submitted to the Board of Managing Directors, the Group Risk and Finance Committee, the Risk Committee, and operational management, facilitating effective management of operational risk on a timely basis.

14.4 Central risk management

14.4.1 Measurement of operational risk

An **economic portfolio model** that takes into account loss data and the results from the risk self-assessments is used to determine the risk capital requirement for operational risk in the Bank sector. The results from the model, combined with the tools used to identify risk, are used to manage operational risk centrally.

In addition, **risk concentrations** and risk drivers are identified by using separate model-based analyses, taking into account event categories and areas of business specified by regulatory requirements. Such concentrations can occur, for example, if IT systems are supplied by just a few companies or if business processes are outsourced to a limited number of service providers.

14.4.2 Identifying operational risk

Loss database

The groupwide collation of loss data in a central database allows the Bank sector to identify, analyze, and evaluate loss events, highlighting patterns, trends, and concentrations of operational risk. This data-gathering covers a number of areas but focuses particularly on data for gross losses with a value of €1,000 or more related to risks that have been incurred, for example in connection with the risk factors specified in sections 14.5 to 14.11. The recorded gross losses upward from a defined threshold value are managed as part of the corrective action management process.

Risk self-assessment

Senior managers from all management units assess operational risk using a scenario-supported risk self-assessment process in order to identify and evaluate all material operational risks and ensure maximum possible transparency regarding the risk position. The main potential risks for all first-level risk categories as defined by the CRR are calculated and described using risk scenarios. The scenarios also enable risk concentrations to be identified.

Risk indicators

In addition to the loss database and risk self-assessment, risk indicators help the Bank sector to identify risk trends and concentrations at an early stage and detect weaknesses in business processes. A system of warning lights is used to indicate risk situations based on specified threshold values. Risk indicators within the Bank sector are collected systematically and regularly on a wide scale.

14.4.3 Limiting operational risk

The limits for operational risk are used as the basis for central monitoring of the risk capital requirement at the Bank sector level. The risk capital requirement for the Bank sector is broken down into risk contributions for each management unit using a risk-sensitive allocation procedure so that the management units in the Bank sector can be monitored centrally. These risk contributions are then monitored centrally using limits for each management unit.

14.4.4 Mitigating and avoiding operational risk

Continual improvement of business processes is one of the methods used with the aim of **mitigating** operational risk. The transfer of risk by means of insurance or outsourcing as permitted by liability regulations provides further protection.

Operational risk is **avoided**, for example, by rejecting products that can be identified during the new product process as entailing too much risk.

In all relevant management units, a comprehensive **contingency and crisis management system** (with business continuity plans covering critical processes) has been established to ensure the continuation of business in the event of process disruption or system breakdown. These business continuity plans are regularly reviewed and simulated to ensure they are fully functional. The contingency and crisis management system at DZ BANK has been certified in accordance with ISO 22301, which applies worldwide.

14.5 HR risk

14.5.1 Specific risk factors

Disputes in connection with the collective bargaining process can give rise to a risk of strikes. The possibility cannot be ruled out that simultaneous industrial action at all sites over several days could cause lasting disruption to processes and workflows. Moreover, sensitive internal and external interfaces could be jeopardized by long-term business interruptions. This could restrict operating activities and have a negative impact on reputation.

Unless the necessary number of **suitable managerial and administrative staff** can be attracted within the required timeframe, and/or existing managers and employees can be retained in the Bank sector entities, there will be a heightened risk that, in particular, appointments to key regulatory functions will not be made or will not be made satisfactorily as a result of inadequate expertise in terms of either quality or quantity. This could lead to sanctions from the banking supervisor and a qualified audit opinion in the consolidated and separate financial statements and group management reports and management reports prepared by the entities in the Bank sector, which could impact negatively on the reputation of individual entities in the Bank sector and of the DZ BANK Group as a whole.

14.5.2 Risk management

The entities in the Bank sector have developed a mechanism known as a **Human Resources KPI cockpit** with standardized KPIs. The Human Resources KPI cockpit is intended to integrate HR strategies between the management units, increase transparency, and ensure comparability between the HR management systems in the Bank sector as well as help the management units to manage their HR activities. To this end, the cockpit specifies 21 KPIs across the following four categories: value added/finance, employer appeal, organization/efficiency, and innovation/learning.

The entities in the Bank sector pursue the objective of preventing or minimizing HR risk by identifying negative trends and abnormalities, and then initiating corrective action. HR risk is monitored using the following 4 risk factors: exit risk, availability risk, skills and qualifications risk, motivational risk.

Long-term professional development, a high level of trainee recruitment, and a staff potential-promotion program for managers aim to ensure that staff members undergo the continuing development and training that will also make it possible to meet future staffing requirements from within the organization. In the interest of long-term staff retention, there are programs to establish and enhance the organization's appeal as a place to work, such as corporate health management and support for achieving a work-life balance.

Compliance functions and a comprehensive internal control system are used to counter fraud and negligence. Examples include internal rules on the minimum absence for employees with responsibility for trading positions.

Risk Controlling at DZ BANK has specified relevant KPIs for HR management as risk indicators. The key figures are collated on a monthly basis as part of the risk indicator process and include training days per employee, employee workload, resignation rate, total staff turnover rate, and the percentage of vacant positions.

The HR division of DZ BANK is involved in designing the standard scenarios relating to HR risk and validates the scenario assessment of the other entities in the Bank sector, particularly with regard to basis of calculation, frequency of occurrence, and loss level.

14.6 IT risk

14.6.1 Specific risk factors

Malfunctions or breakdowns in data processing systems or in the programs used on these systems, including attacks from external sources – such as hackers or malware –, could have an adverse impact on the ability of the entities in the Bank sector to efficiently maintain the processes necessary to carry out operating activities, protect saved data, ensure sufficient control, or continue to develop products and services. Furthermore, such malfunctions or breakdowns could lead to the temporary or permanent loss of data or to unauthorized data access, modification, or publication. This could restrict operating activities and have a negative impact on reputation.

14.6.2 Risk management

The entities in the Bank sector use computers and data processing systems to carry out their operating activities. Practically all business transactions and activities are processed electronically using appropriate IT systems. These systems are networked with each other and are operationally interdependent.

Processes in the IT units of the entities in the Bank sector are designed with risk issues in mind and are monitored using a variety of control activities in order to ensure that IT risk is appropriately managed. The starting point is to determine which risks are unavoidable in certain aspects of IT. Detailed requirements can then be specified. These requirements determine the extent to which checks need to be carried out and are intended to ensure that all activities are conducted in compliance with the previously defined risk appetite.

IT units apply comprehensive physical and logical precautionary measures to guarantee the security of data and applications and to ensure that day-to-day operations are maintained. Measures used by the Bank sector to counter the risk of a partial or complete loss of IT systems include segregated data processing centers in which the data and systems are mirrored, special access security, fire control systems, and an uninterruptible power supply supported by emergency power generators. Regular exercises are carried out to test defined restart procedures to be used in emergency or crisis situations with the aim of checking the efficacy of these procedures. Data is backed up and held within highly secure environments in different buildings.

DZ BANK's risk assessment methodology for IT risk is made available centrally by information security management and applied locally by the managers responsible for the various applications using tool-supported control processes. All variances identified in these processes are assessed from the perspective of the associated risks. All IT risks classified as material are included in regular information security reports to the Board of Managing Directors.

The risks identified in the information security control processes are also taken into account by the IT division, information security management, and the locally based OpRisk coordinators for the purposes of evaluating the risk self-assessment scenarios as part of the management of operational risk. The IT risk groups, comprising IT operating risk, IT outsourcing risk, IT security risk, and IT project risk, are each allocated one or more scenarios in the risk self-assessment. When the risk self-assessment is completed, the results of the decentralized risk assessment are compared with internal IT estimates and then analyzed. The results of the risk self-assessment process are also used as parameters for assessing IT risk events in the following year.

14.7 Outsourcing risk

14.7.1 Specific risk factors

When business activities are outsourced, there is a risk that a service provider could fail or cease to be available as a result of insurmountable technical or financial difficulties.

There is also a risk that the services performed by the service provider might not meet the contractually agreed requirements. The consequences could be that only some of the outsourced processes or services can be provided, or even that the outsourced processes or services cannot be provided at all. This could lead to a loss of business and to claims for damages from customers. In turn, this could also have a negative impact on reputation.

14.7.2 Risk management

The entities in the Bank sector have outsourced activities and processes to third-party service providers to a considerable extent.

The process of assessing the risk and determining the degree to which an outsourcing arrangement is material is mostly carried out as part of the analysis of outsourcing risk by the division responsible for the outsourcing with the involvement of a number of corporate and functional units, including legal affairs, business continuity management, and compliance, and in consultation with the local coordinators for operational risk. Internal audit is also involved as part of its auditing activities.

COM acts as a central point of contact for outsourcing matters at DZ BANK and lays down standards for handling outsourcing activities and their operational management. The RSA Archer outsourcing management tool is used within COM as the central application for recording outsourcing projects at DZ BANK and for managing the external service providers.

At DZ BANK, external service providers are managed by the department responsible for the outsourcing in accordance with the currently applicable guidelines for external procurement management. Service meetings are regularly held with service providers to facilitate communication and coordinate the IT services and other services to be provided by the third parties concerned. Compliance with contractually specified service level agreements is monitored by means of status reports and uptime statistics. The external service providers submit annual audit reports in which they evaluate and confirm the effectiveness of the general controls and procedures.

Business continuity plans, specific contractual liability provisions, and exit strategies are used to reduce outsourcing risk.

14.8 Legal risk

Tax risk with legal risk implications is not included in this section; it is described in section 14.9.1 below.

14.8.1 Specific risk factors

Legal risk may arise from changes in the way that the authorities or the courts interpret legal provisions. In particular, the Bank sector entities may have to adjust their business models to offset adverse effects on their competitiveness caused by new or enhanced regulatory requirements relating to liquidity, capital, processes, and/or reporting, or by changes in other regulatory frameworks. These effects could reduce the Bank sector entities' appeal as partners in business transactions.

14.8.2 Risk management

In the entities of the Bank sector, responsibility for managing legal disputes normally lies with their organizational units responsible for dealing with legal issues.

The entities in the Bank sector pursue a strategy of avoiding legal risk. The organizational units responsible for assessing legal issues therefore continuously monitor proposed legislation and regulatory requirements that are legally relevant, as well as developments in decisions by the courts. On this basis, these units identify legal risk and are involved in informing the departments concerned as soon as possible and implementing any necessary changes. The legal affairs units are responsible for reviewing and assessing circumstances from a legal perspective and also for coordinating any legal proceedings. The latter consists of both defending claims pursued against the entities in the Bank sector and enforcing claims by the management units against third parties.

If any legal risk is identified, the management unit concerned assesses the risk parameters in terms of their probability of occurrence and possible impact. In addition, the amounts in dispute in the divisions are calculated quarterly as part of the assessment of risk indicators and, if they exceed certain thresholds, the affected divisions must prepare a report. As part of the annual risk self-assessment in the management and control of operational risk, the legal affairs divisions of the management units help to assess the standard scenarios for legal risk. The results are taken into account when determining the economic capital.

Identified risks are limited and mitigated by organizational measures, either legal or procedural, or are taken into account by recognizing appropriate loss allowances.

The legal affairs divisions in the Bank sector entities also submit reports on risk-related issues to the member(s) of the Board of Managing Directors with relevant responsibility, independently of the established regular reports on cases pending before the courts.

14.8.3 Provisions recognized on the balance sheet

The entities in the Bank sector report potential losses arising from legal risk in accordance with the relevant (consolidated) financial reporting standards, which includes recognizing any provisions that may be required. This also encompasses potential risk in connection with cases pending before the courts. Disclosures covering the provisions recognized for risks arising from ongoing legal disputes are included in note 69 of the notes to the consolidated financial statements.

Any concentrations of risk owing to similarities between individual cases are taken into consideration. Comparable cases are aggregated to form a group.

The entities in the Bank sector have recognized provisions for legal risk arising in connection with capital market and credit products.

14.9 Tax risk

14.9.1 Specific risk factors

Tax risk can arise from adverse **changes in tax circumstances** (tax legislation, decisions by the courts), adverse **changes in the interpretation by tax authorities of existing tax legislation**, and adverse **changes in non-tax regulation**. Further risks could arise as a result of adverse changes in tax law or in decisions by the courts, which could also have retroactive implications.

As a result of tax audits, an alternative assessment of the tax risk or, in some cases, other information could give rise to **retrospective tax liabilities** for periods that have already been assessed. As there are still outstanding audits by the tax authorities relating to a number of financial years, there is a risk that retrospective tax payments could be required and these payments would be subject to interest charges. Such events could also have a negative impact on reputation.

14.9.2 Risk management

The entities in the Bank sector have decentralized systems for managing tax risk. Within the management units, responsibility for managing tax risk normally lies with the organizational units responsible for dealing with tax issues.

The entities in the Bank sector pursue a strategy of avoiding tax risk. The starting point for managing tax risk is the ongoing process of identifying, recording, and monitoring risk. If any tax risk is identified, the risk parameters are assessed in terms of their probability of occurrence and possible impact in quantitative and qualitative terms. Identified risks are limited and mitigated by means of tax organizational measures. Business transactions are assessed for tax purposes on the basis of current tax legislation, taking into account the latest decisions by the courts and interpretations by the authorities. The outcome is factored into the measurement of loss allowances.

The tax department at DZ BANK reports the groupwide data relevant to risk to the head of the Group Finance division and to the member of the Board of Managing Directors with relevant responsibility. Separately, and depending on materiality thresholds, ad hoc risk reports are also submitted to the above individuals.

14.10 Compliance risk

14.10.1 Specific risk factors

The entities in the Bank sector are exposed to operational risk, especially the risk that the implemented compliance and risk management systems could be inadequate for completely preventing or uncovering violations of legal provisions, for identifying and assessing all relevant risks for the entities in the Bank sector, or for initiating appropriate corrective measures.

Violations of legal provisions may have legal implications for the entity concerned, for the members of its decision-making bodies, or for its employees. They may give rise, for example, to fines, penalties, retrospective tax payments, or claims for damages by third parties. The reputation of individual entities in the Bank sector and the DZ BANK Group as a whole could also suffer as a result. These effects could reduce the Bank sector entities' appeal as partners in business transactions and lead to losses in value.

14.10.2 Risk management

In the context of their operating activities, the entities in the Bank sector must comply with various legal requirements in a large number of countries. These include prohibitions on accepting or granting benefits in connection with efforts to attract business, and prohibitions on other unfair business practices.

The management of risk arising from non-compliance with applicable laws, regulatory requirements, and internal rules and regulations is described in section 3.5.5.

14.11 Risks in connection with the (consolidated) financial reporting process

14.11.1 Specific risk factors

The main risks in the (consolidated) financial reporting process are that, as a result of unintended misstatements or deliberate action, the group management reports, annual financial statements, and management reports of DZ BANK and the other entities in the Bank sector might not provide a true and fair view of financial position and financial performance and/or that publication might be delayed. This could then have an adverse impact on investors' confidence in the DZ BANK Group and in the individual entities in the Bank sector or on their reputation. Furthermore, sanctions could be imposed, for example by the supervisory authorities. These effects could reduce the Bank sector entities' appeal as partners in business transactions.

14.11.2 Risk management

In order to limit operational risk in this area of activity, DZ BANK and the other entities in the Bank sector have set up internal control systems for the (consolidated) financial reporting process as an integral component of the control systems put in place for the general risk management process. The functionality of these control systems is described in section 3.5.10.

14.12 Loss events

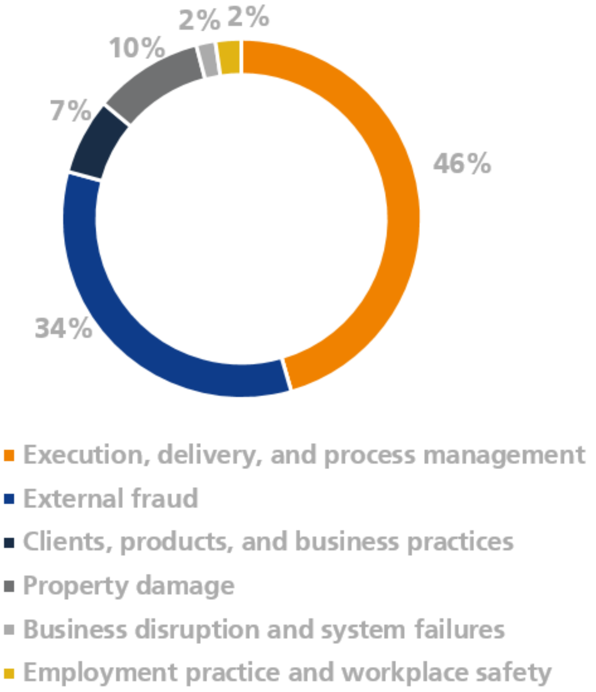
Losses from operational risk do not follow a consistent pattern. Instead, the overall risk profile can be seen from the total losses incurred over the long term and is shaped by a small number of large losses. Consequently, comparisons between net losses in a reporting period and those in a prior-year period are not meaningful. Prior-year figures are therefore not disclosed.

Over the course of time, there are regular fluctuations in the pattern of losses as the frequency of relatively large losses in each individual case is very low. Presenting the change in losses meaningfully therefore requires a sufficiently long and unchanging time horizon for reporting purposes. The data is therefore selected from the loss history for the past 4 quarters and on the basis of the date on which the expense is recognized in the income statement.

Fig. 36 shows the losses reported in the past 4 quarters, classified by loss event category.

In the **Bank sector**, the 'Execution, delivery, and process management' event category accounted for the largest proportion (46 percent) of net losses. The net loss in this event category was mainly attributable to 20 loss events, broken down as follows: 15 loss events resulted from failures in process implementation or in process design; a further 4 loss events were due to disagreements with business partners; 1 loss event was in connection with tax matters. The 'External fraud' event category accounted for 34 percent of net losses. Most of these losses related to 4 cases of prohibited transactions involving lending documents that had been falsified or improperly used and 1 case of hacker activity.

FIG. 36 – BANK SECTOR: NET LOSSES BY EVENT CATEGORY IN 2019[1]



1 In accordance with the CRR, losses caused by operational risks that are associated with risks such as credit risk are also shown.

Accounting for 80 percent of total net losses, the largest event category at **DZ BANK** was also 'Execution, delivery, and process management'. The loss amount was attributable to some of the loss events referred to above.

Losses did not reach a critical level relative to the expected loss from operational risk at any point during 2019, either in the Bank sector or at DZ BANK.

14.13 Risk position

Using the internal portfolio model, the **Bank sector's** risk capital requirement (including capital buffer requirement) for operational risk as at December 31, 2019 was calculated at €859 million (December 31, 2018: €804 million) with a limit of €926 million (December 31, 2018: €1,030 million).

As at December 31, 2019, the corresponding requirement at **DZ BANK** was €459 million (December 31, 2018: €417 million). The limit as at December 31, 2019 was €472 million (December 31, 2018: €499 million).

The risk capital requirement (including capital buffer requirement) for the Bank sector and for DZ BANK were within the applicable limit at every measurement date during 2019.

Insurance sector

15 Basic principles of risk management in the Insurance sector

15.1 Risk strategy

The principles of risk management in the Insurance sector are based on the risk strategy of the DZ BANK Group for the Insurance sector. The risk strategy is derived from the business strategies, taking into account the strategic 4-year plan approved by the R+V Board of Managing Directors.

Life actuarial risk is managed with the objectives of holding a broadly diversified product portfolio and of developing existing products while designing new ones. Pension, endowment and risk insurance, working life and semi-retirement products, and index-linked products are underwritten in order to diversify the life insurance and pension provision portfolios. The actuarial assumptions are designed so as to build in safety margins and address changes in the latest findings in order to withstand both the current risk situation as well as potential changes in this situation. Where products have policyholder participation, this represents the main instrument for mitigating risk. Underwriting guidelines and risk audits are used to prevent anti-selection. The risk exposure in the case of large individual risks may be limited by taking out appropriate reinsurance.

The objectives of managing **health actuarial risk** are a risk-conscious underwriting policy, cost/benefit management, the development of existing products, and the design of new products. In this case too, the actuarial assumptions build in safety margins and address changes in the latest findings in order to withstand both the current risk situation as well as potential changes in this situation. The risk exposure in the case of large individual risks may be limited by taking out appropriate reinsurance.

The management of **non-life actuarial risk in direct business** aims to optimize portfolios in terms of risk and reward. R+V focuses on business in Germany, offering a full range of non-life insurance products. The assumption of risk in connection with expanding its market share is accepted subject to the proviso that the business is profitable. Underwriting guidelines and size restrictions ensure targeted risk selection. Depending on its risk-bearing capacity, R+V reviews whether to purchase reinsurance cover to reduce earnings volatility, insure against major and cumulative claims, and protect and boost existing financial strength and earnings power.

In **inward non-life business**, R+V also aims to optimize the portfolio from a risk/reward perspective. Risk selection is based on binding underwriting guidelines and the exclusions of liability defined in those guidelines. The assumption of reinsurance risk is managed by using individual liability and aggregate limits in the sales and underwriting policy.

R+V's investments particularly give rise to interest-rate risk, spread risk, and equity risk. R+V's **market risk strategy** is determined by the regulatory investment principles specified in section 124 VAG and by internal rules.

Insurance companies must invest all assets so as to ensure the security, quality, liquidity, and profitability of the portfolio as a whole; the location of the assets must also ensure that they are available. In addition, well-established collaboration arrangements between R+V's underwriting and investment departments as part of the management of assets and liabilities are used to match insurance contract benefit obligations on the balance sheet with investment opportunities.

The market risk assumed by R+V reflects the investment portfolio structure developed as part of strategic asset allocation taking into account the individual risk-bearing capacity and long-term income requirements of R+V subsidiaries. The risk is managed in compliance with the limits specified at DZ BANK Group level.

The management of market risk is connected with the following fundamental objectives of risk policy: ensuring competitive returns on investments taking into account individual risk-bearing capacities, achieving defined minimum investment returns in stress scenarios, and securing a certain hidden asset level to ensure consistent earnings. The aim is also to guarantee that there is a sufficient proportion of fungible investments. The methods used to limit life insurance risk include policyholder participation set at an appropriate level, a discount rate in line with the capital market situation, and recognition of supplementary change-in-discount-rate reserves.

In line with the risk strategy for **counterparty default risk**, R+V aims to maintain a high average credit rating for its portfolios, avoid concentrations of issuers at portfolio level, and comply with the limits that have been set for counterparties and debtors of insurance and reinsurance companies.

The risk strategy for **operational risk** aims to further raise awareness of operational risk.

The objective of the **reputational risk strategy** is to promote the image of the R+V brand with due regard to the need for transparency and credibility.

15.2 Organization, responsibility, and risk reporting

The risk management process, which is implemented across all entities in the R+V subgroup, defines rules for the way in which risks are identified, analyzed, assessed, managed and monitored, and the way in which they are reported and communicated. These rules form the basis for a central **early-warning system**.

Participations are also included in the R+V subgroup's risk management system. Risk-bearing capacity is reviewed and measured at least once a quarter and the process includes a review of binding key performance indicators and threshold values. Corrective action must be initiated if a specified index value is exceeded. Risk-bearing capacity and all material risks are then finally evaluated each quarter by the Risk Committee.

Reports are submitted to the Board of Managing Directors of R+V in the event of material changes in risk. Company information that has a bearing on risk exposure is passed to the relevant supervisory bodies at R+V, both quarterly and on an ad hoc basis.

16 Actuarial risk

16.1 Definition and business background

16.1.1 Definition

Actuarial risk is the risk that the actual cost of claims and benefits deviates from the expected cost as a result of chance, error or change. It is broken down into the following categories defined by Solvency II:

- Life actuarial risk
- Health actuarial risk
- Non-life actuarial risk.

Life actuarial risk

Life actuarial risk refers to the risk arising from the assumption of life insurance obligations, in relation to the risks covered and the processes used in the conduct of this business. Life actuarial risk is calculated as the combination of capital requirements for, as a minimum, the following sub-modules:

- **Mortality risk** describes the risk of loss or an adverse change in the value of insurance liabilities, resulting from changes in the level, trend, or volatility of mortality rates, where an increase in the mortality rate leads to an increase in the value of insurance liabilities.
- **Longevity risk** describes the risk of loss or an adverse change in the value of insurance liabilities, resulting from changes in the level, trend, or volatility of mortality rates, where a decrease in the mortality rate leads to an increase in the value of insurance liabilities.
- **Disability-morbidity risk** describes the risk of loss or an adverse change in the value of insurance liabilities, resulting from changes in the level, trend, or volatility of disability, sickness, or morbidity rates.
- **Life catastrophe risk** describes the risk of loss or adverse change in the value of insurance liabilities, resulting from the significant uncertainty of pricing and assumptions when recognizing provisions related to extreme or unusual events.
- **Lapse risk** describes the risk of loss or an adverse change in the value of insurance liabilities, resulting from changes in the level or volatility of the rates of policy lapses, cancellations, renewals, and surrenders.
- **Life expense risk** describes the risk of loss or an adverse change in the value of insurance liabilities, resulting from changes in the level, trend, or volatility of the expenses incurred in servicing insurance or reinsurance contracts.

Health actuarial risk

Health actuarial risk refers to the risk arising from the assumption of health and casualty insurance obligations, in relation to the risks covered and the processes used in the conduct of this business.

Non-life actuarial risk

Non-life actuarial risk refers to the risk arising from the assumption of non-life insurance obligations, in relation to the risks covered and the processes used in the conduct of this business. It is calculated as the combination of capital requirements for the following submodules:

- **Premium and reserve risk** describes the risk of loss or an adverse change in the value of insurance liabilities, resulting from fluctuations in the timing, frequency, and severity of insured events, and in the timing and amount of claim settlements.
- **Non-life catastrophe risk** describes the risk of loss or an adverse change in the value of insurance liabilities, resulting from the significant uncertainty of pricing and assumptions when recognizing provisions related to extreme or unusual events.
- **Lapse risk** describes uncertainty about the continuation of the direct insurance and reinsurance contracts. It results from the fact that the lapse of contracts that are profitable for the insurance company will lead to a reduction in own funds.

16.1.2 Business background

In the DZ BANK Group, considerable actuarial risk arises from the business activities of R+V. The risk arises from the direct life insurance and health insurance business, the direct non-life insurance business, and the inward reinsurance business.

16.2 Specific risk factors

In the case of long-term products, which constitute the bulk of R+V's **direct life insurance business**, there is a risk of negative variances over the term of the contracts compared with calculation assumptions because of the length of time covered by the contracts. The relevant risk factors include changes in life expectancy, increasing rates of disability-morbidity, and disproportionately sharp cost increases. If the actual trends in life expectancy, disability-morbidity, and costs vary from the calculation assumptions, there is a risk over the medium to long term that the gross profit generated from life insurance will decline.

In **health insurance** at R+V, which accounts for a substantial proportion of health actuarial risk, there is a risk of higher claims caused by the behavior of the policyholders and service providers. In such cases, R+V generally has the option of adjusting premiums. Sharp premium increases could have negative implications for the level of new business at R+V in the future.

R+V's **direct non-life insurance and inward non-life reinsurance business** involves the provision of cover for a range of disasters. This includes both natural disasters, such as earthquakes, storms, and floods, and man-made disasters. These events cannot be predicted. Generally speaking, there is both the risk of particularly significant individual loss events and also the risk of a large number of loss events that are each not necessarily significant in themselves. As a result, in any one year, the actual impact from the size and frequency of losses could exceed the forecast impact. Climate change represents an additional risk factor in connection with the occurrence of natural disasters. It is reasonable to expect that climate change will lead to an increase in weather-related natural disasters over the long term.

16.3 Management of life actuarial risk

16.3.1 Risk measurement

The risk for insurance contracts subject to **mortality risk** is modeled as a permanent 15 percent increase in mortality.

The risk for insurance contracts subject to **longevity risk** is modeled as a 20 percent increase in longevity.

The overall solvency requirement for **disability-morbidity risk** is analyzed on the basis of a permanent 35 percent rise in the disability rates expected for the next 12 months, a permanent 25 percent rise in the disability rates expected for the period after those 12 months, and a permanent 20 percent decrease in all expected likely cases of policyholders being able to return to work.

The risk for insurance contracts affected by **life catastrophe risk** is modeled as an immediate increase of 0.15 percentage points in mortality rates in the next 12 months.

The risk for insurance contracts subject to **lapse risk** is modeled for the following scenarios: for an increase in lapses, a 50 percent rise in the lapse rate; for a decrease in lapses, a 50 percent reduction in the lapse rate; for a mass lapse event, lapse of 40 percent of the contracts.

The overall solvency requirement for **life expense risk** is based on the following stress scenarios: a permanent 10 percent rise in the costs reflected in the measurement of the insurance liabilities; an increase of 1 percentage point in the cost inflation rate.

16.3.2 Risk management in direct life insurance business

Actuarial risk is taken into account by carrying out a prudent cost calculation while products are still in development. This applies to the development of existing products as well as the design of new types of insurance. Safety margins are included in the actuarial assumptions to achieve this. The assumptions are structured in such a way that they not only withstand the current risk situation, but should also accommodate potential changes in the risk position. Actuarial control systems are used to decide whether the cost calculation for future new business needs to be changed. The calculation is also adjusted on an ongoing basis in line with the latest actuarial findings. The appointed actuary carries out reviews as part of product development and during the course of the term of contracts to verify that the actuarial assumptions used are appropriate.

A number of measures are taken to prevent a concentration of risks in the portfolio. Before contracts are signed, extensive risk reviews are carried out to limit **mortality and disability-morbidity risks**. In general, risk is only assumed in compliance with fixed underwriting guidelines. High levels of individual or cumulative risk are limited by reinsurance.

Generally speaking, the risk is mitigated if the insured risks are diversified. For example, an increase in mortality has an adverse impact on endowment life and risk insurance policies, but at the same time has a positive impact on the longevity risk associated with pension insurance.

Cost control tools are used to manage **life expense risk**.

Lapse risk is mitigated by structuring life insurance contracts to provide maximum flexibility should policyholders' circumstances change. A range of different options during the term of an insurance contract enables customers to maintain their contract instead of canceling it. Appropriate design of policyholder participation and, in particular, the final bonus also counteracts lapse risk.

In addition, advance notice of **policyholder participation** in the form of declarations of future bonuses is also a key instrument with which to reduce actuarial risk relating to life insurance.

16.4 Management of health actuarial risk

16.4.1 Risk measurement

Health actuarial risk is calculated by combining the capital requirements for the subcategories 'similar to life techniques, health actuarial risk' (risk on health insurance pursued on a similar technical basis to that of life insurance), 'non-similar to life techniques, health actuarial risk' (risk on health insurance pursued on a similar technical basis to that of non-life insurance), and 'health catastrophe risk'.

The methods described in the sections on life actuarial risk and non-life actuarial risk are used to measure risk in the subcategories.

Health actuarial risk also includes significant parts of the group's casualty insurance business as well as its health and occupational disability insurance business.

16.4.2 Risk management in health and casualty insurance

Risk management in health insurance business

In the health insurance business, the Insurance sector aims to manage actuarial risk by means of an **underwriting policy**, the features of which are underwriting guidelines and selection of risk, and management of benefits and costs. In many of the health insurance rate scales, deductibles are used to control the extent of claims. Provisions are recognized to ensure that all benefit obligations under insurance contracts can be met. The appointed actuary carries out monitoring as part of product development and over the course of time to verify that the actuarial assumptions used are appropriate.

In accordance with VAG provisions, R+V carries out an annual comparison of its calculations with the insurance benefits it is required to pay. If this comparison of claims for an observation unit within a particular scale of insurance rates reveals a variance that is other than temporary, the relevant **premiums** are adjusted. All actuarial assumptions are reviewed and specified in consultation with an independent trustee. A safety margin factored into premiums is also intended to ensure that obligations can be met if claims are higher than the level provided for in cost calculations.

In the health insurance business, the **decrement tables** include assumptions regarding mortality and the probability of other relevant withdrawal factors. Under the requirements set out in the German Health Insurance Supervision Regulation (KVAV), these assumptions must be specified and reviewed from the perspective of prudent risk assessment. It is for this reason that a new mortality table is developed annually by the Verband der privaten Krankenversicherung e.V. (PKV) [Association of German private healthcare insurers] in consultation with BaFin. In accordance with statutory provisions, R+V carries out an annual comparison of its calculations with the most recently published mortality tables.

When determining **lapse probabilities** for the purposes of its calculations, R+V uses both its own observations and the latest figures published by BaFin.

Where premiums were adjusted on January 1, 2019, R+V used the new PKV mortality table valid for 2019 to determine both new business premiums and those **premium adjustments** in existing business.

Unisex insurance rate scales are offered in R+V's **new business**. The cost calculation for these rates is not only based on the existing gender breakdown, but also takes into account the expected pattern of switching by existing policyholders to the new rates. The appropriateness of the composition of the portfolio resulting from the calculations is reviewed by actuaries using comparable calculations.

Risk management in casualty insurance business

The risk situation in the casualty insurance division is characterized by the fact that it is fixed-sum insurance and not indemnity insurance. Consequently, the maximum benefit per insured person is restricted to the sum insured.

A risk review also forms part of the underwriting policy in the case of casualty insurance. Premiums are reviewed on an ongoing basis to ensure that they remain appropriate. Claims are assessed on a case-by-case basis.

16.5 Management of non-life actuarial risk

16.5.1 Risk measurement

The capital requirements for **premium and reserve risk** are calculated on the basis of risk factors and volume measures for all branches of insurance in which business is conducted. The risk factors (e.g. the standard deviation as a percentage of the volume measure) describe the degree of threat posed by the risk. The volume measure for the **premium risk** is essentially the net premium income earned in the financial year and in the first and second years after that. The net claims provisions in the form of a best-estimate valuation constitute the volume measure for the **reserve risk**.

The capital requirement for **catastrophe risk** is calculated as an aggregation of four risk modules. These are natural catastrophe risk (broken down into the following natural hazards: hail, storm, flood, earthquake, and subsidence), the catastrophe risk of non-proportional reinsurance in non-life insurance, risk of man-made catastrophe, and other catastrophe risk in non-life insurance. Catastrophe risk is calculated using the volume measures of sums insured and premiums. Risk mitigation through reinsurance is taken into consideration.

To determine the overall solvency requirement as part of internal risk assessment, empirical distributions are generated for the relevant parameters for parts of the **direct insurance portfolio**, such as the claim amount and the number of claims per sector and claim type (e.g. basic claims, major claims, catastrophe claims). The value-at-risk can then be determined with the required confidence level directly from the underwriting result modeled in this way, recorded as a loss function. The parameters for the analyzed distributions are set using historical portfolio data and related planning data. They are therefore intended to reflect the actual risk position of the entity concerned.

The risk modeling for calculating basic claims relating to the natural hazard earthquake and basic claims and minor cumulative events relating to the natural hazards hail, storm, and flood is based on mathematical/statistical methods. The minimum and maximum claim amounts for minor cumulative events are derived from the group's own claims history. Modeling is based on the group's own claims data.

The risk modeling for major cumulative events relating to the natural hazards hail, storm, flood, and earthquake uses probability-based natural hazard models. This approach uses catastrophe claims that have been modeled by external providers for each natural hazard and take account of the specific risk profile.

In its **inward reinsurance business**, R+V deploys a simulation tool for stochastic modeling of catastrophe risk. To model the natural catastrophe risk on an individual contract basis, event catalogs from external providers containing predefined scenarios based on historical observations are used. The event catalogs cover the main countries and natural hazards related to the underwritten risk in the inward reinsurance concerned. In the case of countries and natural hazards for which there is no event catalog, modeling is based on R+V's own claims history. This involves generating scenarios for the current portfolio on the basis of historical major claims.

For inward reinsurance purposes, modeling based on the group's own claims history is also used to determine the overall solvency requirement for the risk of **man-made catastrophe**. This involves generating scenarios for the current portfolio on the basis of the historical major claims.

The overall solvency requirement for **lapse risk** is determined on the basis of a stress scenario involving the lapse of 40 percent of those insurance contracts whose lapse would lead to an increase in the best-estimate valuation for the premium provision.

16.5.2 Risk management in direct non-life insurance business

Premium and reserve risk is managed through risk selection, risk-oriented premiums and products, and profit-oriented underwriting guidelines. In order to maintain a balanced risk profile, R+V ensures it has reinsurance cover for major individual risks. Managers use planning and control tools to ensure they are in a position at an early stage to identify unexpected or adverse portfolio or claim trends and to initiate appropriate corrective action in response to the changes in the risk situation. To make these risks manageable, pricing is based on a calculation that uses mathematical/statistical modeling.

The measurement of the overall solvency requirement for **natural catastrophe risk** is supplemented by analysis of the policy portfolio. This analysis carried out with the aid of tools such as the ZÜRS Geo information system (zoning system for flooding, backwater flooding, and heavy rainfall) investigates risk concentrations and changes in these concentrations over time. The use of geographical diversification and the deployment of underwriting guidelines form the basis for managing risks arising from natural disasters.

To reduce actuarial risk, R+V purchases facultative and obligatory reinsurance cover, formulates risk exclusions, and designs risk-appropriate deductible models. Risk-bearing capacity is reviewed as part of the reinsurance decision-making process. This is used as the basis for reinsurance structures and liability layers.

In order to prevent or limit losses, R+V provides a network of different subsidiaries that offer specialist services to help customers and sales partners with contract, risk prevention, or restructuring issues.

In compliance with Solvency II requirements, mathematical/statistical methods are used to calculate future payment obligations for the purpose of measuring insurance liabilities. Insurance liabilities are measured separately for premium and claims provisions. R+V's own experience, actuarial statistics, and additional sources of information are used for the calculations. The methods deployed are based on generally accepted principles of actuarial practice.

16.5.3 Risk management in inward non-life business

R+V counters **premium and reserve risk** by continuously monitoring the market as well as the economic and political situation, by managing risk in accordance with its corporate strategy, and by setting insurance rates appropriate to the risk involved. The risk is managed on the basis of an earnings-driven underwriting policy. The assumption of risk is circumscribed by mandatory underwriting guidelines and limits that restrict potential liability arising from both individual and cumulative claims. R+V takes account of economic capital costs when underwriting risk. Compliance with these requirements is monitored.

The material actuarial risks in the inward reinsurance portfolio are **catastrophe risk**, long tail risk, reserve risk and also far-reaching changes in the trends underlying the main markets. The actual and potential losses arising from the level and frequency of claims under natural disaster insurance are recorded and assessed using industry-standard software and R+V's own additional verification systems. The portfolio is continuously monitored for possible concentrations of natural disaster risk.

The objective in managing natural disaster risk is to ensure that there is a broad balance of risk across all categories and that the risk is diversified geographically around the globe.

Limits are set to support central management and limitation of cumulative risks arising from individual natural hazards. One of the mechanisms for managing risk is a systematic check on the cumulative authorized limits for natural disaster risks. The monitoring and management of limits may include the reallocation or adjustment of capacities. The modeled exposures remained within the authorized limits.

Action that can be taken to mitigate the risk includes management of deductibles and retrocession taking into account risk-bearing capacity and the effective costs of retrocession. Minimum requirements apply in relation to the credit rating of retrocessionaires. To minimize peak risk in connection with natural disasters in Europe, R+V has entered into a retrocession agreement as part of its inward reinsurance business. R+V monitors the claims rate trend promptly and continuously, allowing it to initiate preventive measures so that it always has a sufficient level of reserves. The reserves position is monitored in a number of ways, including by means of an expert report, which is prepared once a year.

16.6 Claims rate trend in non-life insurance

The claims rate (net) in **direct non-life insurance** fell below the prior-year level, as anticipated. Natural disaster events Eberhard and Jörn/Klaus gave rise to claims incurred totaling €83 million. The claims rate in the **inward reinsurance business** went up year on year. Notable natural disaster events included Hurricane Dorian and typhoons Hagibis and Faxai, which gave rise to a total expense of €169 million.

Changes in claims rates and settlements (net of reinsurance) in direct non-life insurance and inward non-life reinsurance business are shown in Fig. 38.

16.7 Risk position

As at December 31, 2019, the **overall solvency requirement** for **life actuarial risk** amounted to €977 million (December 31, 2018: €921 million). The **limit** was set at €1,200 million as at the reporting date (December 31, 2018: €1,100 million) and was not exceeded on any measurement date during the reporting year.

As at December 31, 2019, the **overall solvency requirement for health actuarial risk** was measured at €244 million (December 31, 2018: €234 million) with a **limit** of €410 million (December 31, 2018: €350 million). Again, the risk capital requirement remained below the limit on every measurement date during 2019.

As at December 31, 2019, the **overall solvency requirement** for **non-life actuarial risk** amounted to €3,597 million (December 31, 2018: €3,300 million). The increase was primarily the result of the growth in the volume of business. The **limit**, which was fixed at €3,960 million as at the reporting date (December 31, 2018: €3,650 million), was not exceeded on any measurement date during the reporting period.

The overall solvency requirement for the various types of non-life actuarial risk is shown in Fig. 37. The rise in the overall solvency requirement compared with the prior year resulted first and foremost from business growth. This applied particularly to premium and reserve risk.

The changes in actuarial risk in direct non-life insurance in 2020 will continue to be shaped by the strategy of achieving profitable growth in all segments of R+V.

In its inward reinsurance business, R+V intends to expand its portfolio, which is well diversified in terms of geography and sector, by continuing the earnings-driven underwriting policy it has pursued in previous years.

FIG. 37 – INSURANCE SECTOR: OVERALL SOLVENCY REQUIREMENT FOR NON-LIFE ACTUARIAL RISK

€ million	Dec. 31, 2019	Dec. 31, 2018
Premium and reserve risk	2,254	2,004
Non-life catastrophe risk	2,295	2,167
Lapse risk	74	97
Total (after diversification)	**3,597**	**3,300**

FIG. 38 – INSURANCE SECTOR: CLAIMS RATE AND SETTLEMENTS (NET OF REINSURANCE)[1]

	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010
Claims rate (net) as percentage of premiums earned										
Including major/natural disaster claims	76.3	76.2	76.6	76.1	76.2	75.5	78.2	75.6	77.7	77.3
Excluding major/natural disaster claims	72.7	71.1	72.8	72.3	74.0	73.8	69.1	72.7	71.4	75.0
Settlements (net) as percentage of provision for incoming claims										
Non-life	0.6	1.1	3.1	3.6	1.6	2.1	0.5	0.3	1.9	4.8

1 Direct non-life insurance business and inward non-life reinsurance.

17 Market risk

17.1 Definition and business background

17.1.1 Definition

Market risk describes the risk arising from fluctuation in the level or volatility of market prices of assets, liabilities, and financial instruments that have an impact on the value of the assets and liabilities of the entity. It reflects the structural mismatch between assets and liabilities, in particular with respect to their maturities. In accordance with the breakdown specified in Solvency II, the bulk of credit risk within market risk is assigned to spread risk. The other parts of credit risk are measured within counterparty default risk and other risk types.

Market risk is broken down into the following subcategories:

- **Interest-rate risk** describes the sensitivity of the values of assets, liabilities, and financial instruments to changes in the term structure of interest rates or to the volatility of interest rates.

- **Spread risk** describes the sensitivity of the values of assets, liabilities, and financial instruments to changes in the level or volatility of credit spreads above the risk-free interest rate term structure. Default risk and migration risk are also included in this subcategory. The credit spread is the difference in interest rates between a high-risk and a risk-free fixed-income investment. Changes in the credit risk premiums lead to changes in the market value of the corresponding securities.

- **Equity risk** describes the sensitivity of the values of assets, liabilities, and financial instruments to changes in the level or volatility of the market prices of equities. Equity investment risk is also a part of equity risk. Equity risk arises from existing equity exposures as a result of market volatility.

- **Currency risk** describes the sensitivity of the values of assets, liabilities, and financial instruments to changes in the level or volatility of exchange rates. Currency risk arises as a result of exchange rate volatility either from investments held in a foreign currency or the existence of a currency imbalance between insurance liabilities and investments.

- **Real-estate risk** describes the sensitivity of the values of assets, liabilities, and financial instruments to changes in the level or volatility of the market prices of real estate. Real-estate risk can arise as a result of negative changes in the fair value of real estate held directly or indirectly. This may be the result of a deterioration in the specific characteristics of the real estate or a general change in market prices (for example in connection with a real-estate crash).

- **Concentration risk** represents the additional risk for an insurance or reinsurance company stemming either from lack of diversification in the asset portfolio or from a large exposure to the risk of default by a single issuer of securities or a group of related issuers.

17.1.2 Business background

Market risk arises in the insurance business as a result of investing activities. It is caused by the timing difference between the payment of premiums by the policyholder and the payments for claims and benefits by the insurance company, and by endowment-type business in personal insurance.

17.2 Specific risk factors

Generating the guaranteed return required in its life insurance business may present R+V with additional challenges if interest rates remain low or turn negative and credit spreads remain narrow. On the other hand, if **interest rates** were to rise significantly in the near future or **credit spreads** on bonds were to widen, this would lead to a substantial fall in the fair values of R+V's investments used to cover the obligations to policyholders. Falls in fair value of this nature could have a temporary impact on operating profit at R+V, or a permanent impact if investments have to be sold.

Because cash flows in connection with insurance liabilities in the area of life insurance can be forecast and R+V's investments are diversified, the risk that bonds might have to be sold at a loss before their maturity date is low.

Default risk may arise from a **deterioration in the financial circumstances of issuers or debtors**. This could lead to the recognition of credit-risk-related impairment losses or to partial or total defaults on loans and receivables.

R+V's investments have a high credit rating. In the dominant public and financial sectors, they are also largely loans and advances in the form of government bonds and German and European Pfandbriefe backed by collateral in accordance with statutory requirements.

17.3 Risk management

17.3.1 Market risk measurement

The measurement of market risk involves analyzing shock scenarios specified in **Solvency II** requirements, in some cases supplemented by the group's own parameterization.

The capital requirements for **interest-rate risk** are determined on the basis of shock scenarios calculated for an increase in interest rates and a decrease in interest rates. R+V uses the shock factors in the standard formula to calculate the overall solvency requirement for interest-rate risk.

The capital requirements for **spread risk** are calculated using a factor approach based on the relevant lending volume. The level of the shock factor is determined by the security's rating and the modified duration of the investment. With loan securitizations, a distinction is made between single, double, and multiple securitization structures. Depending on which is applicable, different rating-dependent shock factors are used. R+V uses its own shock factors, based on a portfolio model and with particular regard to concentration risk, to calculate the overall solvency requirement.

The capital requirements for **equity risk** are determined on the basis of stress scenarios calculated for a decrease in market value. The stress amounts depend on the equity type, e.g. whether it is listed on a regulated market in a member state of the European Economic Area or Organisation for Economic Co-operation and Development (OECD). The capital requirement for equity risk is based on the relevant equity exposure. It is determined using modeling and risk quantification based on observable data. The parameters are increased in order to take account of default risk and concentration risk. Default risk describes the risk of loss resulting from issuer insolvency.

Currency risk is calculated using a scenario approach that reflects the impact of a decrease or increase in the exchange rate for a foreign currency. The shock factor for determining the overall solvency requirement is based on the individual currency portfolio of R+V. Lower factors are applied for currencies that are pegged to the euro than for those that are not pegged to the euro.

The calculation of **real-estate risk** looks at both property held directly (e.g. land and buildings) and real-estate funds. The shock factor for determining the overall solvency requirement for real-estate risk is a stress scenario adapted from the standard formula and reflects the fact that direct holdings consist overwhelmingly of investments in German real estate and fund holdings consist primarily of European real estate.

The overall solvency requirement for **concentration risk** is not calculated separately because this risk is taken into account in the calculations for equity risk, spread risk, and counterparty default risk.

17.3.2 Principles of market risk management

The risk attaching to investments is managed in accordance with the guidelines specified by EIOPA, the stipulations in the VAG, the information provided in regulatory circulars, and internal investment guidelines (for details, see 'Market risk strategy' in section 15.1). R+V aims to ensure compliance with the internal provisions in the risk management guidelines for investment risk and with other regulatory investment principles and regulations by means of investment management, internal control procedures, a forward-looking investment policy, and organizational measures. The management of risk encompasses both economic and accounting aspects.

R+V continuously expands and refines the range of instruments used to identify, assess, and analyze the risk attaching to new investments and to monitor risk in the investment portfolio, in order to be able to respond to any changes in the capital markets and to detect, limit, or avoid risk at an early stage.

R+V counters investment risk by observing the principle of achieving the greatest possible security and profitability while safeguarding liquidity. By maintaining a mix and diversification of investments, R+V's investment policy aims to take into account the objective of mitigating risk.

R+V monitors changes in all types of market risk through constant measurement and a process of reporting to the relevant bodies. Risk in all subcategories is quantified through specific economic calculations. Stress tests represent an important early-warning system. In addition to natural diversification via maturity dates, issuers, countries, counterparties and asset classes, limits are also applied in order to mitigate risk.

Asset/liability management investigations are carried out at R+V. The necessary capital requirement to maintain solvency is reviewed on an ongoing basis with the support of stress tests and scenario analyses. Specifically, reviews are carried out to assess the effects of a long period of low interest rates and volatile capital markets. R+V uses derivatives to manage market risk.

17.3.3 Management of individual market risk categories

In the management of **interest-rate risk**, R+V adheres to the principle of a mix and diversification of investments, combined with balanced risk-taking in selected asset classes and duration management that takes account of the structure of obligations. Furthermore, the use of pre-emptive purchases helps to provide a constant return from investments and to manage changes in interest rates and duration. A portion of the fixed-income investment portfolio has also been protected against a fall in prices.

In the management of **spread risk**, R+V pays particular attention to high credit ratings for investments, with the overwhelming majority of its fixed-income portfolio being held in investment-grade paper (see also Fig. 44 in section 17.4.2). The use of third-party credit risk evaluations and internal expert assessments, which are often more rigorous than the credit ratings available in the market, serves to further minimize risk.

Mortgage lending is also subject to internal rules that help to limit default risk. Analysis has shown that accounting considerations do not require any loan loss allowances to be recognized at portfolio level.

The management of **equity risk** is based on a core-satellite approach in which the core comprises shares in large, stable companies in indices that can be hedged to which satellite equities are added to improve the risk/return profile. Asymmetric strategies are also used to reduce or increase equity exposure under a rules-based approach. At R+V, equities are used as part of a long-term investment strategy to guarantee that obligations to policyholders can be satisfied; generating profits by exploiting short-term fluctuations to sell shares is not its objective. The risk of having to sell equities at an inopportune moment is mitigated by the broadly diversified portfolio of investments.

Currency risk is controlled by systematic foreign-exchange management. Virtually all reinsurance assets and liabilities are denominated in the same currency.

Real-estate risk is mitigated by diversifying holdings across different locations and types of use.

Concentration risk is reduced by mixing and diversifying investments. This is particularly apparent from the granular structure of the issuers in the portfolio.

17.3.4 Distinctive features of managing market risk in personal insurance business

Due to the persistently low level of interest rates, there is a risk that the guaranteed minimum return agreed for certain products when contracts are signed cannot be generated on the capital markets over the long term. This particularly applies to life insurance contracts and casualty insurance contracts with premium refund clauses that guarantee minimum returns. In the case of products with long-term guarantees, there is a risk of negative variances over the term of the contracts compared with calculation assumptions because of the length of time covered by the contracts. The main reasons for variances are the change in the capital market environment and maturity mismatches between investments and insurance contracts. A protracted period of low interest rates increases the market risk arising from investments.

Market risk can be countered by writing new business that takes into account the current capital market situation and by taking the following action to boost the portfolio's risk-bearing capacity. It is crucial to ensure that there is enough free capital that can be made available even in adverse capital market scenarios. The necessary capital requirement to maintain solvency is reviewed on an ongoing basis with the aid of stress tests and scenario analyses as integral components of asset/liability management.

Risk is essentially mitigated by recognizing a supplementary change-in-discount-rate reserve as specified in the Regulation on the Principles Underlying the Calculation of the Premium Reserve (DeckRV) and adding to the discount rate reserves for existing contracts, thereby reducing the average interest liabilities. In 2019, R+V added a total of

€647 million to these supplementary reserves in its life insurance business, bringing the overall amount to €3,919 million. The addition to these reserves for casualty insurance with premium refund was €4 million, bringing the total to €38 million. Following the amendment to the DeckRV at the end of 2018, there will be a further increase in the supplementary change-in-discount-rate reserve, although this will be in smaller steps over a longer period (using the 'corridor method').

Policyholder participation in the form of future declarations of bonuses is also a key instrument used to reduce market risk attaching to life insurance.

The breakdown of benefit reserves by discount rate for the main life and casualty insurance portfolios is shown in Fig. 39.

FIG. 39 – INSURANCE SECTOR: BENEFIT RESERVES BY DISCOUNT RATE FOR THE MAIN INSURANCE PORTFOLIOS[1]

Discount rate	Proportion of total benefit reserve in 2019[2]		Proportion of total benefit reserve in 2018[2]	
	(€ million)	(%)	(€ million)	(%)
0.00%	5,938	9.1	5,713	9.3
0.08%	2	-	1	-
0.10%	-	-	-	-
0.25%	891	1.4	853	1.4
0.35%	23	-	-	-
0.40%	2	-	-	-
0.50%	118	0.2	59	0.1
0.75%	24	-	41	0.1
0.90%	4,850	7.4	2,720	4.4
1.00%	75	0.1	8	-
1.25%	2,467	3.8	2,266	3.7
1.50%	24	-	29	-
1.55%	29	-	-	-
1.75%	5,723	8.7	5,292	8.6
1.80%	315	0.5	36	-
2.00%	654	1.0	445	0.7
2.25%	11,251	17.2	10,536	17.1
2.50%	88	0.1	87	0.1
2.75%	8,238	12.6	7,876	12.8
3.00%	2,326	3.5	2,798	4.5
3.25%	7,172	10.9	7,000	11.3
3.50%	3,564	5.4	3,857	6.2
3.75%	215	0.3	258	0.4
4.00%	7,294	11.1	7,346	11.9

1 The table covers the following insurance products that include a guaranteed rate of return:
- Casualty insurance policies with premium refund
- Casualty insurance policies with premium refund as pension insurance
- Pension insurance policies
- Endowment insurance policies, including capital accumulation, risk and credit insurance policies, pension plans with guaranteed insurance-based benefits
- Capital deposit products.

2 The share of the total benefit reserve attributable to supplementary insurance policies is listed under the relevant basis of calculation for the associated main insurance policy.

A summary of the actuarial assumptions for calculating the benefit reserves for the main life and casualty insurance portfolios is presented in note 11 of the notes to the consolidated financial statements. It forms part of the notes on the accounting policies applicable to the 'Benefit reserve' line item on the balance sheet.

The company actuarial discount rate calculated in accordance with the procedure developed by the Deutsche Aktuarvereinigung e.V. (DAV) [German Actuarial Association] is used in determining the health insurance discount rate. This procedure is based on a fundamental professional principle issued by the DAV for determining an appropriate discount rate. As a result of these calculations, there was only a reduction in the discount rate in 2019 for observation units with a premium adjustment effective January 1, 2019 if a premium adjustment had not already been carried out with effect from January 1, 2018.

17.3.5 Managing risk arising from defined benefit pension obligations

The R+V entities have pension obligations (defined benefit obligations) to their current and former employees. By entering into such direct defined benefit obligations, they assume a number of risks, including risks associated with the measurement of the amounts recognized on the balance sheet, in particular risk arising from a change in the discount rate, risk of longevity, inflation risk, and risk in connection with salary and pension increases. A requirement may arise to adjust the existing provisions for pensions and other post-employment benefits as a result of decisions by the courts, legislation, or changes in the (consolidated) financial reporting. All the plan assets at R+V without exception are assets in reinsured pension schemes and are subject to interest-rate risk. The strategy adopted for the pension assets is predominantly driven by the defined benefit obligations.

17.4 Lending volume

17.4.1 Reconciliation of the lending volume

The amount and structure of the lending volume are key factors for the aspects of credit risk reflected in market risk and counterparty default risk. To identify possible risk concentrations, the volume liable to credit risk is broken down by sector, country group, and rating class.

FIG. 40 – INSURANCE SECTOR: RECONCILIATION OF THE LENDING VOLUME

€ billion

for internal management accounts		Reconciliation: Scope of consolidation		Reconciliation: Definition of the lending volume		Reconciliation: Carrying amount and measurement		Lending volume for the consolidated financial statements		
Dec. 31, 2019	Dec. 31, 2018	Dec. 31, 2019	Dec. 31, 2018	Dec. 31, 2019	Dec. 31, 2018	Dec. 31, 2019	Dec. 31, 2018	Dec. 31, 2019	Dec. 31, 2018	(note 57 to the consolidated financial statements)
								9.7	9.3	of which: mortgage loans
								7.2	7.4	of which: promissory notes and loans
								9.1	9.6	of which: registered bonds
								0.7	-	of which: other loans
								11.3	9.2	of which: variable-yield securities
								55.8	49.0	of which: fixed-income securities
								0.4	0.2	of which: derivatives (positive fair values)
								0.4	0.3	of which: deposits with ceding insurers
98.0	86.9	-1.2	-1.9	0.4	0.2	-2.4	-0.3	94.8	84.9	Total
			Balance as at Dec. 31, 2019					-3.2	-3.2%	
			Balance as at Dec. 31, 2018					-2.0	-2.3%	

Not relevant

Fig. 40 shows a reconciliation of the lending volume on which the risk management is based to individual balance sheet items in order to provide a transparent illustration of the link between the consolidated financial statements and risk management. There are discrepancies between the internal management and external (consolidated) financial reporting measurements for some portfolios owing to the focus on the risk content of the items. Other main reasons for the discrepancies between the two sets of figures are differences in the scope of consolidation, differences in the definition of lending volume, and various differences in recognition and measurement methods.

17.4.2 Change in lending volume

As at December 31, 2019, the total lending volume of R+V had increased by 13 percent to €98.0 billion (December 31, 2018: €86.9 billion). This increase was attributable to the interest-rate-related rise in fair values and the expansion of the investment portfolios in connection with the growth in the insurance business.

The volume of lending in the **home finance** business totaled €10.8 billion as at December 31, 2019 (December 31, 2018: €9.9 billion). Of this amount, 89 percent was accounted for by loans for less than 60 percent of the value of the property (December 31, 2018: 90 percent). The volume of home finance was broken down by finance type as at the reporting date as follows (figures as at December 31, 2018 shown in parentheses):

- Consumer home finance: €9.9 billion (€9.3 billion)
- Commercial home finance: €0.1 billion (€0.1 billion)
- Commercial finance: €0.7 billion (€0.5 billion).

In the home finance business, the entire volume disbursed is usually backed by traditional **loan collateral**.

The financial sector and the public sector, which are the dominant **sectors**, together accounted for 71 percent of the total lending volume as at December 31, 2019, as was also the case at the end of 2018. This lending mainly comprised loans and advances in the form of German and European Pfandbriefe backed by collateral in accordance with statutory requirements. Loans and advances to the public sector and consumer home finance (retail) highlight the safety of this investment.

Fig. 41 shows the sectoral breakdown of the lending volume in the Insurance sector.

An analysis of the **geographical breakdown** of lending in Fig. 42 reveals that Germany and other industrialized countries continued to account for the lion's share of the lending volume as at December 31, 2019 – as they also did at December 31, 2018 – with a share of 90 percent. European countries dominated within the broadly diversified exposure in industrialized countries.

The high proportion of obligations in connection with the life insurance business requires investments with longer maturities. This is also reflected in the breakdown of **residual maturities** shown in Fig. 43.

As at December 31, 2019, 83 percent of the total lending volume had a residual maturity of more than 5 years. This was the same percentage as at December 31, 2018. By contrast, just 3 percent of the total lending volume was due to mature within 1 year as at the reporting date (December 31, 2018: 2 percent).

The **rating structure** of the lending volume in the Insurance sector is shown in Fig. 44. Of the total lending volume as at December 31, 2019, 79 percent continued to be attributable to investment-grade borrowers (December 31, 2018: 80 percent).

The lending volume that is not rated, which made up 18 percent of the total lending volume (December 31, 2018: 17 percent), essentially comprised low-risk consumer home finance for which external ratings were not available.

To rate the creditworthiness of the lending volume, R+V uses external ratings that have received general approval. It also applies its own expert ratings in accordance with the provisions of Credit Rating Agency Regulation III to validate the external credit ratings. R+V has defined the external credit rating as the maximum, even in cases where its own rating is better. The ratings calculated in this way are matched to the DZ BANK credit rating master scale using the methodology shown in Fig. 23 (section 8.6.1).

As at the reporting date, the **10 counterparties associated with the largest lending volumes** accounted for 18 percent of R+V's total lending volume (December 31, 2018: 21 percent).

FIG. 41 – INSURANCE SECTOR: LENDING VOLUME, BY SECTOR

€ billion	Dec. 31, 2019	Dec. 31, 2018
Financial sector	47.2	40.0
Public sector	22.5	21.3
Corporates	17.3	15.6
Retail	9.9	9.3
Industry conglomerates	1.0	0.6
Other	-	-
Total	98.0	86.9

FIG. 42 – INSURANCE SECTOR: LENDING VOLUME, BY COUNTRY GROUP

€ billion	Dec. 31, 2019	Dec. 31, 2018
Germany	35.7	31.9
Other industrialized countries	52.9	46.6
Advanced economies	1.2	1.1
Emerging markets	5.1	4.2
Supranational institutions	3.1	3.1
Total	98.0	86.9

FIG. 43 – INSURANCE SECTOR: LENDING VOLUME, BY RESIDUAL MATURITY

€ billion	Dec. 31, 2019	Dec. 31, 2018
≤ 1 year	2.6	2.1
> 1 year to ≤ 5 years	13.7	12.9
> 5 years	81.7	71.9
Total	98.0	86.9

FIG. 44 – INSURANCE SECTOR: LENDING VOLUME, BY RATING CLASS

€ billion		Dec. 31, 2019	Dec. 31, 2018
Investment grade	1A	26.2	25.1
	1B	14.3	11.9
	1C	-	-
	1D	9.0	7.7
	1E	-	-
	2A	8.2	7.4
	2B	6.9	5.5
	2C	6.2	5.5
	2D	2.8	2.7
	2E	-	-
	3A	4.0	4.1
Non-investment grade	3B	1.0	0.8
	3C	0.7	0.4
	3D	-	-
	3E	0.4	0.4
	4A	0.2	0.1
	4B	0.2	0.1
	4C	0.1	0.2
	4D	-	-
	4E	-	-
Default		-	-
Not rated		17.8	15.0
Total		98.0	86.9

17.4.3 Credit portfolios with increased risk content

R+V's exposure in credit portfolios with increased risk content is analyzed separately because of its significance for the risk position in the Insurance sector. The figures presented here are included in the above analyses of the total lending volume.

Investments in **eurozone periphery countries** totaled €6,812 million as at December 31, 2019 (December 31, 2018: €6,158 million), a rise of 11 percent. Fig. 45 shows the country breakdown of the exposure.

17.5 Risk position

As at December 31, 2019, the **overall solvency requirement for market risk** amounted to €3,575 million (December 31, 2018: €3,205 million) with a **limit** of €3,850 million (December 31, 2018: €4,350 million). This increase in market risk was attributable to the expansion of the investment portfolios in connection with the growth in the insurance business. It was also due to the fall in the potential for risk mitigation arising from the projection of lower future policyholder participation, which in turn was caused by the fall in interest rates in 2019. The limit was not exceeded on any measurement date during 2019.

Fig. 46 shows the overall solvency requirement for the various types of market risk.

The overall solvency requirement includes a **capital buffer requirement** for market risk. This capital buffer requirement covers the spread and migration risk arising from sub-portfolios of Italian government bonds. Since the recalculation of the overall solvency requirement as at December 31, 2018, it has also taken account of the increase in market risk stemming from a further refinement of the method for measuring interest-rate risk. R+V is currently working in cooperation with DZ BANK to establish whether there is any need for changes in connection with the supervisory review process carried out by EIOPA under Commission Delegated Regulation (EU) 2015/35 (Solvency II Regulation). The capital buffer relating to the refinement of the measurement of interest-rate risk will be removed again once the new methodology has been implemented.

As at December 31, 2019, the capital buffer requirement for market risk totaled €206 million (December 31, 2018: €333 million).

FIG. 45 – INSURANCE SECTOR: EXPOSURE IN EUROZONE PERIPHERY COUNTRIES

€ million	Dec. 31, 2019	Dec. 31, 2018
Italy	**3,897**	4,081
of which: public sector	2,814	2,983
of which: non-public sector	1,083	1,099
of which: financial sector	782	836
Spain	**2,915**	2,077
of which: public sector	1,524	1,402
of which: non-public sector	1,391	675
of which: financial sector	1,128	468
Total	**6,812**	**6,158**
of which: public sector	4,338	4,384
of which: non-public sector	2,474	1,773
of which: financial sector	1,910	1,304

FIG. 46 – INSURANCE SECTOR: OVERALL SOLVENCY REQUIREMENT FOR MARKET RISK

€ million	Dec. 31, 2019	Dec. 31, 2018
Interest-rate risk	1,168	1,465
Spread risk	1,446	1,248
Equity risk	1,837	1,496
Currency risk	218	165
Real-estate risk	390	359
Total (after diversification)	**3,575**	**3,205**

18 Counterparty default risk

18.1 Definition and business background

Counterparty default risk reflects possible losses due to unexpected default or deterioration in the credit standing of counterparties and debtors of insurance and reinsurance companies over the following 12 months. It covers risk-mitigating contracts, such as reinsurance arrangements, securitizations and derivatives, and receivables from intermediaries, as well as any other credit risk that is not otherwise covered by risk measurement.

Counterparty default risk takes account of collateral or other security that is held by the insurance or reinsurance company and any associated risks.

18.2 Specific risk factors

Counterparty default risk can arise as a result of unexpected default or deterioration in the credit standing of mortgage loan borrowers, counterparties of derivatives, reinsurance counterparties or policyholders, or insurance brokers.

18.3 Risk management

18.3.1 Measurement of counterparty default risk and management of limits

The capital requirements for counterparty default risk are determined on the basis of the relevant exposure and the expected losses per counterparty.

R+V manages counterparty default risk at individual entity level.

Transactions involving derivatives are subject to internal guidelines, particularly those regarding volume and counterparty limits. The various risks are monitored and transparently presented as part of the internal reporting system. Only economic hedges are used and they are not reported on a net basis in the consolidated financial statements.

R+V uses the views expressed by the international rating agencies in conjunction with its own credit ratings to help it to assess counterparty and issuer risk. Compliance with the limits for major counterparties is reviewed on an ongoing basis, with checks on limit utilization and compliance with investment guidelines.

18.3.2 Mitigating counterparty default risk

Default management mitigates the risks arising from defaults on receivables relating to direct insurance operations with policyholders and insurance brokers. The risk of default on receivables is also addressed by recognizing general loan loss allowances, which are calculated on the basis of past experience. The average ratio of defaults to gross premiums written over the past 3 years was 0.1 percent, which was unchanged on the figure as at December 31, 2018.

The default risk for receivables arising from inward and ceded reinsurance business is limited by constantly monitoring credit ratings and making use of other sources of information in the market. As was the case at the end of 2018, virtually all receivables arising from ceded reinsurance, which amounted to €14 million as at December 31, 2019 (December 31, 2018: €23 million), were due from entities with a rating of A or higher. In 2019, receivables arising from reinsurance did not represent a material risk due to the excellent credit quality of the reinsurers. There were no material defaults in 2019 or in previous years.

18.4 Risk position

As at December 31, 2019, the **overall solvency requirement for counterparty default risk** was €90 million (December 31, 2018: €64 million) with a **limit** of €100 million (December 31, 2018: €100 million). The limit was not exceeded on any measurement date during 2019.

19 Reputational risk

19.1 Definition and business background

Reputational risk is defined as the risk of losses that could arise from possible damage to the reputation of R+V or of the entire industry as a result of a negative perception among the general public (for example, customers, business partners, shareholders, authorities, media).

Reputational risk can arise as an independent risk (primary reputational risk) or as an indirect or direct consequence of other types of risk, such as operational risk (secondary reputational risk).

19.2 Specific risk factors

If R+V acquires a negative reputation, there is a risk that existing or potential customers will be unsettled with the result that existing business relationships might be terminated or it might not be possible to carry out planned transactions. There is also a risk that R+V's adverse reputation is then transferred to the entities in the Bank sector and it may no longer be possible to guarantee the backing of stakeholders, such as network partners and employees, necessary to conduct business operations.

19.3 Risk management

One of the main objectives of R+V is to ensure that the R+V brand enjoys a positive image in the cooperative financial network and among the public at large. To prevent any damage to this image, R+V ensures that quality standards are adhered to in product development and in all other parts of the value chain. In addition, R+V's corporate communications are coordinated centrally within the Chief Executive Officer's area of responsibility so that any inaccurate presentation of circumstances can be countered. Media reports about the insurance industry in general and R+V in particular are monitored and continuously analyzed across all R+V departments. A continuous improvement process pays close attention to ratings and market comparisons covering service, product quality, and advisory expertise, which are key parameters as far as customer satisfaction is concerned.

For the purposes of managing reputational risk, R+V uses risk indicators that are intended to facilitate early identification of risk trends and increase the transparency of risk exposures. A system of warning lights is used with the aim of highlighting risk situations based on qualitative and quantitative threshold values.

R+V's reputational risk is not specifically quantified within the Solvency II framework. However, it is implicitly included in the overall solvency requirement for life actuarial risk (lapse risk).

20 Operational risk

20.1 Definition and business background

Operational risk is defined as the risk of loss arising from inadequate or failed internal processes, personnel, or systems, or from external events. It includes legal risk.

Operational risk in the Insurance sector is broken down into the following components:

- HR risk
- IT risk
- Legal risk
- Tax risk.

Operational risk could arise in any division of R+V.

20.2 Central risk management

The **risk capital requirement** for operational risk in the Insurance sector is determined in accordance with the standard formula in Solvency II. The risk calculation uses a factor approach, taking account of premiums, provisions and, in the case of unit-linked business, costs.

R+V uses scenario-based risk self-assessments and risk indicators to manage and control operational risk. In the **risk self-assessments**, operational risk is assessed in terms of the probability of occurrence and the level of loss. Qualitative assessments can be used in exceptional cases.

Risk indicators are intended to help the Insurance sector to identify risk trends and concentrations at an early stage and to detect weaknesses in business processes. A system of warning lights is used to indicate risk situations based on specified threshold values.

To support the management of operational risk, all R+V's business processes are structured in accordance with the requirements of the **framework guidelines** for employee authority and power of attorney in R+V companies. Divisions not covered by these guidelines are subject to other policy documents, including policies on new business and underwriting.

The **internal control system** is a key instrument used by R+V to **limit operational risk**. Rules and controls in each department and reviews of the use and effectiveness of the internal control system carried out by Group Audit at R+V aim to avert the risk of errors and fraud. Payments are largely automated. Powers of attorney and authorizations stored in user profiles, as well as automated submissions for approval based on a random generator, are also used. Manual payments are approved by a second member of staff.

Business interruptions could mean that processes and workflows are disrupted over several days. Moreover, sensitive internal and external interfaces could be jeopardized by long-term business interruptions.

To ensure that it is operational at all times, R+V has a fully integrated **business continuity management system** (BCM system) with a central coordination function. This also includes the contingency and crisis management system and is documented in the business continuity, contingency, and crisis management guidelines. The security and BCM conference with representatives from all divisions provides specialist support and is intended to help coordinate activities within the R+V subgroup. Reports on significant findings relevant to risk and on any exercises and tests that have been carried out are also submitted to the Risk Committee.

The purpose of BCM is to ensure that R+V's operating activities can be maintained in the event of an emergency or crisis. To this end, time-critical business processes are recorded with the necessary resources. Any necessary documentation (such as business continuity planning) is prepared and reviewed. Special organizational structures, such as the R+V crisis management team and the individual business continuity teams in the divisions, have also been set up to deal with emergency and crisis situations.

20.3 HR risk

20.3.1 Specific risk factors

The future success of R+V is dependent upon capable managers and employees with the necessary skills and qualifications. There is fierce competition for managerial and administrative staff in the labor market, driven by high demand and insufficient numbers of suitable individuals. Unless the necessary number of suitable managerial and administrative staff can be attracted within the required timeframe, and/or existing managers and employees can be retained, there will be a risk that tasks will not be performed or will not be performed satisfactorily as a result of inadequate expertise in terms of either quality or quantity. This could restrict operating activities and have a negative impact on reputation.

20.3.2 Risk management

R+V uses the mechanisms of professional development and talent management with a view to ensuring that staff members undergo the continual development and training that will also make it possible to meet future staffing requirements from within the organization. The tools it uses for this purpose include a system for assessing high-potential employees, succession planning, and skills upgrading programs.

In the interest of long-term staff retention, R+V runs programs to establish and enhance its appeal as a place to work.

R+V counters operational risk in sales and distribution by providing continuing professional development courses for field sales staff. R+V applies the code of conduct for sales and distribution of the Gesamtverband der Deutschen Versicherungswirtschaft e.V. (GDV) [German Insurance Association]. This code focuses on a relationship between customers, insurance companies, and brokers that is defined by fairness and trust. The requirements set out in the code of conduct are reflected in the principles, policies, and processes of each company.

20.4 IT risk

20.4.1 Specific risk factors

The main type of operational risk to which R+V is exposed is the risk of malfunctions or breakdowns in data processing systems or in the programs used on these systems, including attacks from external sources, such as hackers or malware. Such events could have an adverse impact on R+V's ability to efficiently maintain the processes necessary to carry out operating activities, protect saved data, ensure sufficient control, or continue to develop products and services. Furthermore, such malfunctions or breakdowns could lead to temporary or permanent loss of data. If operational risk of this nature were to materialize, it could restrict operating activities and have a negative impact on reputation.

20.4.2 Risk management

Quality assurance in IT follows best practice. A meeting is held every working day to discuss current topics and assign people to work on them. In addition, appropriate measures relating to adherence to service level agreements (e.g. system availability) are decided upon at monthly meetings attended by the IT divisional managers.

Physical and logical precautionary measures have been established for the purpose of data and application security and to ensure that day-to-day operations are maintained. A particular risk would be a partial or total breakdown in data processing systems.

R+V counters this risk by using two segregated data processing centers in which the data and systems are mirrored, special access security, fire control systems, and an uninterruptible power supply supported by emergency power generators. Exercises are carried out to test a defined restart procedure to be used in disaster situations with the aim of checking the efficacy of this procedure. Data is backed up and held within highly secure environments in various buildings. Furthermore, data is mirrored to a tape library at a remote, off-site location.

Various IT security management procedures are used to identify, assess, and document cyber risks and then to systematically allocate these risks for processing. The processing status and risk treatment are tracked and reported centrally each month.

20.5 Legal risk

20.5.1 Specific risk factors

Legal risk may arise from adverse changes in the legal environment, including adverse changes in the way that the authorities or the courts interpret legal provisions. If such risks were to materialize, this could have a detrimental impact on R+V's appeal as a partner in business transactions.

20.5.2 Risk management
R+V monitors and analyzes relevant decisions by the courts with a view to mitigating legal risk by identifying any need for action in good time and implementing specific corrective measures.

Legal disputes arising from the processing of insurance claims or benefit payments are covered by insurance liabilities, and therefore do not form part of operational risk.

20.6 Tax risk

20.6.1 Specific risk factors
Tax risk can arise from adverse changes in **tax circumstances** (tax legislation, decisions by the courts) or in the **interpretation by tax authorities** of existing tax legislation. As a result of tax audits, an alternative assessment of tax matters or errors in the calculation of the basis of tax assessments could give rise to **retrospective tax liabilities** for periods that have already been assessed. As there are still outstanding audits by the tax authorities relating to a number of financial years, there is a risk that retrospective tax payments could be required and these payments would be subject to interest charges. Such events could also have a negative impact on reputation.

20.6.2 Risk management
R+V has established a tax compliance management system to minimize tax risk. Business transactions are assessed for tax purposes on the basis of current tax legislation, taking into account the latest decisions by the courts and interpretations by the authorities.

20.7 Risk position
As at December 31, 2019, the **overall solvency requirement for operational risk** amounted to €644 million (December 31, 2018: €557 million). The rise in the overall solvency requirement compared with the prior year resulted first and foremost from business growth. The **limit** applicable at the reporting date was set at €680 million (December 31, 2018: €640 million). The limit was not exceeded on any measurement date during 2019.

21 Risks from entities in other financial sectors

All entities that form part of the regulatory R+V Versicherung AG insurance group are generally included in the calculation of group solvency. This also applies to non-controlling interests in insurance companies and to entities in other financial sectors.

The **non-controlling interests in insurance companies** mainly relate to reinsurance and insurance companies over which R+V can exercise significant influence but without having complete control. The risk capital requirement for non-controlling interests in insurance companies is included on a pro-rata basis in accordance with Solvency II. As at December 31, 2019, no non-controlling interests in insurance companies were included in the risk measurement. At R+V, the **entities in other financial sectors** mainly consist of pension funds and occupational pension schemes.

The **risk factors** applicable for risks from entities in other financial sectors are generally the same as the risk factors for the risks subject to capital requirements under Solvency II.

Risk is quantified for the pension funds and occupational pension schemes in accordance with the requirements currently specified by the insurance supervisor. This means applying the capital requirements in Solvency I, which are essentially calculated by applying a factor to the volume measures of benefit reserves and capital at risk.

R+V Pensionskasse AG is exposed to risks comparable with those faced by the life insurance entities in the R+V subgroup. The main risk management activities applicable in this case are those relating to life actuarial risk (section 16.3.2), market risk (section 17.2), counterparty default risk (section 18.2), and operational risk (section 20.2).

The risk situation in a pension fund is determined to a significant degree by the nature of the pension plans offered. In pension plans offered by R+V involving defined contributions with a minimum benefit, it must be ensured that at least the sum of the contributions paid into the plan (net of any contributions covering biometric risk assumed by R+V) is available on the agreed pension start date.

R+V also offers pension plans that include guaranteed insurance-based occupational incapacity cover as well as pension benefits and benefits for surviving dependants. Market risk and all the risk types covered by actuarial risk are relevant as far as occupational pension provision is concerned. Longevity risk is also important in relation to pensions because of the guaranteed benefits involved. Again, the risk management activities relating to life actuarial risk, market risk, counterparty default risk, and operational risk apply in this case. R+V aims to ensure that the ongoing pension plan contributions and the benefit reserve include sufficient amounts to cover the costs of managing pension fund contracts.

In the pension plans involving a benefit commitment without any insurance-based guarantees, R+V does not assume responsibility for any of the pension fund risk or investment risk because the benefits promised by the pension fund are subject to the proviso that the employer will also make up any difference required. This also applies to the period in which pensions are drawn. If the employer fails to make up the difference required, R+V's commitment is reduced to insurance-based guaranteed benefits based on the amount of capital still available.

As at December 31, 2019, the **overall solvency requirement** for risks in connection with entities in other financial sectors stood at €111 million (December 31, 2018: €111 million) with a **limit** of €112 million (December 31, 2018: €145 million). The limit was not exceeded on any measurement date during 2019.

Consolidated financial statements

Income statement
for the period January 1 to December 31, 2019

€ million	(Note)	2019	2018
Net interest income	(34)	2,738	2,858
Interest income		6,281	5,903
Interest income calculated using the effective interest method		5,734	5,442[1]
Interest income not calculated using the effective interest method		547	461[1]
Current income and expense		83	73
Interest expense		-3,626	-3,118[1]
Net fee and commission income	(35)	1,975	1,955
Fee and commission income		4,044	3,760
Fee and commission expenses		-2,069	-1,805
Gains and losses on trading activities	(36)	472	285
Gains and losses on investments	(37)	182	24[1]
Other gains and losses on valuation of financial instruments	(38)	255	-186[1]
Gains and losses from the derecognition of financial assets measured at amortized cost	(39)	15	133[1]
Premiums earned	(40)	17,249	15,997
Gains and losses on investments held by insurance companies and other insurance company gains and losses	(41)	6,157	1,274[1]
of which: interest income calculated using the effective interest method		1,561	1,634
Insurance benefit payments	(42)	-19,340	-14,208
Insurance business operating expenses	(43)	-2,823	-2,572
Gains and losses from the derecognition of financial assets measured at amortized cost in the insurance business	(44)	-15	-1[1]
Loss allowances	(45)	-329	-21
Administrative expenses	(46)	-4,074	-4,059
Other net operating income	(47)	250	-109
Profit before taxes		2,712	1,370
Income taxes	(48)	-839	-452
Net profit		**1,873**	**918**
Attributable to:			
Shareholders of DZ BANK		1,693	824
Non-controlling interests		180	94

1 Amount restated (see note 2).

APPROPRIATION OF PROFITS

€ million	2019	2018
Net profit	1,873	918
Non-controlling interests	-180	-94
Appropriation to retained earnings	-1,369	-500
Unappropriated earnings	**324**	**324**

Statement of comprehensive income for the period January 1 to December 31, 2019

€ million	(Note)	2019	2018
Net profit		1,873	918
Other comprehensive income/loss		1,429	-483
Items that may be reclassified to the income statement		**1,174**	**-445**
Gains and losses on debt instruments measured at fair value through other comprehensive income	(49)	1,669	-654
Gains and losses on cash flow hedges	(49)	-	-6
Exchange differences on currency translation of foreign operations	(49)	-1	24
Gains and losses on hedges of net investments in foreign operations	(49)	3	-6
Share of other comprehensive income/loss of joint ventures and associates accounted for using the equity method	(49)	1	-
Income taxes	(50)	-498	197
Items that will not be reclassified to the income statement		**255**	**-38**
Gains and losses on equity instruments for which the fair value OCI option has been exercised		453	-8
Gains and losses in relation to financial liabilities for which the fair value option has been exercised, attributable to changes in own credit risk		-96	35
Gains and losses arising from remeasurement of defined benefit plans		-175	-84
Income taxes	(50)	73	19
Total comprehensive income		**3,302**	**435**
Attributable to:			
Shareholders of DZ BANK		2,978	417
Non-controlling interests		324	18

Balance sheet as at December 31, 2019

ASSETS

€ million	(Note)	Dec. 31, 2019	Dec. 31, 2018
Cash and cash equivalents	(14, 51)	52,545	51,845
Loans and advances to banks	(15, 52)	97,544	91,627
Loans and advances to customers	(15, 53)	186,224	174,549[1]
Hedging instruments (positive fair values)	(16, 54)	201	883
Financial assets held for trading	(17, 55)	44,781	37,942
Investments	(18, 56)	56,927	48,262
Investments held by insurance companies	(57, 62)	113,549	100,840
Property, plant and equipment, investment property, and right-of-use assets	(19, 58, 62)	1,632	1,423
Income tax assets	(20, 59)	1,018	1,457
Other assets	(21, 60, 62)	5,444	4,655
Loss allowances	(22, 61)	-2,277	-2,416[1]
Non-current assets and disposal groups classified as held for sale	(23, 63)	516	7,133
Fair value changes of the hedged items in portfolio hedges of interest-rate risk		1,275	533
Total assets		**559,379**	**518,733**

1 Amount restated (see note 2).

EQUITY AND LIABILITIES

€ million	(Note)	Dec. 31, 2019	Dec. 31, 2018
Deposits from banks	(24, 64)	141,121	142,486
Deposits from customers	(24, 65)	131,516	132,548
Debt certificates issued including bonds	(25, 66)	85,123	63,909
Hedging instruments (negative fair values)	(16, 67)	1,306	2,516
Financial liabilities held for trading	(17, 68)	51,762	44,979
Provisions	(26, 69)	3,835	3,380
Insurance liabilities	(11, 70)	104,346	93,252
Income tax liabilities	(20, 59)	1,069	920
Other liabilities	(21, 71)	9,173	7,919
Subordinated capital	(27, 72)	2,187	2,897
Liabilities included in disposal groups classified as held for sale	(23, 63)	1	281
Fair value changes of the hedged items in portfolio hedges of interest-rate risk		144	134
Equity	(73)	27,796	23,512
Shareholders' equity		24,787	20,775
Subscribed capital		4,926	4,926
Capital reserve		5,551	5,551
Retained earnings		10,047	8,530
Reserve from other comprehensive income		1,694	599
Additional equity components		2,245	845
Unappropriated earnings		324	324
Non-controlling interests		3,009	2,737
Total equity and liabilities		**559,379**	**518,733**

Statement of changes in equity

€ million	Subscribed capital	Capital reserve	Equity earned by the group	Reserve from other comprehensive income	Additional equity components	**Shareholders' equity**	Non-controlling interests	**Total equity**
Equity as at Jan. 1, 2018	4,926	5,551	8,450	965	848	20,740	2,810	23,550
Net profit	-	-	824	-	-	824	94	918
Other comprehensive income/loss	-	-	-53	-354	-	-407	-76	-483
Total comprehensive income/loss	**-**	**-**	**771**	**-354**	**-**	**417**	**18**	**435**
Capital increase/capital repaid	-	-	-1	-	-3	-4	-9	-13
Changes in scope of consolidation	-	-	-12	13	-	1	4	5
Acquisition/disposal of non-controlling interests	-	-	-41	7	-	-34	-36	-70
Reclassifications within equity	-	-	32	-32	-	-	-	-
Dividends paid	-	-	-322	-	-	-322	-50	-372
Distribution of dividend on additional equity components	-	-	-23	-	-	-23	-	-23
Equity as at Dec. 31, 2018	4,926	5,551	8,854	599	845	20,775	2,737	23,512
Net profit	-	-	1,693	-	-	1,693	180	1,873
Other comprehensive income/loss	-	-	-114	1,399	-	1,285	144	1,429
Total comprehensive income/loss	**-**	**-**	**1,579**	**1,399**	**-**	**2,978**	**324**	**3,302**
Capital increase/capital repaid	-	-	-	-	1,400	1,400	9	1,409
Changes in scope of consolidation	-	-	3	-7	-	-4	-	-4
Acquisition/disposal of non-controlling interests	-	-	-7	1	-	-6	-7	-13
Reclassifications within equity	-	-	298	-298	-	-	-	-
Dividends paid	-	-	-322	-	-	-322	-54	-376
Distribution of dividend on additional equity components	-	-	-34	-	-	-34	-	-34
Equity as at Dec. 31, 2019	**4,926**	**5,551**	**10,371**	**1,694**	**2,245**	**24,787**	**3,009**	**27,796**

In 2018, equity had been adjusted by €45 million as a result of the first-time adoption of IFRS 9.

The composition of equity is explained in note 73.

Statement of cash flows

€ million	2019	2018
Net profit	**1,873**	**918**
Non-cash items included in net profit and reconciliation to cash flows from operating activities		
Depreciation, amortization, impairment losses, reversals of impairment losses on assets, and other non-cash changes in financial assets and liabilities	-3,977	1,706
Non-cash changes in provisions	804	297
Changes in insurance liabilities	10,815	4,366
Other non-cash income and expenses	1,531	125
Gains and losses on the disposal of assets and liabilities	-619	-77
Other adjustments (net)	-2,564	-2,609
Subtotal	7,863	4,726
Cash changes in assets and liabilities arising from operating activities		
Loans and advances to banks	-5,883	-2,264
Loans and advances to customers	-6,505	-8,340
Other assets from operating activities	238	-895
Hedging instruments (positive and negative fair values)	-2,594	-1,550
Financial assets and financial liabilities held for trading	775	2,284
Deposits from banks	-734	6,428
Deposits from customers	-1,043	6,773
Debt certificates issued including bonds	20,809	-3,448
Other liabilities from operating activities	1,144	-329
Interest, dividends, and operating lease payments received	6,723	7,653
Interest paid	-3,654	-3,746
Income taxes paid	-469	-379
Cash flows from operating activities	**16,670**	**6,913**
Proceeds from the sale of investments	9,464	19,219
Proceeds from the sale of investments held by insurance companies	19,426	23,566
Proceeds from the sale of property, plant and equipment, and investment property (excluding assets subject to operating leases)	7	3
Proceeds from the sale of intangible non-current assets	2	12
Payments for the acquisition of investments	-17,730	-10,583
Payments for the acquisition of investments held by insurance companies	-27,523	-30,487
Payments for the acquisition of property, plant and equipment, and investment property (excluding assets subject to operating leases)	-74	-49
Payments for the acquisition of intangible non-current assets	-154	-147
Changes in scope of consolidation	131	2
of which: proceeds from the sale of investments in consolidated subsidiaries net of cash divested	128	-
Cash flows from investing activities	**-16,451**	**1,536**
Proceeds from capital increases by shareholders of DZ BANK	1,400	-
Proceeds from capital increases by non-controlling interests	9	-
Dividends paid to shareholders of DZ BANK	-322	-322
Dividends paid to non-controlling interests	-54	-50
Distribution of dividend on additional equity components	-34	-23
Other payments to shareholders of DZ BANK	-	-4
Other payments to non-controlling interests	-	-9
Net change in cash and cash equivalents from other financing activities (including subordinated capital)	-518	-106
Cash flows from financing activities	**481**	**-514**

€ million	2019	2018
Cash and cash equivalents as at January 1	51,845	43,910
Cash flows from operating activities	16,670	6,913
Cash flows from investing activities	-16,451	1,536
Cash flows from financing activities	481	-514
Cash and cash equivalents as at December 31	**52,545**	**51,845**

The statement of cash flows shows the changes in cash and cash equivalents during the reporting period. Cash and cash equivalents consist of cash on hand and balances with central banks. The cash and cash equivalents do not include any financial investments with maturities of more than 3 months at the date of acquisition. Changes in cash and cash equivalents are broken down into operating, investing, and financing activities.

Cash flows from operating activities comprise cash flows mainly arising in connection with the revenue-producing activities of the group and other activities that cannot be classified as investing or financing activities. Cash flows related to the acquisition and disposal of non-current assets are allocated to investing activities. Cash flows from financing activities include cash flows arising from transactions with equity owners and from other borrowing to finance business activities.

Cash payments from lessees for repayment of lease liabilities, which are included in cash flows from financing activities, amounted to €138 million.

The first-time consolidation of subsidiaries generated a cash inflow of €3 million (2018: €2 million). There were no cash outflows as a result of the deconsolidation of subsidiaries (2018: €1 million).

Notes

A General disclosures

>> 01 Basis of preparation

Pursuant to *Regulation (EC) 1606/2002 of the European Parliament and of the Council of July 19, 2002*, the consolidated financial statements of DZ BANK AG Deutsche Zentral-Genossenschaftsbank, Frankfurt am Main, (DZ BANK) for the 2019 financial year have been prepared in accordance with the provisions of the International Financial Reporting Standards (IFRS), as adopted by the European Union (EU).

The provisions specified in section 315e (1) of the German Commercial Code (HGB) for companies whose securities are admitted to trading on a regulated market in the EU have also been applied in the consolidated financial statements of DZ BANK. In addition, further standards adopted by Deutsches Rechnungslegungs Standards Committee e.V. [German Accounting Standards Committee] have generally been taken into account where such standards have been published in the German Federal Gazette by the Bundesministerium der Justiz und für Verbraucherschutz [Federal Ministry of Justice and Consumer Protection] pursuant to section 342 (2) HGB.

DZ BANK is entered in the commercial register at the Frankfurt am Main local court under the number HRB 45651.

The DZ BANK Group's financial year is the same as the calendar year. In the interest of clarity, some items on the income statement, the statement of comprehensive income, and the balance sheet have been aggregated and are explained by additional disclosures in the notes. Unless stated otherwise, all amounts are shown in millions of euros (€ million). All figures are rounded to the nearest whole number. This may result in very small discrepancies in the calculation of totals and percentages.

The consolidated financial statements of DZ BANK have been released for publication by the Board of Managing Directors following approval by the Supervisory Board on March 26, 2020.

>> 02 Accounting policies and estimates

Changes in accounting policies

The financial statements of the entities consolidated in the DZ BANK Group have been prepared using uniform accounting policies.

First-time application in 2019 of changes in IFRS

The following new accounting standards, amendments to IFRS, interpretations from the IFRS Interpretations Committee (IFRIC interpretations), and the specified improvements to IFRS are applied for the first time in DZ BANK's consolidated financial statements for the 2019 financial year:

– IFRS 16 *Leases*,
– *Prepayment Features with Negative Compensation* (Amendments to IFRS 9),
– *Long-term Interests in Associates and Joint Ventures* (Amendments to IAS 28),
– *Plan Amendment, Curtailment or Settlement* (Amendments to IAS 19),
– IFRIC 23 *Uncertainty over Income Tax Treatments*,
– *Annual Improvements to IFRSs 2015–2017 Cycle*.

The provisions in IFRS 16 *Leases* supersede the content of IAS 17 *Leases* and the following interpretations: IFRIC 4 *Determining Whether an Arrangement Contains a Lease*, SIC-15 *Operating Leases – Incentives*, and SIC-27 *Evaluating the Substance of Transactions Involving the Legal Form of a Lease*. Application of the new rules is mandatory for financial years beginning on or after January 1, 2019. The DZ BANK Group has adopted IFRS 16 using the modified retrospective application method, in which it has recognized any cumulative effect resulting from initial application of the standard as at January 1, 2019 in retained earnings while complying with the transitional provisions. Under this method, IFRS 16 is applied to new contracts and to existing contracts that were not yet completed on the date of initial application.

With the exception of some enhanced disclosure requirements, the IFRS 16 accounting rules for lessors are largely unchanged compared with the previous requirements under IAS 17, whereas the lease accounting requirements for lessees are now based on a right-of-use model. The lessor transfers the right to use the underlying asset in the lease to the lessee at the commencement date of the lease. The lessee enters into a corresponding payment obligation for the period of use. For virtually all leases, lessees therefore need to recognize right-of-use assets and lease liabilities. In the income statement, this gives rise to depreciation on the right-of-use assets and interest expenses from unwinding the discount on lease liabilities instead of the previous operating lease expenses under IAS 17. The new standard also includes additional regulations on defining and recognizing a lease and on providing disclosures in the notes. The new provisions under IFRS 16 mainly affect the DVB and VR Smart Finanz subgroups as lessors and all group companies that are lessees with leased or rented assets.

As part of the first-time adoption of IFRS 16, the liabilities from non-cancelable leases to be recognized by the lessee at the time of initial application are measured at the present value of the remaining lease payments, discounted at the lessee's incremental borrowing rate of interest as at January 1, 2019. Uniform discount rates are used for portfolios comprising former operating leases of a similar nature. The incremental borrowing rates of interest are determined individually for each entity on the basis of the rate of interest that the lessee would have to pay to borrow the necessary funds over a similar term. The weighted average incremental borrowing rates of interest for land and buildings and for office furniture and equipment were 0.9 percent in each case at the date of initial application.

In the DZ BANK Group, the right-of-use assets are measured in the amount of the lease liabilities, adjusted for the amount of any lease payments made or accrued in advance. Initial direct costs are not included. When first applying IFRS 16, the DZ BANK Group investigated whether there were any provisions for onerous leases that could be included in the right-of-use assets in accordance with the practical expedient specified in IFRS 16.C10 b). The analysis could not identify any provisions for onerous leases at all on the date of initial application.

Lessees took into account the latest available information when assessing the lease term where leases included extension or termination options.

Based on the total amount of future minimum lease payments under non-cancelable operating leases as at December 31, 2018, the following table shows a reconciliation to the total lease liabilities of €387 million recognized under other liabilities as at January 1, 2019. A sum of €80 million was attributable to insurance company lease liabilities reported under other liabilities of insurance companies.

€ million	Land and buildings	Office furniture and equipment	Total
Total future minimum lease payments under non-cancelable operating leases as at December 31, 2018	**634**	**309**	**943**
Leases signed but not yet active	-235	-	-235
Reassessment of definition of a lease	15	-210	-195
Exemptions for short-term leases and for leases for low-value assets	-5	-59	-64
Other effects	-33	-4	-37
Gross lease liabilities as at January 1, 2019	376	36	412
Discount	-21	-4	-25
Lease liabilities as at January 1, 2019	**355**	**32**	**387**

In the reconciliation, the rule that lessees must recognize both an asset for the granted right of use and a lease liability on the date on which the asset is made available led, in the case of leases in which the date on which the asset was made available was after the reporting date (leases signed but not yet active), to a total reduction of €235 million in the liabilities to be recognized as at January 1, 2019.

On the date of initial application, the DZ BANK Group carried out a reassessment to establish whether an arrangement represented or contained a lease. Notably, software licensing agreements and IT operating service agreements no longer constitute leases. This led to a total reduction of €195 million in the liabilities to be recognized as at January 1, 2019.

No right-of-use assets or lease liabilities were recognized on the date of initial application for former operating leases that were due to expire within 12 months of that date or that related to leases for low-value assets on that date, provided that these leases were to be accounted for subsequently in accordance with the provisions in IFRS 16.6. This reduced the lease liabilities to be recognized as at January 1, 2019 by a total of €64 million.

The other effects in the reconciliation included the impact of changes in the assessment of lease terms when extension and termination options were taken into account. Lessors base their assessments on the legal useful life. Lessees use the estimated useful life. The latter is determined from the change in legal useful life resulting from the inclusion of existing options, such as extension or termination rights.

The initial application of IFRS 16 led to the first-time recognition of right-of-use assets from leases amounting to a total of €368 million and of lease liabilities in an amount of €387 million. In connection with the transition to IFRS 16, no effects were identified as at the date of initial application that needed to be recognized directly in retained earnings. The implementation of the provisions in IFRS 16 had no material impact on the consolidated financial statements.

The figures for the comparative period have not been restated because the modified retrospective method has been used.

Prepayment Features with Negative Compensation (Amendments to IFRS 9) provides clarity on the classification and measurement of financial instruments with symmetric termination rights. The amendments explicitly state that the SPPI criterion under IFRS 9 is not breached in the event of reasonable negative compensation for early termination of the contract. The amendments were required to be applied for the first time from January 1, 2019. There was no impact on the consolidated financial statements.

Long-term Interests in Associates and Joint Ventures (Amendments to IAS 28) clarifies that an entity applies the rules of IFRS 9 to long-term interests in associates or joint ventures that form part of its net investment in the associate or joint venture but to which the equity method is not applied. The date of initial application for the amendments was January 1, 2019. There was no impact on the consolidated financial statements.

As a result of *Plan Amendment, Curtailment or Settlement* (Amendments to IAS 19), there is a mandatory requirement for any amendment, curtailment, or settlement of a defined benefit plan to be accompanied by a recalculation of the current service cost and the net interest for the remainder of the financial year using the latest actuarial assumptions that have been used for the necessary remeasurement of the net liability (asset). The amendments to the standard also include additions to clarify the effect of a plan amendment, curtailment, or settlement on the requirements regarding the asset ceiling. The amendments have been required to be applied since January 1, 2019. The implementation of the amendments to IAS 19 had no material impact on the consolidated financial statements.

IFRIC 23 *Uncertainty over Income Tax Treatments* sets out rules on the recognition and measurement of tax risk exposures, thereby closing gaps in this regard in IAS 12 *Income Taxes*. IFRIC 23 addresses the decision as to whether an entity should consider the uncertain tax treatment of specific circumstances independently or collectively. It also addresses assumptions to be made by an entity in relation to the examination of tax treatments by tax authorities. In addition, IFRIC 23 governs the determination of taxable profit (tax loss), tax bases, unused tax losses, unused tax credits, and tax rates as well as the effects of changes in facts and circumstances. The tax risks must be measured using the most likely amount or the expected value. IFRIC 23 specifies that an entity should use the measurement method that best reflects the risk involved. The interpretation was required to be applied from January 1, 2019. The application of IFRIC 23 had no material impact on the consolidated financial statements.

In accordance with the amendments to IFRS 3 *Business Combinations* as part of the *Annual Improvements to IFRSs 2015–2017 Cycle*, if an entity acquires further interests in a business that was previously a joint operation and thereby obtains control pursuant to IFRS 10, the rules in IFRS 3 regarding a business combination achieved in stages must be applied and the interests already held in that business must be remeasured. All of the interests previously held in the joint operation must be remeasured, not only the share of the assets and liabilities that was previously recognized. The amendments must be applied prospectively to business combinations occurring in financial years beginning on or after January 1, 2019.

In accordance with the amendments to IFRS 11 *Joint Arrangements* as part of the *Annual Improvements to IFRSs 2015–2017 Cycle*, if an entity acquires further interests in a joint operation and thereby obtains joint control, the interests already held in the joint operation do not have to be remeasured. The amendments must be applied prospectively to business combinations occurring in financial years beginning on or after January 1, 2019.

The amendments to IAS 12 *Income Taxes* as part of the *Annual Improvements to IFRSs 2015–2017 Cycle* clarify that the income tax consequences of dividends are more directly linked to previous transactions or events that generated distributable profits than to distributions to shareholders. An entity therefore recognizes the income tax consequences of dividends in profit or loss, in other comprehensive income, or in equity, depending on where these previous transactions or events were originally recorded. As a result of these amendments, the taxes on the payments deemed to be distributions in respect of AT1 bonds are recognized in profit or loss. The amendments apply to financial years beginning on or after January 1, 2019.

The amendments to IAS 23 *Borrowing Costs* as part of the *Annual Improvements to IFRSs 2015–2017 Cycle* clarify that borrowing – where the original purpose of such borrowing was to obtain a specific qualifying asset – that remains outstanding after this qualifying asset is essentially ready for its intended use or sale must be included in the calculation of the capitalization rate on general borrowing for other qualifying assets for which no specific borrowing was obtained. The amendments must be applied prospectively to borrowing costs that are incurred in financial years beginning on or after January 1, 2019.

The *Annual Improvements to IFRSs 2015–2017 Cycle* described above had no material impact on DZ BANK's consolidated financial statements.

Changes in IFRS endorsed by the EU but not yet adopted

The DZ BANK Group has decided against voluntary early adoption of the following amendments to IFRS:

– *Amendments to References to the Conceptual Framework in IFRS Standards*,
– *Definition of Material* (Amendments to IAS 1 and IAS 8),
– *Interest Rate Benchmark Reform* (Amendments to IFRS 9, IAS 39 and IFRS 7).

The changes contained in Amendments to References to the Conceptual Framework in IFRS Standards had become necessary because the Conceptual Framework had been revised, which meant that quotations from, and references to, the Conceptual Framework included in numerous standards and other pronouncements issued by the IASB had to be updated. Besides these changes, some of which are simply editorial, the amendments also include, in particular, clarification as to which version of the Conceptual Framework needs to be applied in individual cases. Depending on the matter concerned, users must comply with the 2001, 2010, or 2018 version of the Conceptual Framework. Where necessary, the amendments include an initial application date, which has been set in all cases as annual periods beginning on or after January 1, 2020. Early adoption is permitted, provided that it is applied to all the amendments. The DZ BANK Group will not apply the amendments before the required initial application date. The implementation of the amendments has no material impact on the consolidated financial statements.

The objective of *Definition of Material* (Amendments to IAS 1 and IAS 8) is to tighten up the definition of the term 'material' without fundamentally altering the application of the principle of materiality. In particular, the amendments introduce the new notion of 'obscuring information' and place 'obscuring' on a par with omitting or misstating information. The amendments are to be applied prospectively to financial years beginning on or after January 1, 2020. There is no impact on the consolidated financial statements.

Interest-Rate Benchmark Reform (Amendments to IFRS 9, IAS 39 and IFRS 7), which was published in the Official Journal of the European Union on January 16, 2019, provides for temporary exceptions in relation to the accounting treatment of hedges in the period before the initiated reform of key interest-rate benchmarks, such as Euribor, Libor, and EONIA (interbank offered rate (IBOR) reform). The scope of the exceptions covers those hedges directly affected by the IBOR reform. A hedge is only directly affected if the reform leads to uncertainties in relation to the interest rate designated as the hedged risk or in relation to the timing or amount of the cash flows from the hedged item or hedging instrument based on interest-rate benchmarks.

When, in accordance with IFRS 9 or IAS 39, an entity determines whether the cash flows arising from a forecast transaction in a cash flow hedge are highly probable, the exceptions specify that the entity must assume that the interest-rate benchmark on which the hedged cash flows are based is not altered as a result of the reform. Correspondingly, when assessing the need to reclassify the cash flow hedge reserve to profit or loss, an entity must assume that the hedged cash flows will still materialize at the end of the hedging relationship. If an entity hedges a component of interest-rate risk, the risk component concerned must be separately identifiable. The entity only needs to ensure that this requirement is satisfied once when the component is first designated as a hedged item. When assessing the economic relationship between the hedged item and the hedging instrument in accordance with IFRS 9 provisions, an entity must also assume that the interest-rate benchmark on which the designated cash flows and/or the hedged risk in the hedged item are based, or the interest-rate benchmark on which the cash flows from the hedging instrument are based, is not altered as a result of the interest-rate benchmark reform.

Prospective assessments of hedge effectiveness in accordance with IAS 39 requirements must be based on an unchanged interest-rate benchmark. If the retrospective assessment of a hedge in accordance with IAS 39 determines ineffectiveness outside the range of 80 percent to 125 percent, hedge accounting is not discontinued.

The amendments require disclosures containing information on the extent to which the reform of interest-rate benchmarks have an impact on existing hedges. The application of the exceptions is mandatory until the uncertainty arising from the switch in interest-rate benchmarks is eliminated or, if earlier, the hedge is terminated. In addition, the exception regarding the reclassification of the cash flow hedge reserve no longer needs to be applied if the reserve has been reclassified in full to profit or loss. These rules must be applied to financial years beginning on or after January 1, 2020. Early adoption is permitted.

The DZ BANK Group has not adopted the amendments to IFRS 9, IAS 39, and IFRS 7 earlier than the prescribed application date. The group only accounts for hedges of interest-rate risk. In this accounting treatment, it applies the rules of IAS 39 to hedges using a portfolio approach. The DZ BANK Group does account for hedges that involve the interest-rate benchmarks affected by the IBOR reform. No material impact is anticipated from the application of the amendments from January 1, 2020. If uncertainties arising from the IBOR reform would have required hedges to be discontinued, such hedges will not now be discontinued as a result of the new amendments.

Changes in IFRS that have not been endorsed by the EU

The following new accounting standard issued by the IASB and amendments to one other accounting standard have not yet been endorsed by the EU:
– IFRS 17 *Insurance Contracts*,
– Amendments to IFRS 3 *Business Combinations*.

IFRS 17 *Insurance Contracts* supersedes IFRS 4 *Insurance Contracts* and has the objective of ensuring consistent, principles-based accounting treatment of all insurance contracts. It includes principles for recognition, measurement, presentation, and disclosures in respect of insurance contracts and requires insurance liabilities to be measured using the latest amount equating to the fulfillment cash flows. In the general model, measurement is based on a ‘3 building blocks’ approach. Insurance contracts with a term of less than a year can be recognized using a simplified method, the premium allocation approach. The group companies are currently examining the impact on DZ BANK’s consolidated financial statements. IFRS 17 must be applied for financial years beginning on or after January 1, 2021. The IASB is currently proposing that the initial application of IFRS 17 be postponed by a year to January 1, 2022. Early adoption of IFRS 17 is permitted.

The aim of the amendments to IFRS 3 *Business Combinations* is to establish a better distinction between the acquisition of a business and the acquisition of a group of assets. To satisfy the new definition of the term ‘business’, an acquisition must include inputs and a substantive process that together significantly contribute to the ability to create outputs. The amended definition must be applied to all acquisitions for which the acquisition date is on or after the beginning of the first annual reporting period beginning on or after January 1, 2020. Earlier adoption is permitted subject to incorporation of the amendments into EU law. No material impact on the consolidated financial statements is expected.

The initial application dates for the issued amendments to IFRS are subject to the proviso that the amendments must first be incorporated into EU law.

Changes in presentation

To increase transparency and improve the reliability and relevance of the information provided, the gains and losses from the derecognition of financial assets measured at amortized cost and the gains and losses from the derecognition of financial assets measured at amortized cost in the insurance business are presented as separate line items in the income statement from 2019 onward. Previously, these gains and losses from the derecognition of financial assets measured at amortized cost were explained below the income statement and in the affected notes to the financial statements. The adjusted amounts within the comparative figures are indicated by the footnote 'Amount restated'.

Income statement for the period January 1 to December 31, 2018

€ million	2018 before restatement	Amount of restatement	**2018 after restatement**
Net interest income	2,799	-7	2,792
Interest income	5,785	-7	5,778
Interest income calculated using the effective interest method	3,846	-7	3,839
(...)			
Gains and losses on investments	150	-126	24
(...)			
Gains and losses from the derecognition of financial assets measured at amortized cost		133	133
(...)			
Gains and losses on investments held by insurance companies and other insurance company gains and losses	1,273	1	1,274
(...)			
Gains and losses from the derecognition of financial assets measured at amortized cost in the insurance business		-1	-1
(...)			
Profit before taxes	1,370	-	1,370
Income taxes	-452	-	-452
Net profit	**918**	-	**918**

In accordance with the provisions in IAS 8.41 et seq., some interest income that was previously reported within the income statement under interest income not calculated using the effective interest method will now be shown under interest income using the effective interest method. The adjusted amounts within the comparative figures are indicated by the footnote 'Amount restated'.

Income statement for the period January 1 to December 31, 2018

€ million	2018 before restatement	Amount of restatement	2018 after restatement
Net interest income	2,799	-	2,799
Interest income	5,785	-	5,785
Interest income calculated using the effective interest method	3,846	1,478	5,324
Interest income not calculated using the effective interest method	1,939	-1,478	461
(…)			
Profit before taxes	1,370	-	1,370
Income taxes	-452	-	-452
Net profit	**918**	**-**	**918**

In accordance with the provisions in IAS 8.41 et seq., the amortization of upfront payments related to financial instruments initially recognized with a positive or negative fair value will now be reported under net interest income because the amounts concerned represent adjustments to the current net interest income. The amortization was previously recognized under other gains and losses on valuation of financial instruments. The adjusted amounts within the comparative figures are indicated by the footnote 'Amount restated'.

Income statement for the period January 1 to December 31, 2018

€ million	2018 before restatement	Amount of restatement	2018 after restatement
Net interest income	2,799	66	2,865
Interest income	5,785	125	5,910
Interest income calculated using the effective interest method	3,846	125	3,971
(…)			
Interest expense	-3,059	-59	-3,118
(…)			
Other gains and losses on valuation of financial instruments	-120	-66	-186
(…)			
Profit before taxes	1,370	-	1,370
Income taxes	-452	-	-452
Net profit	**918**	**-**	**918**

To increase transparency and improve the reliability and relevance of the information provided, the sub-item 'of which: interest income calculated using the effective interest method' has been included as an additional line item in the income statement below gains and losses on investments held by insurance companies and other insurance company gains and losses from 2019 onward.

From 2019, loans and advances to customers at stage 3 that are measured at amortized cost are shown at a nominal amount of €1,082 million, inclusive of the interest entitlement attributable to this line item (gross interest entitlement). The adjustment resulted in a corresponding increase in both loans and advances to customers and loss allowances and changes to the affected disclosures in the notes. Due to a lack of materiality, presentation was previously on a net basis. The adjusted amounts within the comparative figures are indicated by the footnote 'Amount restated'.

Balance sheet as at December 31, 2018

ASSETS

€ million	Dec. 31, 2018 before restatement	Amount of restatement	**Dec. 31, 2018 after restatement**
(...)			
Loans and advances to customers	174,438	111	174,549
(...)			
Loss allowances	-2,305	-111	-2,416
(...)			
Total assets	**518,733**	-	**518,733**

Balance sheet as at January 1, 2018

ASSETS

€ million	Jan. 1, 2018 before restatement	Amount of restatement	**Jan. 1, 2018 after restatement**
(...)			
Loans and advances to customers	175,091	72	175,163
(...)			
Loss allowances	-2,862	-72	-2,934
(...)			
Total assets	**507,388**	-	**507,388**

From 2019, due to an adjustment to reflect industry practice, assets related to unit-linked contracts – where the investment risk is borne in full by the policyholder – are now also shown under financial assets mandatorily measured at fair value through profit or loss in note 74 (Classes, categories, and fair values of financial instruments). The adjusted amounts within the comparative figures are indicated by the footnote 'Amount restated'.

There are other minor presentation changes in notes 33 (Segment information), 34 (Net interest income), 37 (Gains and losses on investments), 38 (Other gains and losses on valuation of financial instruments), 41 (Gains and losses on investments held by insurance companies and other insurance company gains and losses), 42 (Insurance benefit payments), 59 (Income tax assets and liabilities), 69 (Provisions), 74 (Classes, categories, and fair values of financial instruments), 82 (Items of income, expense, gains, and losses), 84 (Hedge accounting), 85 (Nature and extent of risks arising from financial instruments and insurance contracts), and 86 (Maturity analysis). The adjusted amounts within the comparative figures are indicated by the footnote 'Amount restated'.

Sources of estimation uncertainty

It is necessary to make assumptions and estimates in accordance with the relevant financial reporting standards in order to determine the carrying amounts of assets, liabilities, income, and expenses recognized in these consolidated financial statements. These assumptions and estimates are based on historical experience, planning, and expectations or forecasts regarding future events.

Assumptions and estimates are used primarily in determining the fair value of financial assets and financial liabilities and in identifying any impairment of financial assets. Estimates also have a material impact on determining the impairment of goodwill or intangible assets acquired as part of business combinations. Furthermore, assumptions and estimates affect the measurement of insurance liabilities, provisions for employee benefits, provisions for share-based payment transactions, provisions relating to building society operations, and other provisions as well as the recognition and measurement of income tax assets and income tax liabilities.

Fair values of financial assets and financial liabilities

If there are no prices available for certain financial instruments from active markets, the fair values of such financial assets and financial liabilities have to be determined on the basis of estimates, resulting in some uncertainty. Uncertainties associated with estimates arise primarily if fair values are determined using valuation techniques involving significant valuation parameters that are not observable in the market. This affects both financial instruments measured at fair value and financial instruments measured at amortized cost whose fair values are disclosed in the notes. The measurement parameter assumptions and measurement methods used to determine fair values are described in the financial instruments disclosures in notes 76 and 77.

Impairment of financial assets

When an impairment test (as described in note 5) is carried out for financial assets that constitute debt instruments or for loan commitments and financial guarantee contracts, it is necessary to determine estimated future cash flows from interest payments and the repayment of principal as well as from any recovery of collateral. This requires estimates and assumptions regarding the amount and timing of future cash flows, in turn giving rise to some uncertainty. The factors influencing impairment that are defined on a discretionary basis include economic conditions, the financial performance of the counterparty, and the value of the collateral held. When an impairment test for portfolios is carried out, parameters such as probability of default, which are calculated with the help of statistical models, are used in the estimates and assumptions.

Goodwill and intangible assets

The recognition of goodwill is largely based on estimated future income, synergies, and non-recognizable intangible assets generated by business combinations or acquired as part of business combinations. The recoverability of the carrying amount is verified by means of budget accounts that are largely based on estimates. Identifiable intangible assets acquired as part of business combinations are recognized on the basis of their future economic benefits. These benefits are assessed by management using reasonable, well-founded assumptions. The estimates applied in the case of business combinations are described in note 91.

Insurance liabilities

The measurement of insurance liabilities involves the exercise of discretion, estimates, and assumptions, especially in relation to mortality, rates of return on investment, cancellations, and costs. Actuarial calculation methods, statistical estimates, blanket estimates, and measurements based on past experience are used. The basic approaches used in the measurement of insurance liabilities are described in the insurance business disclosures in note 11.

Provisions for employee benefits, provisions for share-based payment transactions, and other provisions

Uncertainty associated with estimates in connection with provisions for employee benefits arises primarily from the measurement of defined benefit obligations, on which actuarial assumptions have a material effect. Actuarial assumptions are based on a large number of long-term, forward-looking factors, such as salary increases, annuity trends, and average life expectancy.

In the case of provisions for share-based payment transactions, estimation uncertainty arises from the way in which fair value is determined. This fair value is based on assumptions regarding the payout amount, which in turn depends on the performance of the variables specified in the underlying agreements.

Building society simulations (collective simulations) are used to forecast building society customers' future behavior in order to measure the provisions relating to building society operations. Uncertainty in connection with the measurement of these provisions is linked to assumptions to be made about future customer behavior, which take account of various scenarios and measures. The main inputs for the collective simulations are presented in note 26.

Actual cash outflows in the future related to items for which other provisions have been recognized may differ from the forecast utilization of the provisions.

The basis for measurement and the assumptions and estimates underlying the calculation of provisions are described in note 26.

Income tax assets and liabilities

The deferred tax assets and liabilities described in note 59 are calculated on the basis of estimates of future taxable income in taxable entities. In particular, these estimates have an effect on any assessment of the extent to which it will be possible to make use of deferred tax assets in the future. In addition, the calculation of current tax assets and liabilities for the purposes of preparing financial statements involves estimates of details relevant to income tax.

>> 03 Scope of consolidation

In addition to DZ BANK as the parent, the consolidated financial statements for the year ended December 31, 2019 include 25 subsidiaries (2018: 25) and 6 subgroups (2018: 6) comprising a total of 159 subsidiaries (2018: 359). An investee is included in the scope of consolidation as a subsidiary from the date on which DZ BANK obtains control over it. DZ BANK controls an investee when DZ BANK directly or indirectly has power over the investee, is therefore exposed to significant variable returns from its involvement with the investee, and has the ability to affect the variable returns from the investee through this power. In some cases, discretion is required to be exercised when deciding whether DZ BANK controls an investee. All the relevant facts and circumstances are considered when making this decision. This is particularly applicable to principal/agent relationships, which require an assessment of whether DZ BANK or other parties with decision-making rights are acting as principal or as an agent. With regard to principal/agent relationships, a considerable amount of discretion has to be exercised in order to assess the appropriateness of contractually agreed remuneration and of the level of the variable returns received.

In 2019, the scope of consolidation changed as a result of the disposal of 179 fully consolidated subsidiaries of the VR Smart Finanz subgroup, in particular in connection with the sale of shares in VR-IMMOBILIEN-Leasing GmbH, Eschborn, and BFL Leasing GmbH, Eschborn. In addition, the disposals from the DVB subgroup involved the deconsolidation of the shares in LogPay Financial Services GmbH together with shares in various entities in the land transport finance and aviation finance businesses.

The consolidated financial statements include 12 joint arrangements in the form of joint ventures with at least one other entity outside the group (2018: 20) and 29 associates (2018: 44) over which DZ BANK has significant influence. These entities are accounted for using the equity method. There are currently no joint arrangements classified as joint operations. DZ BANK has joint control over an arrangement when there is a contractual agreement in place that requires decisions about the arrangement's relevant activities to be reached with the unanimous consent of all the parties sharing control. DZ BANK has a significant influence over an investee if it can participate in the financial and operating policy decisions of the investee without having control or joint control over it. This is assumed to be the case where between 20 and 50 percent of the voting shares are held.

The shareholdings of the DZ BANK Group are listed in full in note 104.

>> 04 Procedures of consolidation

Financial information in the consolidated financial statements contains data from the parent company, which incorporates data from its consolidated subsidiaries. The parent company and the consolidated subsidiaries are presented as a single economic entity.

The subsidiaries of the DZ BANK Group are the directly or indirectly controlled entities. An entity is deemed to be controlled by DZ BANK if the bank is exposed to variable returns from its relationship with the entity and can affect those returns through its power over the entity.

Unless otherwise contractually agreed, DZ BANK controls an entity if it holds more than half of the voting rights, either directly or indirectly. The assessment of whether control exists also takes account of potential voting rights, provided they are considered substantial.

DZ BANK also considers itself to have control over an entity in cases where it does not hold the majority of the voting rights but does have the ability to unilaterally direct the relevant activities of the entity concerned.

A review is carried out at least once every six months to decide which subsidiaries are to be consolidated.

When preparing the consolidated financial statements, uniform accounting policies are used for like transactions.

The consolidated subsidiaries have generally prepared their financial statements on the basis of a financial year ended December 31, 2019. There is one subsidiary (2018: 1 subsidiary) included in the consolidated financial statements with a different reporting date for its annual financial statements. With 21 (2018: 47) exceptions, the separate financial statements of the entities accounted for using the equity method are prepared to the same balance sheet date as that of the parent company. There is no resulting material impact in respect of the subsidiaries and associates concerned, and therefore no interim financial statements have been prepared.

Intragroup assets and liabilities, as well as intragroup income and expenses, are eliminated in full. Intragroup profits or losses resulting from transactions within the group are also eliminated in full.

When a subsidiary is consolidated, the carrying amount of the investment in the subsidiary is offset against the proportionate equity of the subsidiary. Any share of a subsidiary's equity not attributable to the parent company is reported under equity as non-controlling interests.

Goodwill resulting from offsetting the acquisition cost of a subsidiary against the equity remeasured at fair value on the acquisition date is recognized as goodwill when the acquisition method is applied. It is recognized under other assets. Goodwill is tested for impairment at least once a year. Any negative goodwill is recognized in profit or loss on the acquisition date.

If DZ BANK loses control over a subsidiary, the assets and liabilities of this former subsidiary, together with the carrying amount of any non-controlling interests in the former subsidiary, are derecognized when control is lost. The fair value of any consideration received is recognized at the same time. The gain or loss arising in connection with the loss of control is also recognized.

Investments in joint ventures and associates are accounted for using the equity method and reported on the balance sheet under investments or investments held by insurance companies.

Under the equity method, the DZ BANK Group's investments in associates and joint ventures are initially recognized at cost. Subsequently, the carrying amount is increased (or decreased) to recognize the group's share of the profit/loss or other changes to the net assets of the associate or joint venture after the acquisition.

If significant influence over an associate or joint venture is lost, the gain or loss arising from the disposal of the long-term equity investment accounted for under the equity method is recognized.

>> 05 Financial instruments

Categories of financial instruments

Financial assets measured at fair value through profit or loss (fair value PL)

Financial assets that are not measured at amortized cost or at fair value through other comprehensive income are classified as 'financial assets measured at fair value through profit or loss'. This category is broken down into the following subcategories:

Financial assets mandatorily measured at fair value through profit or loss

The subcategory 'financial assets mandatorily measured at fair value through profit or loss' covers financial assets that do not meet the IFRS 9 SPPI criterion or that were acquired for the purpose of selling them in the near term. To this end, these financial assets must be part of a portfolio of identified financial instruments that are managed together and for which there is evidence of a recent actual pattern of short-term profit-taking, or must be derivatives, except for derivatives that are designated hedging instruments.

Contingent considerations in a business combination

This subcategory covers contingent considerations that the acquirer has classified as financial assets in the context of a business combination.

Financial assets designated as at fair value through profit or loss (fair value option)

Financial assets may be assigned to the subcategory 'financial assets designated as at fair value through profit or loss' by exercising the fair value option, provided that the application of this option eliminates or significantly reduces measurement or recognition inconsistencies (accounting mismatches). The fair value option is applied to eliminate or significantly reduce accounting mismatches that arise if non-derivative financial instruments and related derivatives used to hedge such instruments are measured differently. Derivatives are measured at fair value through profit or loss, whereas non-derivative financial instruments are measured at amortized cost or changes in fair value may be recognized in other comprehensive income. If no hedge accounting takes place, this gives rise to accounting mismatches that can be significantly reduced by applying the fair value option. The fair value option is used in the context of financial assets to prevent accounting mismatches that could arise in connection with loans and advances to banks and customers and bearer bonds.

Financial assets measured at fair value through other comprehensive income (fair value OCI)

This category is broken down into the following subcategories:

Financial assets mandatorily measured at fair value through other comprehensive income

A financial asset is assigned to this subcategory if it is held in accordance with a business model aimed both at collecting contractual cash flows and at selling financial assets. Moreover, the contractual terms of the financial asset must give rise on specified dates to cash flows that are solely payments of principal and interest on the principal amount outstanding (SPPI criterion).

Because of the SPPI criterion, these financial assets only comprise debt instruments. They are measured at fair value. Interest income, loss allowances, and currency translation effects must be recognized in profit or loss. Differences between the amortized cost and the fair value are recognized in other comprehensive income. The amounts recognized in other comprehensive income must be recycled to the income statement upon derecognition.

Financial assets designated as at fair value through other comprehensive income (fair value OCI option)

There is an irrevocable option to designate equity instruments as 'financial assets designated as at fair value through other comprehensive income' (fair value OCI option) upon initial recognition. Changes in fair value are recognized in other comprehensive income, except in the case of dividends that do not constitute repayment of capital. The cumulative other comprehensive income is not subsequently recycled to the income statement, e.g. due to derecognition of the instrument. After derecognition of these equity instruments, the cumulative other comprehensive income is reclassified to retained earnings. The fair value OCI option can generally only be exercised for equity instruments that are not held for trading and do not constitute contingent consideration recognized by the acquirer in a business combination pursuant to IFRS 3.

Financial assets measured at amortized cost (AC)

A financial asset is assigned to this category if it is held in accordance with a business model aimed at holding financial assets for the purpose of collecting contractual cash flows. The contractual terms of the financial asset must give rise on specified dates to cash flows that are solely payments of principal and interest on the principal amount outstanding.

Because of the SPPI criterion, financial assets in this category only comprise debt instruments. They are measured at amortized cost using the effective interest method. Interest income, loss allowances, and currency translation effects must be recognized in profit or loss.

Financial liabilities measured at fair value through profit or loss (fair value PL)

Financial liabilities that are not measured at amortized cost are classified as 'financial liabilities measured at fair value through profit or loss'. This category is broken down into the following subcategories:

Financial liabilities mandatorily measured at fair value through profit or loss

The subcategory 'financial liabilities mandatorily measured at fair value through profit or loss' covers financial liabilities that are issued with the intention of repaying them in the near term. To this end, these financial liabilities must be part of a portfolio of identified financial instruments that are managed together and for which there is evidence of a recent actual pattern of short-term profit-taking, or must be derivatives, except for derivatives that are designated hedging instruments.

Contingent considerations in a business combination

This subcategory covers contingent considerations that the acquirer has classified as financial liabilities in the context of a business combination.

Financial liabilities designated as at fair value through profit or loss (fair value option)

Financial liabilities may be assigned to the 'financial instruments designated as at fair value through profit or loss' subcategory by exercising the fair value option, provided that the application of this option eliminates or significantly reduces measurement or recognition inconsistencies (accounting mismatches), the financial liabilities are managed as a portfolio on a fair value basis, or they include one or more embedded derivatives required to be separated from the host contract. In the case of financial liabilities, the fair value option is exercised to eliminate or significantly reduce accounting mismatches for loan liabilities to banks and customers, issued registered or bearer Pfandbriefe, other bonds and commercial paper, and registered or bearer subordinated liabilities. Some of the promissory notes and bonds are structured financial instruments containing derivatives (in the form of caps, floors, collars, or call options) for which bifurcation is not required. The derivative components of these instruments are subject to economic hedging that does not meet the criteria for the application of hedge accounting.

The fair value option is also applied to structured financial liabilities containing embedded derivatives requiring bifurcation, provided that the embedded derivatives cannot be measured separately and the financial liabilities are not designated as held for trading. The issued financial instruments in this case are primarily guarantee certificates, discount certificates, profit-participation certificates, variable-rate bonds, inflation-linked notes, collateralized loan obligations, and credit-linked notes.

As regards financial liabilities designated as at fair value through profit or loss, any gains/losses resulting from a change in the fair value of a financial liability that is attributable to a change in the liability's credit risk must be recognized in other comprehensive income. The rest of the change in the fair value of this liability is recognized in profit or loss. The amounts recognized in other comprehensive income are reclassified to retained earnings on derecognition of the relevant financial liability.

Financial liabilities measured at amortized cost (AC)

For measurement subsequent to initial recognition, financial liabilities are generally categorized as 'financial liabilities measured at amortized cost', except in the following cases: financial liabilities measured at fair value through profit or loss, financial liabilities that arise when a transfer of a financial asset does not satisfy the condition for derecognition or accounting treatment is based on a continuing involvement, financial guarantee contracts, loan commitments with an interest rate below the market interest rate, and contingent consideration recognized by the acquirer in a business combination pursuant to IFRS 3.

In accordance with IAS 32, shares in partnerships are normally categorized as debt instruments. Given their subordinated status compared with the liabilities of the partnerships concerned, non-controlling interests in partnerships are reported as subordinated capital. Profit attributable to non-controlling interests is recognized under other liabilities, provided that the resulting liability is not of a subordinated nature. Non-controlling interests in partnerships are classified as 'share capital repayable on demand' and are assigned to the 'financial liabilities measured at amortized cost' category.

This category also includes liabilities under compensation payment obligations owed to non-controlling interests in consolidated subsidiaries. These liabilities arise if DZ BANK or some other entity controlled by DZ BANK has concluded a profit transfer agreement with a subsidiary in accordance with section 291 (1) of the German Stock Corporation Act (AktG) under which there are non-controlling interests. Liabilities under compensation payment obligations are recognized at the amount of the discounted obligation.

In addition, this category includes liabilities from capitalization transactions that are not designated as unit-linked insurance products. There is no significant transfer of insurance risk in these transactions and they do not therefore satisfy the criteria for an insurance contract under IFRS 4. As a consequence, such transactions need to be treated as financial instruments in accordance with IFRS 9.

Other financial instruments

Hedging instruments

The designation of derivative and non-derivative financial assets and liabilities as hedging instruments is governed by IFRS 9. The recognition and measurement of these hedging instruments is described in note 16.

Liabilities from financial guarantee contracts

Liabilities from financial guarantee contracts measured in accordance with IFRS 9 must be recognized as a liability at fair value by the issuer of the guarantee at the date of issue. The fair value is normally equivalent to the present value of the consideration received for issuing the financial guarantee contract. In any subsequent measurement, the obligation must be measured at the higher of the amount determined in accordance with the impairment model and the amount initially recognized less, where appropriate, the cumulative amount of income recognized in accordance with the principles of IFRS 15. In the presentation of financial guarantee contracts, the guarantee commission receivables due from the beneficiary to the DZ BANK Group as the issuer of the guarantee are offset against guarantee obligations (net method).

Finance lease receivables and lease liabilities

Finance lease receivables and lease liabilities fall within the scope of IFRS 16.

Financial assets and financial liabilities specific to insurance business

In addition to financial instruments that fall within the scope of IFRS 9, financial assets and financial liabilities arising from the insurance business are recognized and measured in accordance with the provisions of the HGB and other German accounting provisions applicable to insurance companies, as required by IFRS 4.25(c).

Deposits with ceding insurers are recognized at their nominal amounts. Receivables arising out of direct insurance operations and receivables arising out of reinsurance operations are recognized at their nominal amounts net of payments made. Impairment losses on receivables arising out of direct insurance operations and on receivables arising out of reinsurance operations are recognized directly in the carrying amounts. Assets related to unit-linked contracts are measured at fair value through profit or loss on the basis of the underlying investments.

Deposits received from reinsurers, payables arising out of direct insurance operations and payables arising out of reinsurance operations are recognized at their nominal amounts.

Deposits with ceding insurers as well as assets related to unit-linked contracts are reported on the balance sheet under investments held by insurance companies. Deposits received from reinsurers, receivables and payables arising out of direct insurance operations, and receivables and payables arising out of reinsurance operations are recognized under other assets or other liabilities.

Initial recognition and derecognition of financial assets and financial liabilities

Derivatives are initially recognized and derecognized on the trade date. Regular way purchases and sales of non-derivative financial assets are generally recognized and derecognized using settlement date accounting. In the case of consolidated investment funds and the issue of certain securities, the financial instruments are also recognized on the trade date. Changes in fair value between the trade date and settlement date are recognized in accordance with the category of the financial instrument.

All financial instruments are generally measured at fair value on initial recognition. In the case of financial assets or financial liabilities not measured at fair value through profit or loss, transaction costs directly attributable to the acquisition of the financial asset or issue of the financial liability concerned are added or deducted on initial recognition.

Differences between transaction prices and fair values are recognized in profit or loss on initial recognition if the fair values correspond to the price quoted in an active market for an identical asset or identical liability or are based on a valuation technique that only uses data from observable markets. If the fair value is derived from transaction prices at the time of acquisition and this value is then used as a basis for any subsequent measurement, any changes in fair value are only recognized in profit or loss if they can be attributed to a change in observable market data. Any differences not recognized at the time of initial recognition are allocated over the maturity of the financial instruments concerned and recognized in profit or loss accordingly.

Financial assets are derecognized if the contractual rights to the cash flows from the financial assets have expired or these rights have been transferred to third parties, and substantially no risks or rewards of ownership in the financial assets remain. If the criteria for derecognizing financial assets are not satisfied, the transfer to third parties is recognized as a secured loan. Financial liabilities are derecognized when the contractual obligations have been settled, extinguished or have expired.

Gains and losses from the derecognition of financial assets measured at amortized cost are reported as a separate line item in the income statement.

Loss allowances for financial assets

Under IFRS 9, loss allowances are recognized for those financial assets that constitute debt instruments and for loan commitments and financial guarantee contracts. Equity instruments do not fall within the scope of the IFRS 9 impairment model. Loss allowances are recognized in respect of the following financial assets:

- Financial assets in the IFRS 9 category ‘financial assets measured at amortized cost’,
- Financial assets (only debt instruments) in the IFRS 9 category ‘financial assets measured at fair value through other comprehensive income’,
- Undrawn loan commitments where there is a current legal obligation to grant credit (irrevocable loan commitments), provided they are not measured at fair value through profit or loss,
- Financial guarantee contracts, provided they are not measured at fair value through profit or loss,
- Lease receivables, and
- Trade receivables and contract assets that fall within the scope of IFRS 15.

Upon initial recognition, all financial assets are assigned to stage 1 with the exception of financial assets that are purchased or originated credit-impaired assets (POCI assets). Loss allowances for assets in stage 1 must be recognized in an amount equal to the 12-month expected credit loss.

At each balance sheet date, assets are assigned to stage 2 if their credit risk has significantly increased since initial recognition but there is no objective evidence of impairment. For these assets, the loss allowances are measured at the amount of the lifetime expected credit losses.

Trade receivables and contract assets that fall within the scope of IFRS 15 are allocated directly to stage 2 (simplified approach).

To simplify matters, it can be assumed that the credit risk of a financial instrument has not increased significantly since initial recognition if the financial instrument has a low credit risk at the balance sheet date (low credit risk exemption). The DZ BANK Group does not exercise the low credit risk exemption for loans and, consequently, not for promissory notes either.

Financial assets deemed to be impaired on the basis of objective evidence are assigned to stage 3. For these assets, the loss allowances are measured at the amount of the lifetime expected credit losses.

Financial assets subject to the IFRS 9 impairment rules must be reviewed at every balance sheet date to ascertain whether one or more events have occurred with an adverse impact on the estimated future cash flows of these financial assets.

Financial assets that are purchased or originated credit-impaired assets (POCI assets) are initially recognized at their carrying amount less the lifetime expected credit losses and amortized using a risk-adjusted effective interest rate. At the balance sheet date, only the cumulative changes to the lifetime expected credit losses since initial recognition are recognized as a loss allowance. Stage allocation is not required for these assets. Please refer to note 85 for more detailed information on loss allowances for financial assets.

Embedded derivatives

An embedded derivative is a component of a hybrid contract that also includes a non-derivative financial instrument (host contract), with the effect that some of the cash flows of the combined financial instrument vary in a way similar to those of a standalone derivative. A derivative that is attached to a financial instrument but is contractually transferable independently of that instrument, or has a different counterparty, is not an embedded derivative, but a separate financial instrument.

If a hybrid contract contains a host contract that is a financial asset, the categorization rules for financial assets are applied to the entire hybrid contract.

If a hybrid contract contains a host contract that is a financial liability, an embedded derivative is separated from the host contract and accounted for separately if:

– the economic characteristics and risks of the derivative are not closely related to the economic characteristics and risks of the host contract,
– a separate instrument with the same terms as the embedded derivative would meet the definition of a derivative, and
– the hybrid contract is not measured at fair value through profit or loss.

If the embedded derivative does not meet all of these conditions, it may not be separated from the host contract. When an embedded derivative is separated, the host contract is accounted for in accordance with the pertinent standards.

If a contract includes one or more embedded derivatives and the host contract is not a financial asset, the entire hybrid contract can be categorized as measured at fair value through profit or loss. This is not the case where embedded derivatives only have an insignificant impact on the contractually specified cash flows or, upon initial comparison with similar hybrid instruments, it is evident without – or with only minor – analysis that separation of the embedded derivative is not permitted.

Classes of financial instruments

For the purposes of the disclosures on the importance of financial instruments to financial position and financial performance, financial instruments falling within the scope of IFRS 7 are classified using the 7 classes of financial instruments described below.

Classes of financial assets

Financial assets measured at fair value

The class of financial assets measured at fair value comprises the following categories defined by IFRS 9:

– ‘Financial assets measured at fair value through profit or loss’ with the subcategories ‘financial assets mandatorily measured at fair value through profit or loss’, ‘contingent considerations’, and ‘financial assets designated as at fair value through profit or loss’ (fair value option), and
– ‘Financial assets measured at fair value through other comprehensive income’ with the subcategories ‘financial assets mandatorily measured at fair value through other comprehensive income’ and ‘financial assets designated as at fair value through other comprehensive income’ (fair value OCI option).

In addition to the financial assets in the categories specified above, this class of financial assets measured at fair value includes derivatives used for hedging (positive fair values).

Financial assets measured at amortized cost
The ‘financial assets measured at amortized cost’ class includes, in particular, loans and advances to banks and customers measured at amortized cost and investments measured at amortized cost.

Finance leases
The ‘finance leases’ class comprises solely finance lease receivables.

Classes of financial liabilities

Financial liabilities measured at fair value
The ‘financial liabilities measured at fair value’ class comprises financial liabilities in the category ‘financial liabilities measured at fair value through profit or loss’ with the subcategories ‘financial liabilities mandatorily measured at fair value through profit or loss’, ‘contingent considerations’, ‘financial liabilities designated as at fair value through profit or loss’ (fair value option), and derivatives used for hedging (negative fair values).

Financial liabilities measured at amortized cost
The class known as ‘financial liabilities measured at amortized cost’ is identical to the category of financial liabilities of the same name.

Leases
The ‘leases’ class comprises solely lease liabilities.

Financial guarantee contracts and loan commitments
Provisions for financial guarantee contracts and provisions for loan commitments within the scope of IAS 37 are aggregated in the class ‘financial guarantee contracts and loan commitments’.

>> 06 Hedge accounting

General information on hedge accounting

As an integral part of its risk management strategy, the DZ BANK Group hedges against risks arising in connection with financial instruments.

If the hedging of risk in connection with financial instruments gives rise to accounting mismatches between the hedged item and the hedging instrument used, the DZ BANK Group designates the hedging transaction as a hedge in accordance with the hedge accounting requirements of IFRS 9 in order to eliminate or reduce such mismatches. In exercise of the option available under IFRS 9.6.1.3, the DZ BANK Group continues to account for portfolio hedges in application of the rules under IAS 39.

Fair value hedges

A fair value hedge is intended to ensure that changes in the fair value of the hedged item are offset by countervailing changes in the fair value of the hedging instrument. Changes in the fair value of the hedged item attributable to the hedged risk and changes in the fair value of the hedging instrument are recognized in profit or loss. Where equity instruments are hedged whose changes in fair value are recognized in other comprehensive income, the changes in the fair value of the hedging instruments are also recognized in other comprehensive income. Risks may be hedged by designating hedges either on an individual or on a portfolio basis.

Hedged items categorized as 'financial assets measured at amortized cost' or 'financial liabilities measured at amortized cost' are measured in accordance with the general measurement principles for these financial instruments. The values are adjusted for the change in fair value attributable to the hedged risk. Hedged items categorized as 'financial assets measured at fair value through other comprehensive income' are measured at fair value, although only changes not attributable to the hedged changes in fair value are recognized in other comprehensive income. Interest income and interest expense arising from hedged items or hedging instruments are recognized under net interest income.

If the fair value is hedged against interest-rate risks on a portfolio basis, the cumulative changes in fair value attributable to the hedged risk are reported on the balance sheet under fair value changes of the hedged items in portfolio hedges of interest-rate risk, either under assets or liabilities depending on whether the portfolio comprises financial assets or financial liabilities.

In fully effective hedges, the changes in fair value (attributable to the hedged risk) recognized in profit or loss over the lifetime of the hedge completely cancel each other out. Any changes in fair value recognized in the carrying amount of the hedged items are amortized through profit or loss by the time the hedge has been terminated.

Cash flow hedges

The purpose of cash flow hedges is to ensure that changes in uncertain future cash flows from hedged items are offset by changes in cash flows from hedging instruments.

Hedging instruments are measured at fair value. Changes in fair value attributable to the effective portion of the hedge are recognized in other comprehensive income. Changes in fair value attributable to the ineffective portion of the hedge are recognized in profit or loss. Hedged items are recognized and measured in accordance with the general principles for the relevant measurement category. At the end of a hedging relationship, any changes in fair value recognized in other comprehensive income must be reclassified to profit or loss on the date on which the hedged items or transactions are also recognized in profit or loss.

Hedges of net investments in foreign operations

The purpose of hedges of net investments in foreign operations is to offset exchange differences resulting from net investments denominated in foreign currency.

Hedges of net investments in foreign operations are accounted for in the same way as cash flow hedges.

>> 07 Currency translation

All monetary assets and liabilities, together with unsettled spot transactions, are translated at the closing rate into the relevant functional currency of the entities in the DZ BANK Group. Cash in foreign currency is translated using the buying rate for cash on the balance sheet date. The translation of non-monetary assets and liabilities depends on the way in which these assets and liabilities are measured. If non-monetary assets are measured at amortized cost, they are translated using the historical exchange rate. Non-monetary assets measured at fair value are translated at the closing rate. Income, expenses, gains, and losses are translated on the date they are recognized either in profit or loss or in other comprehensive income.

If the functional currency of subsidiaries consolidated in the DZ BANK Group is different from the group's reporting currency (euros), all assets and liabilities are translated at the closing rate. Equity is translated at the historical rate. Income and expenses are translated at the spot rate on the transaction date or, in a simplified procedure, at the average rate. The closing rate can also be used if there is no material impact compared with the use of average rates. Any differences arising from currency translation are reported in the currency translation reserve. In most cases, the functional currency of the entities included in the consolidated financial statements is the euro, i.e. the group reporting currency.

>> 08 Offsetting of financial assets and financial liabilities

Financial assets and financial liabilities are offset and reported as a net amount on the balance sheet if the group currently has a legally enforceable right to set off the amounts and intends either to settle on a net basis or to realize the asset and settle the liability simultaneously.

The legal right of set-off cannot be contingent on a future event and must be exercisable in the normal course of business, in the event of default, and in the event of insolvency of the entity or any of the counterparties.

>> 09 Sale and repurchase agreements, securities lending

Sale and repurchase agreements (repos) are transactions in which the parties agree the sale and subsequent repurchase of securities at a fixed price and time. The risks and rewards of ownership of the sold securities remain in full with the original seller, provided that the buyer is under an obligation to sell back the securities. If the DZ BANK Group enters into repos as the original seller, the securities sold continue to be recognized on the balance sheet because the derecognition criteria in IFRS 9 are not satisfied. A liability corresponding to the amount of the purchase price received is recognized. If the group enters into reverse repos as a buyer, the securities purchased must not be recognized on the balance sheet. A receivable corresponding to the amount of the purchase price paid is recognized.

Securities lent as part of securities lending transactions remain on the balance sheet. Where collateral is received in this regard, and this collateral is in cash, a liability is recognized. Borrowed securities do not meet the recognition criteria set out in IFRS 9 and must therefore not be recognized on the balance sheet. Any cash collateral furnished in connection with borrowed securities is reported as a receivable.

Sale and repurchase agreements and securities lending transactions result in transfers in which the transferred assets remain on the balance sheet in their entirety. The DZ BANK Group is not involved in any transfers in which the transferred assets are recognized according to the extent of continuing involvement or transfers of financial assets with a continuing involvement that are fully derecognized.

>> 10 Collateral

Receivables are recognized for assets pledged as collateral in the form of cash deposits. Other assets pledged as collateral continue to be reported on the balance sheet unchanged. Where collateral is received, and this collateral is in cash, a liability for a corresponding amount is recognized. Other financial or non-financial assets received as collateral are not recognized on the balance sheet unless the assets are obtained in connection with the recovery of collateral or a purchase of real estate that was previously held as collateral.

>> 11 Insurance business

General information on the accounting treatment of insurance business

The DZ BANK Group's insurance business comprises insurance contracts, capitalization transactions, and service contracts. It also includes financial guarantee contracts with insured parties.

Insurance contracts govern the transfer of significant insurance risk from the insured party to the insurer and the payment of compensation if a future contingent event materializes and adversely impacts the insured party. Insurance contracts are recognized in accordance with the requirements of IFRS 4. Capitalization transactions comprise, in particular, fund-linked or index-linked life insurance contracts without policyholder participation, pension fund contracts based on defined benefit plans, and contracts to protect semi-retirement employment models. Capitalization transactions are classified as financial instruments within the scope of IFRS 9. Service contracts comprise, in particular, separable and transferable administrative components of insurance and capitalization contracts. Such service contracts are subject to the revenue recognition requirements specified in IFRS 15. Any financial guarantee contracts in connection with insurance business are recognized in accordance with the accounting requirements applicable to insurance contracts.

The insurance business of the DZ BANK Group is reported under specific insurance items on the income statement and balance sheet. Material components of the specific insurance items are described below.

Financial assets and financial liabilities

Financial assets and financial liabilities held or acquired as part of insurance business are accounted for in accordance with the accounting policies for financial instruments described in note 5. These financial assets and financial liabilities are reported under investments held by insurance companies, other assets held by insurance companies, and other liabilities of insurance companies. Any loss allowances related to financial assets reported under investments held by insurance companies or other assets held by insurance companies are recognized for the categories 'financial assets measured at amortized cost' and 'financial assets measured at fair value through other comprehensive income' and are applied as a deduction on the assets side of the balance sheet. Within the investments held by insurance companies and other assets held by insurance companies balance sheet items, carrying amounts are presented on a net basis. However, the loss allowances are shown separately (gross presentation) in the balance sheet disclosures.

Other liabilities of insurance companies include the benefit obligations under capitalization transactions for which no material insurance risk is assumed when the policy is concluded. They are reported under liabilities from capitalization transactions. The underlying financial instruments in these transactions are reported as part of assets related to unit-linked contracts under investments held by insurance companies.

Investment property

The investment property included in the investments held by insurance companies is measured at amortized cost in accordance with the cost model. In subsequent years, straight-line depreciation is applied over the asset's useful life on the basis of cost.

Any expenditure that increases value and extends the useful life of real estate or results in a significant improvement in the fabric of a building is capitalized. Maintenance and repair costs are expensed as incurred.

Recoverable amounts are determined for real estate so that this information can be used in impairment tests and provided in the disclosures required in the notes to the financial statements in accordance with the provisions of IFRS 13. For this purpose, standard valuation methods are generally used that are based on the requirements of the German Real Estate Valuation Guidelines (WertR 2006) and the German Building Code (BauGB). Accordingly, the current value of real estate is determined by using the sales comparison approach, income approach, or cost approach and taking into account the provisions of any relevant contracts.

Non-interest-bearing, low-interest or forgivable loans are recognized in the same way as government grants. The amount of financial assistance or any government grant is deducted when the carrying amount of the asset is identified and is then recognized in profit or loss over the period covered by the assistance or grant by means of a reduced depreciation charge.

Insurance liabilities

Insurance companies are permitted to continue applying existing accounting policies to certain insurance-specific items during a transition period. Insurance liabilities are therefore recognized and measured in accordance with HGB and other German accounting provisions applicable to insurance companies. Insurance liabilities are shown before the deduction of the share of reinsurers, which is reported as an asset.

Provision for unearned premiums

The provision for unearned premiums represents premiums that have already been collected but that relate to future periods.

The provision for unearned premiums from direct non-life insurance operations is calculated from the gross premiums using the 360-day system. Calculation of non-transferable income components is based on the letter from the Bundesministerium der Finanzen (BMF) [German Federal Ministry of Finance] dated April 30, 1974.

Unearned premiums from life insurance are calculated taking into account the starting date and maturity date of each individual policy after deduction of non-transferable premium components. As far as life insurance is concerned, imputed collection expenses equivalent to up to 4 percent of premiums may not be transferred.

The provision for unearned premiums in health insurance predominantly relates to international travel healthcare insurance business.

The proportion of the provision for unearned premiums relating to ceded insurance business is calculated as specified in the individual reinsurance contracts.

Benefit reserve

The purpose of the benefit reserve is to ensure that guaranteed entitlements to future insurance benefits can be satisfied on a permanent basis. Guaranteed entitlements for insured persons in respect of life insurance and casualty insurance with premium refund as well as the provision for increasing age in health insurance are reported under the benefit reserve.

The benefit reserve for life insurance and casualty insurance with premium refund is generally calculated in Germany on the basis of individual policies taking into account starting dates in accordance with approved business plans and the principles declared to the relevant regulatory authorities. The prospective method is used for life insurance (except for unit-linked insurance products and account management arrangements) and for casualty insurance (with the exception of premium-based policies that started prior to 1982). The retrospective method is used for other types of insurance. Negative benefit reserves on an individual policy basis are generally recognized with an amount of zero.

The assumptions used in calculations are determined in accordance with current recommendations issued by the Deutsche Aktuarvereinigung e.V., Cologne, (DAV) [German Actuarial Association] and the regulator and in accordance with other national statutory provisions and regulations. As a rule, calculation of the benefit reserve is based on interest rates of between 0.0 percent and 4.0 percent, as was the case in the previous year. These interest rates are generally determined by the legally prescribed maximum discount rates. The calculation assumptions apply from the date on which the policy is written until the policy expires.

For policies entered into before or in 2014, calculation of the benefit reserve is generally based on the Zillmer method. Following the introduction of the German Life Insurance Reform Act (LVRG), zillmerizing has not been applied to most new business entered into since 2015. In particular, zillmerizing is not applied to subsidized pension insurance policies under the German Personal Pension Plan Act (AVmG) or to pension insurance policies under reinsured pension plans.

The benefit reserve implicitly includes administrative expenses for contracts with ongoing payment of premiums. A provision for administrative costs has been recognized to cover premium-free years under insurance policies, fully paid-up insurance, and some legacy insurance commitments.

In health insurance, benefit reserves are computed prospectively on an individual policy basis using the technical parameters for calculating rates. Negative benefit reserves and positive benefit reserves are netted. The parameters for the computation of the reserves involve, in particular, assumptions regarding rates of return on investment, mortality, cancellations, and other costs. The company actuarial discount rate calculated in accordance with the procedure developed by the DAV is used in determining the health insurance discount rate. This procedure is based on a fundamental professional principle issued by the DAV for determining an appropriate discount rate. For observation units with a premium adjustment effective January 1, 2019, there was only a reduction in the discount rate if a premium adjustment had not already been carried out with effect from January 1, 2018. The reason for this action is the persistently low level of interest rates. The group uses mortality tables issued by the Verband der Privaten Krankenversicherung e. V., Cologne, (PKV) [Association of German private healthcare insurers], entity-specific probability rates for policy cancellations, and profiles of benefit drawdown. These assumptions are regularly reviewed in accordance with actuarial principles and updated, where appropriate.

When the benefit reserves are prospectively calculated, the parameters used are generally retained throughout the term of the policy. If the actuarial analyses conducted once a year reveal that the level of cover offered is inadequate in terms of either biometric parameters or discount rate, appropriate adjustments are made. The biometric parameters used in such computations are based primarily on the mortality and invalidity tables published by the DAV.

Since 2011, supplementary change-in-discount-rate reserves have been recognized for policies with a discount rate in excess of the reference rate. For new policies, this requirement results from the provisions of the German Regulation on the Principles Underlying the Calculation of the Premium Reserve (DeckRV). A supplementary change-in-discount-rate reserve is recognized for policies with a discount rate in excess of the reference rate specified in the DeckRV. In 2018, the BMF modified the procedure for determining this reference rate to soften the changes resulting from the previous arrangements. This led to a modest increase in the supplementary change-in-discount-rate reserves for new business compared with prior years. With the approval of the Bundesanstalt für Finanzdienstleistungsaufsicht, Bonn, (BaFin) [German Federal Financial Supervisory Authority], the supplementary change-in-discount-rate reserve has been increased for existing policies. Entity-specific probabilities for cancellation and lump-sum payments have been used since 2016.

Provision for claims outstanding

The provision for claims outstanding represents benefit obligations arising from claims in which it is not yet possible to reliably determine the amount and/or the timing of the payment. The provision is recognized for claims that have already been reported and also for insured events that have occurred but have not yet been reported. It includes both internal and external expenses as well as the cost of settling claims.

The provision for claims outstanding in direct non-life insurance business is determined on a case-by-case basis for all known claims. Recourse claims, excess proceeds, and claims under loss sharing agreements are netted. Based on the level of delayed claims reports observed in previous years, an additional claims provision is recognized for claims that occur or are caused before the balance sheet date but have not yet been reported by this date. Statistical estimates are used in this measurement. The provision for claims outstanding is not discounted, except in the case of the pension benefits reserve. The provisions for claims settlement expenses, which are also included in this item, have been calculated in accordance with the requirements set out in the coordinated regulations issued by the German federal states on February 2, 1973 and in accordance with the flat-rate calculation method (including claims incurred but not reported, IBNR) developed by the Gesamtverband der Deutschen Versicherungswirtschaft e. V., Berlin, (GDV) [German Insurance Association].

The provision for claims outstanding as regards life insurance and pension funds is determined on a case-by-case basis. The provision is recognized for claims that have already been incurred and reported by the balance sheet date, but have not yet been settled.

A provision for settlement expenses is recognized in an amount equivalent to 1 percent of the claims provision to cover claims incurred and reported by the balance sheet date (excluding maturing policies) and also IBNR losses.

In health insurance, the provision for claims outstanding is determined on the basis of the costs paid out in the financial year in connection with claims during the year. The calculation is based on claims experience over the previous 3 financial years. Recourse claims are deducted from the provision for claims outstanding, as are reimbursements due under the German Act on the Reform of the Pharmaceuticals Market (AMNOG). The recognized provision includes the costs of settling claims, calculated in accordance with tax rules. The reinsurers' share of the provision is determined in accordance with reinsurance treaties. Where appropriate, provisions for claims outstanding are recognized on a case-by-case basis for claims relevant to reinsurance.

Provision for premium refunds

The provision for premium refunds represents obligations not yet due for settlement on the balance sheet date relating to premium refunds to insured parties. It includes amounts allocated to policyholders under statutory or contractual arrangements for bonuses and rebates. In addition, the provision for premium refunds includes provisions resulting from time-restricted cumulative recognition and measurement differences between items in the financial statements prepared in accordance with IFRS and those prepared in accordance with HGB. In the case of measurement differences recognized in other comprehensive income, such as unrealized gains and losses on financial assets measured at fair value through other comprehensive income, corresponding expenses for deferred premium refunds are recognized in other comprehensive income; otherwise, changes in the provision are recognized in profit or loss.

The expenses for deferred premium refunds in the non-life insurance business are recognized in an amount equivalent to 90 percent of the difference between the carrying amounts for items in the financial statements prepared in accordance with IFRS and those in the financial statements prepared in accordance with HGB net of deferred taxes.

The provision for premium refunds related to life insurance policies and pension funds is recognized to cover the entitlement of policyholders to profit-related premium refunds. Funds earmarked in this way are therefore made available for future allocation of bonuses to policyholders on an individual policy basis. Within the overall provision for premium refunds, a distinction is made between provisions attributable to bonuses already declared but not yet allocated (including participation in valuation reserves in accordance with HGB), the funding used to finance future terminal bonuses, and the free provision for premium refunds. Under section 140 of the German Act on the Supervision of Insurance Undertakings (VAG), that element of the provision for premium refunds not attributable to bonuses already declared but not yet allocated may be used to avert an imminent crisis and may therefore be seen as mitigating risk. Expenses for deferred premium refunds are recognized in an amount equivalent to 90 percent of the difference between the carrying amounts for items in the financial statements prepared in accordance with IFRS and those in the financial statements prepared in accordance with HGB net of deferred taxes.

The provision for premium refunds related to health insurance includes amounts allocated to policyholders under statutory or contractual arrangements for bonuses and rebates. Expenses for deferred premium refunds are recognized in an amount equivalent to 80 percent of the difference between the carrying amounts for items in the financial statements prepared in accordance with IFRS and those in the financial statements prepared in accordance with HGB net of deferred taxes.

Other insurance liabilities

Other insurance liabilities relating to non-life insurance include obligations arising from membership of the Verein Verkehrsopferhilfe e.V. (VOH) [road casualty support organization], Berlin, in line with the object of this organization and the provision for unearned premiums under dormant vehicle insurance policies, the provision being determined on an individual policy basis. The cancellation provision is calculated on the basis of past experience. The provision for onerous contracts is calculated on the basis of prior-year figures and a forecast of other insurance gains and losses, taking into account interest income and residual maturities.

Other insurance liabilities for life insurance are computed on the basis of individual policies from premiums that are already due but have yet to be paid and have not yet been included in the life insurance liability to the extent that the investment risk is borne by the policyholders.

Other insurance liabilities for health insurance contain a cancellation provision. It contains the expected losses arising from the premature loss, not previously accounted for, of the negative portions of the provision for increasing age in health insurance.

Reinsurance business

In the case of reinsurance business, the insurance liabilities are recognized in accordance with the requirements specified by the ceding insurers. If no such details are available as at the balance sheet date, the provision for the financial year is estimated. The critical factors in estimating the provision are the contractual terms and conditions and the pattern of this business to date. In a few instances, loss provision details provided by ceding insurers are deemed to be too low in the experience of DZ BANK; in such cases, appropriate increases are applied, the increases having been determined in accordance with prudent business practice, past experience, and actuarial calculation methods.

Reserve for unit-linked insurance contracts

The reserve for unit-linked insurance contracts is an item largely corresponding to assets related to unit-linked contracts. This item is used to report policyholders' entitlements to their individual investment fund units where the related investments arise out of contracts to be reported in accordance with IFRS 4. The reserve is measured at fair value on the basis of the underlying investments. Gains and losses on the fund assets result in corresponding changes on the equity and liabilities side of the balance sheet.

Adequacy test for insurance liabilities

Insurance liabilities must be regularly reviewed and subjected to an adequacy test. The adequacy test determines, on the basis of a comparison with estimated future cash flows, whether the carrying amount of insurance liabilities needs to be increased.

To review the insurance liabilities in the health insurance companies, a regular comparison is made between the present values of estimated future insurance benefits and costs, on the one hand, and the present values of estimated future premium payments on the other. In the event of any deficits, the insurance company has the option of adjusting premiums.

>> 12 Leases

DZ BANK Group as lessor

A lease is classified as a finance lease if substantially all the risks and rewards incidental to the ownership of an asset are transferred to the lessee. If the risks and rewards remain substantially with the lessor, the lease is an operating lease.

If a lease is classified as a finance lease, a receivable due from the lessee must be recognized. The receivable is measured at an amount equal to the net investment in the lease at the inception of the lease. Lease payments are apportioned into a payment of interest and repayment of principal. The interest portion based on the lessor's internal discount rate for a constant periodic rate of return is recognized as interest income, whereas the repayment of principal reduces the carrying amount of the receivable.

If a lease is classified as an operating lease, the entities in the DZ BANK Group retain beneficial ownership of the leased asset. These leased assets are reported as assets. The leased assets are measured at cost less depreciation and any impairment losses. Unless another systematic basis is more representative of the pattern of income over time, lease income is recognized in profit or loss on a straight-line basis over the term of the lease and is included in the current income from operating leases reported under net interest income. Gains on disposal, reversals of impairment losses, depreciation, losses on disposal, and impairment losses relating to the underlying leased assets are also included in the current income from operating leases.

DZ BANK Group as lessee

For every lease, the lessee recognizes a right-of-use asset for a leased asset as well as a corresponding lease liability. The only exceptions are short-term leases and leases for low-value assets; in these cases, the lease payments are recognized as an expense.

The amount of the right-of-use asset initially corresponds to the amount of the lease liability. In subsequent periods, the right-of-use asset is measured at amortized cost. Depreciation is recognized on a straight-line basis over the entire lease term and reported as an administrative expense.

The lease liability is measured as the present value of the future lease payments and is shown under other liabilities. Lease payments must be broken down into an interest portion and a repayment portion. The interest portion based on the internal discount rate or the incremental borrowing rate of interest is recognized as interest expense, whereas the repayment of principal reduces the liability.

The DZ BANK Group uses the practical expedient that enables a lessee to elect not to separate non-lease components from lease components and instead account for all components as a lease.

Under IAS 17, lease payments under operating leases were recognized on a straight-line basis over the term of the leases concerned and reported as administrative expenses.

>> 13 Income

Interest and dividends received

Interest is recognized in the relevant period. If the effective interest method is used to calculate interest income, such income is reported under interest income calculated using the effective interest method.

The cash flows used to calculate the effective interest rate take into account contractual agreements in connection with the financial assets and financial liabilities concerned.

Premiums and discounts are allocated over the expected life of financial instruments using the effective interest method. Any additional costs incurred that are directly connected with the acquisition or sale of a financial asset or financial liability, and thus can be directly assigned to the transaction, are factored into the calculation of the effective interest rate. Such costs include sales charges directly associated with the origination of home savings contracts and commitment fees for loans.

Dividends are recognized as soon as a legal entitlement to the payment of such a dividend is established.

Interest income and interest expense arising in connection with derivatives that were not entered into for trading purposes or are used to hedge financial instruments for which the fair value option has been exercised are reported under net interest income. Interest income and interest expense on overnight money and fixed-term deposits arranged for economic management purposes between different organizational units and timing effects from currency swaps used for economic management of net interest income are recognized under net interest income or under gains and losses on trading activities, depending on their economic classification.

Revenue from contracts with customers

Revenue from contracts with customers is recognized when the underlying services have been performed, it is probable that the economic benefits will flow to the group, and the amount of the revenue can be reliably measured.

In the DZ BANK Group, revenue from contracts with customers primarily consists of fee and commission income. Revenue from contracts with customers is also included in gains and losses on investments held by insurance companies and other insurance company gains and losses as well as in other net operating income. The main components of fee and commission income are fee and commission income from securities business, fee and commission income from payments processing (including card processing), fee and commission income from lending and trust activities, and fee and commission income from asset management.

Fee and commission income from securities business is generated from funds business and brokerage, and also includes custody charges. The income is generally recognized as soon as the service has been performed. Fee and commission income from payments processing (including card processing) and fee and commission income from lending and trust activities is recognized immediately after the service has been provided.

Fees and commissions earned over the period in which a service is performed include certain types of fees for administration and safe custody as part of the securities business and asset management, and fees in connection with the furnishing of financial guarantees. In the case of performance-related management fees, income is recognized when the contractually agreed performance criteria have been satisfied. This is either when the service is contracted (brokering of life insurance or fund contracts, or brokering of home savings loans) or when the service is performed (fee and commission income from building society operations).

Fees and charges that form an integral part of the effective interest rate do not fall within the scope of IFRS 15 and are accounted for in accordance with IFRS 9 regardless of whether the financial assets are measured at fair value or at amortized cost.

The DZ BANK Group applies the following practical expedients as permitted by IFRS 15: it applies the standard to a portfolio of contracts, does not adjust the promised amount of consideration for the effects of a significant financing component, recognizes the incremental costs of obtaining a contract as an expense when incurred, and does not disclose certain information for some performance obligations.

Insurance business

For each insurance contract, gross premiums written are calculated pro rata for an exact number of days based on the actual start date of the insurance. These premiums comprise all amounts that become due in the financial year in connection with insurance premiums, premium installments, and single premiums for direct insurance and reinsurance business. Premiums for unit-linked life insurance, except capitalization transactions without policyholder participation, are also recognized as gross premiums written.

The components of premiums covering administration fees are reported pro rata as income in the income statement. In the case of index-linked policies and service contracts, additional administration charges, fees, and commissions from the service and brokerage business are deferred in accordance with IFRS 15 and apportioned over the relevant periods for the duration of the policy or contract concerned in line with the service performed.

>> 14 Cash and cash equivalents

Cash and cash equivalents are cash on hand and balances with central banks.

Cash on hand comprises euros and foreign currencies. Cash in euros is measured at nominal value; foreign currency cash is translated at the buying rate. Balances with central banks are allocated to the 'financial assets measured at amortized cost' category. Interest income on cash and cash equivalents is recognized as interest income from lending and money market business.

>> 15 Loans and advances to banks and customers

All receivables attributable to registered debtors that are categorized as 'financial assets measured at amortized cost', 'financial assets measured at fair value through profit or loss', or 'financial assets measured at fair value through other comprehensive income' are recognized as loans and advances to banks and customers. To eliminate or significantly reduce accounting mismatches, certain loans and advances are designated as at fair value through profit or loss. In addition to fixed-term receivables and receivables payable on demand in connection with lending, lease, and money market business, loans and advances to banks and to customers include promissory notes and registered bonds.

Loans and advances to banks and customers are measured predominantly at amortized cost using the effective interest method. In fair value hedges, the carrying amounts of hedged receivables are adjusted for the change in fair value attributable to the hedged risk. The resulting hedge adjustments are recognized within other gains and losses on valuation of financial instruments under gains and losses arising on hedging transactions. Finance lease receivables are recognized and measured in accordance with the requirements for the accounting treatment of leases.

Loss allowances for loans and advances to banks and customers are determined on the basis of the IFRS 9 requirements applicable to the relevant category of financial assets. Depending on these requirements, the loss allowances are reported as a separate line item deduction on the assets side of the balance sheet or in the reserve from other comprehensive income. Finance lease receivables are also subject to the IFRS 9 impairment requirements.

Interest income on loans and advances to banks and customers is recognized as interest income from lending and money market business. This also includes the amortization of hedge adjustments to carrying amounts due to fair value hedges. Realized gains and losses on loans and advances to banks and customers that are categorized as financial assets measured at amortized cost are included in the gains and losses from the derecognition of financial assets measured at amortized cost. Gains and losses on the valuation of loans and advances for which the fair value option has been exercised are shown under the item of the same name as part of other gains and losses on valuation of financial instruments.

>> 16 Hedging instruments (positive and negative fair values)

The carrying amounts of financial instruments designated as hedging instruments in effective and documented hedging relationships are reported under either hedging instruments (positive fair values) or hedging instruments (negative fair values).

These financial instruments are measured at fair value. Changes in the fair value of hedging instruments in the category 'financial assets measured at fair value through profit or loss' used in fair value hedges are recognized in the income statement as an element of other gains and losses on valuation of financial instruments under gains and losses from hedge accounting. If the hedged item is an equity instrument in which changes in fair value are recognized in other comprehensive income, the changes in the fair value of the hedging instruments are also recognized in other comprehensive income.

In the case of financial instruments used for cash flow hedges or hedges of net investments in foreign operations, changes in fair value attributable to the effective portion of the hedges are recognized in other comprehensive income. The cumulative amounts are recognized in the reserve from other comprehensive income as part of equity. Changes in fair value attributable to the ineffective portion of hedges are included in other gains and losses on valuation of financial instruments under gains and losses from hedge accounting.

>> 17 Financial assets and financial liabilities held for trading

Financial assets and financial liabilities held for trading comprise solely financial assets and financial liabilities that are held for trading.

Derivatives with positive fair values are classified as financial assets held for trading if they were entered into for trading purposes or, despite being intended to be used as hedges, do not meet the requirements for an accounting treatment as hedging instruments. Financial assets held for trading also include bonds and other fixed-income securities, shares and other variable-yield securities, and receivables held for trading purposes.

Financial liabilities held for trading include short positions, bonds and other debt certificates issued, and liabilities held for trading purposes. The procedure for classifying derivatives with negative fair values as financial liabilities held for trading is the same as that used for financial assets held for trading.

Financial instruments reported as financial assets or financial liabilities held for trading are always measured at fair value through profit or loss. Gains and losses on valuation, interest income and expense, and dividends arising from financial assets and financial liabilities held for trading are recognized under gains and losses on trading activities, provided that there is an actual intent to trade the instruments concerned.

Gains and losses on valuation of derivatives that are entered into for hedging purposes, but are not recognized as hedging transactions, are recognized under other gains and losses on valuation of financial instruments as gains and losses on derivatives used for purposes other than trading. If, to avoid accounting mismatches, hedged items are allocated to the category 'financial assets measured at fair value through profit or loss', valuation gains and losses on the related hedging derivatives are recognized under gains and losses on financial instruments designated as at fair value through profit or loss. Interest income and interest expense arising in connection with derivatives that were not entered into for trading purposes or are used to hedge financial instruments designated as at fair value through profit or loss are reported under net interest income.

>> 18 Investments

The following are recognized as investments: bearer bonds and other fixed-income securities, shares and other variable-yield securities, and other bearer or registered shareholdings in entities in which the DZ BANK Group has no significant influence, provided that these securities or shares are not held for trading purposes. Investments also include investments in subsidiaries, joint ventures, and associates.

Investments are initially recognized at fair value. Investments in joint ventures and associates that are accounted for using the equity method are initially recognized at cost. These investments are subsequently measured in accordance with the principles applicable to the relevant measurement category. In the case of investments in joint ventures and associates, the equity method is used for subsequent measurement.

Impairment losses on investments are determined on the basis of the IFRS 9 requirements applicable to the relevant category of financial assets or on the basis of accounting standards relevant to the financial assets concerned. They are generally reported as a separate line item on the assets side of the balance sheet or in the reserve from other comprehensive income.

Interest and any investment premiums or discounts amortized over the maturity of the investment using the effective interest method are recognized under net interest income. Dividends derived from equity instruments are recognized as current income under net interest income. Gains or losses on investments accounted for using the equity method are also reported under net interest income.

Gains and losses realized on the sale of investments that are not categorized as financial assets measured at amortized cost, as well as impairment losses and reversals thereof on investments in associates and joint ventures that are accounted for using the equity method, are reported under gains and losses on investments. Realized gains and losses on investments that are categorized as financial assets measured at amortized cost are included in the gains and losses from the derecognition of financial assets measured at amortized cost.

Fair value gains and losses on investments that are measured at fair value through profit or loss are reported under other gains and losses on valuation of financial instruments.

>> 19 Property, plant and equipment, investment property, and right-of-use assets

Property, plant and equipment, investment property, and right-of-use assets comprises land and buildings as well as office furniture and equipment with an estimated useful life of more than one year used by the entities in the DZ BANK Group. This item also includes assets subject to operating leases and right-of-use assets arising from leases. Investment property is real estate held for the purposes of generating rental income or capital appreciation.

Property, plant and equipment, and investment property is measured at cost less cumulative depreciation and cumulative impairment losses in subsequent financial years. Depreciation is largely recognized on a straight-line basis over the useful life of the asset. In most cases, external valuations are used to measure recoverability.

Right-of-use assets arising from leases are measured in accordance with the lease accounting provisions and reduced by cumulative depreciation and cumulative impairment losses in subsequent financial years. Depreciation is largely recognized on a straight-line basis over the useful life of the asset.

If facts or circumstances give rise to indications that assets might be impaired, the recoverable amount is determined. An impairment loss is recognized if the recoverable amount is lower than the asset's carrying amount. The recoverable amount is the higher of fair value less costs to sell and value in use.

Borrowing costs directly assignable to property, plant and equipment, and investment property are capitalized as part of the asset cost, provided that the asset concerned is a qualifying asset.

Depreciation on property, plant and equipment, investment property, and right-of-use assets is reported as an administrative expense. Impairment losses and reversals of impairment losses are reported under other net operating income.

>> 20 Income tax assets and liabilities

Current and deferred tax assets are shown under the income tax assets balance sheet item; current and deferred tax liabilities are reported under income tax liabilities. Current income tax assets and liabilities are recognized in the amount of any expected refund or future payment.

Deferred tax assets and liabilities are recognized for temporary differences between the carrying amounts recognized in the financial statements in accordance with IFRS and those in the financial statements for tax purposes. Deferred tax assets are also recognized in respect of as yet unused tax loss carryforwards, provided that utilization of these loss carryforwards is sufficiently probable. Deferred tax assets are measured using the national and entity-specific tax rates expected to apply at the time of recovery. A uniform tax rate is applied in the case of group companies forming a tax group with DZ BANK.

Deferred tax assets and liabilities are not discounted. Where temporary differences arise in relation to items recognized in other comprehensive income, the resulting deferred tax assets and liabilities are also recognized in other comprehensive income. Current and deferred tax income and expense to be recognized through profit or loss are reported under income taxes in the income statement.

>> 21 Other assets and other liabilities

Other assets also include intangible assets and contract assets. Intangible assets are recognized at cost. In the subsequent measurement of software, acquired customer relationships, and other intangible assets with a finite useful life, carrying amounts are reduced by cumulative amortization and cumulative impairment losses. Goodwill and other intangible assets with an indefinite useful life are not amortized but are subject to an impairment test at least once during the financial year.

If the group has satisfied its performance obligation in respect of a customer, but the customer has not yet paid the consideration and payment of the consideration still depends on a condition other than simply a due date, then the group recognizes a contract asset on the balance sheet in place of a receivable. As soon as an unconditional right to the consideration arises, the contract asset is reclassified as a receivable. Contract assets are not amortized, but are included in the calculation of the loss allowances in accordance with IFRS 9.

Other liabilities include other liabilities of insurance companies, accrued expenses, and lease liabilities.

The other assets and other liabilities line items are used to report assets and liabilities that cannot be allocated to any of the other asset or liability line items.

>> 22 Loss allowances

Loss allowances for cash and cash equivalents, loans and advances to banks and customers, investments, and other assets that are measured at amortized cost or designated as finance leases are reported as a separate line item on the assets side of the balance sheet. Additions to loss allowances for these balance sheet items, and any reversals of such allowances, are recognized under loss allowances in the income statement.

Loss allowances for investments held by insurance companies and other assets held by insurance companies measured at amortized cost are netted with the carrying amounts of these assets within the investments held by insurance companies and other assets held by insurance companies line items on the balance sheet. Additions to loss allowances for these balance sheet items, and any reversals of such allowances, are recognized under gains and losses on investments held by insurance companies and other insurance company gains and losses in the income statement.

Loss allowances for loans and advances to banks and customers, for investments, and for investments held by insurance companies that are measured at fair value through other comprehensive income are not reported on the assets side of the balance sheet but instead in the reserve from other comprehensive income.

Any additions to, or reversals of, provisions for loan commitments and financial guarantee contracts and other provisions for loans and advances are also recognized in profit or loss under loss allowances.

>> 23 Non-current assets and disposal groups classified as held for sale

The carrying amount of non-current assets or disposal groups for which a sale is planned is recovered principally through a sale transaction rather than through their continuing use. These assets and disposal groups therefore need to be classified as held for sale if the criteria set out below are satisfied.

To be classified as held for sale, the assets or disposal groups must be available for immediate sale in their present condition subject only to terms that are usual and customary for sales of such assets or disposal groups, and it must be highly probable that a sale will take place. A sale is deemed to be highly probable if there is a commitment to a plan to sell the asset or disposal group and an active program to locate a buyer and complete the plan has been initiated. In addition, the asset or disposal group must be actively marketed for sale at a price that is reasonable in relation to the current fair value. A sale must be expected to be completed within one year of the date on which the asset or disposal group is classified as held for sale.

Assets classified as held for sale are measured at the lower of carrying amount and fair value less costs to sell. The assets are no longer depreciated from the date on which they are classified as held for sale.

Assets and disposal groups classified as held for sale are shown separately on the balance sheet under non-current assets and disposal groups classified as held for sale and liabilities included in disposal groups classified as held for sale. Gains and losses arising on measurement as well as gains and losses on the sale of these assets or disposal groups that do not belong to a discontinued operation are recognized in the income statement under other net operating income. If the assets or disposal groups belong to discontinued operations, all gains and losses arising from these assets and disposal groups must be shown separately as ‘profit/loss from discontinued operations, net of tax’.

>> 24 Deposits from banks and customers

All liabilities attributable to registered creditors not classified as 'financial liabilities mandatorily measured at fair value through profit or loss' are recognized as deposits from banks and customers. In addition to fixed-maturity liabilities and liabilities repayable on demand arising from the deposit, home savings and loan, and money market businesses, these liabilities also include, in particular, registered bonds and promissory notes issued.

Deposits from banks and customers are measured at amortized cost using the effective interest method. Where deposits from banks and customers are designated as a hedged item in an effective fair value hedge, the carrying amount is adjusted for any change in the fair value attributable to the hedged risk. If, to eliminate or significantly reduce accounting mismatches, the fair value option is applied for deposits from banks and customers, the liabilities are measured at fair value as at the balance sheet date.

Interest expense on deposits from banks and customers is recognized separately under net interest income. Interest expense also includes gains and losses on early redemptions and the amortization of hedge adjustments to carrying amounts due to fair value hedges. Hedge adjustments to the carrying amount due to fair value hedges are reported within other gains and losses on valuation of financial instruments under gains and losses from hedge accounting. If the fair value option has been exercised for deposits from banks and customers, valuation gains and losses are recognized under gains and losses on non-derivative financial instruments and embedded derivatives within other gains and losses on valuation of financial instruments.

>> 25 Debt certificates issued including bonds

Debt certificates issued including bonds cover 'Pfandbriefe', other bonds, and commercial paper for which transferable bearer certificates have been issued.

Debt certificates issued including bonds and gains and losses thereon are measured and recognized in the same way as deposits from banks and customers.

>> 26 Provisions

Provisions for employee benefits

Pension plans agreed with the employees of the entities in the DZ BANK Group are based on various types of pension schemes that depend on the legal, economic, and tax situation in each country and include both defined contribution plans and defined benefit plans.

Where a commitment is made to defined contribution plans, fixed contributions are paid to external pension providers. The amount of the contributions and the income earned from the pension assets determine the amount of future pension benefits. The risks arising from the obligation to pay such benefits in the future lie with the pension provider. No provisions are recognized for these indirect pension commitments. The contributions paid are recognized as pension and other post-employment benefit expenses under administrative expenses.

Under a defined benefit plan, the employer promises a specific benefit and bears all the risks arising from this promise. Defined benefit obligations are measured on the basis of the projected unit credit method. The measurement depends on various actuarial assumptions. These include, in particular, assumptions about long-term salary and pension trends and average life expectancy. Assumptions about salary and pension trends are based on past trends and take into account expectations regarding future changes in the labor market. Generally accepted biometric tables (2018 G mortality tables published by Professor Dr. Klaus Heubeck) are used to estimate average life expectancy. The discount rate used to discount future payment obligations is an appropriate market interest rate for investment-grade fixed-income corporate bonds with a maturity equivalent to that of the defined benefit obligations. The discount rate depends on the obligation structure (duration) and is determined using a portfolio of high-quality corporate bonds that must satisfy certain criteria in terms of quality and volume (outstanding face value). One of the notable quality criteria is an average AA rating from Moody's Investors Service, New York, Standard & Poor's, New York, Fitch Ratings, New York/London, and DBRS, Toronto. Bonds with existing call options in the form of embedded derivatives are not included in this process.

Actuarial gains and losses arising from experience adjustments and changes in actuarial assumptions regarding the defined benefit obligations, together with gains and losses arising from the remeasurement of plan assets and reimbursement rights, are recognized in other comprehensive income in the reporting period in which they occur.

The plan assets for the DZ BANK Group's defined benefit plans consist to a significant extent of the plan assets of DZ BANK.

In addition to the provisions for defined benefit pension plans, the provisions for employee benefits include provisions for other long-term employee benefits, provisions for termination benefits, and provisions for short-term employee benefits.

Provisions for other long-term employee benefits are recognized, in particular, to cover semi-retirement (Altersteilzeit) and long-service bonuses. Provisions for early retirement are included under the provisions for termination benefits.

Provisions for termination benefits linked with restructuring are reported separately from other restructuring provisions. The provisions for restructuring assigned to the provisions for employee benefits have been derived from a number of strategies, including DZ BANK's forward-looking 'Verbund First 4.0' initiative, VR Smart Finanz's strategy to transform itself into a digital provider of finance for the self-employed and small businesses, and the strategic agenda for DVB's business model.

Provisions for employee benefits are generally recognized as a charge to administrative expenses, although reversals of such provisions are reported under other net operating income. As an exception to the rule, provisions for restructuring are recognized under other net operating income.

Provisions for share-based payment transactions

The entities in the DZ BANK Group have entered into various agreements covering variable remuneration components to be paid to members of the Board of Managing Directors and certain other executives. The amount and timing of such remuneration depends on a number of factors, not least the performance of the entity concerned. These agreements are classified as cash-settled share-based payment transactions.

Provisions for share-based payment transactions are recognized (at fair value) if it is sufficiently probable that the remuneration will be paid out in the future. The timing of initial recognition is therefore before the grant date and before any payout in subsequent years. This results in discrepancies compared with the nominal amounts disclosed in note 98 for share-based payments granted but not yet paid out.

Provisions for share-based payment transactions are also subsequently measured at fair value. Any changes in fair value are recognized in profit or loss.

Other provisions

Provisions are liabilities in which the amounts or due dates are uncertain. Provisions are recognized for present obligations arising out of past events, in which it is probable that an outflow of resources embodying economic benefits will be required to settle the obligation and the amount of the obligation can be reliably estimated.

The provisions are recognized and measured using the best estimate of the present value of their anticipated utilization. This estimate takes account of future events as well as the risks and uncertainties relating to the issue concerned.

Provisions for irrevocable loan commitments and provisions for financial guarantee contracts are recognized with the same model used for financial assets and in the amount of the expected credit losses.

Other provisions for loans and advances factor in the usual sector-specific level of uncertainty. The underlying assumptions and estimates used include figures based on past experience as well as expectations and forecasts relating to future trends and developments.

Provisions relating to building society operations are recognized to cover the payment of any bonuses that may have been agreed in the terms and conditions of home savings contracts. These bonuses may take the form of a reimbursement of some of the sales charges or interest bonuses on deposits. The bonuses constitute independent payment obligations and must be measured and recognized in accordance with IAS 37. In order to measure these obligations, building society simulations (collective simulations) are used to forecast building society customers' future behavior. Uncertainty in connection with the measurement of these provisions arises from assumptions that need to be made about future customer behavior, which take account of various scenarios and action taken. Material inputs for the collective simulations are the rate of mortgage loans not drawn down and the pattern of customer cancellations.

Provisions are recognized for risks arising from ongoing legal disputes and cover the possible resulting losses. Such provisions are recognized when the reasons indicating that a legal dispute will result in a payment obligation for an entity in the DZ BANK Group are stronger than those indicating the opposite. Any concentration risk owing to similarities between individual cases is taken into consideration.

The amount in which provisions are recognized for risks arising from ongoing legal disputes is based on the information available at the time and is subject to assumptions and discretion in how a dispute is assessed. For example, this may be because the entity in the DZ BANK Group does not yet have at its disposal all the information required to make a final assessment of the legal dispute, particularly during the early stages of proceedings. Moreover, predictions made by entities in the DZ BANK Group in relation to changes to legal circumstances, changes to official interpretations, or – in the case of court cases – to procedural orders, decisions by the courts, or the arguments expected to be put forward by the opponent in the case may later turn out to be unfounded.

The expense incurred by the unwinding of the discount on provisions is recognized as interest expense under net interest income.

>> 27 Subordinated capital

Subordinated capital comprises all registered or bearer debt instruments that, in the event of insolvency or liquidation, are repaid only after settlement of all unsubordinated liabilities but before distribution to shareholders of any proceeds from the insolvency or liquidation.

Subordinated liabilities largely comprise subordinated bearer bonds and promissory notes. Profit-sharing rights outstanding comprise registered and bearer profit-participation certificates in issue. Regulatory Tier 1 capital that does not meet IFRS equity criteria is recognized as other hybrid capital. The share capital repayable on demand comprises the non-controlling interests in partnerships controlled by entities in the DZ BANK Group. These non-controlling interests must be classified as subordinated.

Subordinated capital and gains and losses on this capital are measured and recognized in the same way as deposits from banks and customers.

>> 28 Contingent liabilities

Contingent liabilities are possible obligations arising from past events. The existence of these obligations will only be confirmed by future events outside the control of the entities in the DZ BANK Group. Present obligations arising out of past events but not recognized as provisions because of the improbability of an outflow of resources embodying economic benefits or because the amount cannot be measured with sufficient reliability also constitute contingent liabilities.

The amount of contingent liabilities is disclosed in the notes unless the probability of an outflow of resources embodying economic benefits is remote. Contingent liabilities are measured at the best estimate of possible future outflows of resources embodying economic benefits.

Contingent liabilities in respect of litigation risk are reported when the reasons indicating that there is no current obligation are stronger than those indicating the opposite, but there is still a likelihood that a legal dispute will result in a payment obligation for an entity in the DZ BANK Group. Risks arising from legal disputes are assessed according to how likely they are to occur.

B Disclosure of interests in other entities

>> 29 Investments in subsidiaries

Proportion of the DZ BANK Group's activities and cash flow attributable to non-controlling interests

In the DZ BANK Group, material non-controlling interests in the capital and net income exist in the following subsidiaries:

€ million	Dec. 31, 2019	Dec. 31, 2018
Bausparkasse Schwäbisch Hall subgroup	238	215
DZ PRIVATBANK	64	64
R+V Versicherung subgroup	1,168	951
Union Asset Management Holding subgroup	46	38
DZ BANK Capital Funding Trust I	296	299
DZ BANK Capital Funding Trust II	499	492
DZ BANK Capital Funding Trust III	350	345
DZ BANK Perpetual Funding Issuer (Jersey) Limited	241	240
Other	107	93
Total	**3,009**	**2,737**

Bausparkasse Schwäbisch Hall

Bausparkasse Schwäbisch Hall AG – Bausparkasse der Volksbanken und Raiffeisenbanken, Schwäbisch Hall (BSH) is the parent company of the BSH subgroup. BSH is headquartered in Schwäbisch Hall. DZ BANK directly holds 96.9 percent of the shares in BSH (December 31, 2018: 96.9 percent). The share of voting rights is equal to the shareholding. Non-controlling interests account for 3.1 percent of the voting rights and shares (December 31, 2018: 3.1 percent). As was the case a year earlier, most of these non-controlling interests are held by local cooperative banks.

The net income for the year attributable to the non-controlling interests was €17 million (2018: €18 million). This included the net income for the year attributable to non-controlling interests in the BSH subgroup of €11 million (2018: €11 million). The carrying amount of the non-controlling interests in the DZ BANK Group was €238 million (December 31, 2018: €215 million). Of this amount, €79 million was attributable to non-controlling interests within the BSH subgroup (December 31, 2018: €74 million). DZ BANK has entered into a profit-transfer agreement with BSH. This guarantees a cash settlement of €6.97 per non-par-value share (after corporation tax and ancillary taxes) for the outside shareholders of BSH until the end of the 2020 financial year. Guaranteed dividends of €1 million were paid to outside shareholders of BSH in 2019 (2018: €1 million). In the BSH subgroup, dividends of €4 million were paid to non-controlling interests (2018: €4 million).

Aggregated financial information for the BSH subgroup:

€ million	Dec. 31, 2019	Dec. 31, 2018
Assets	77,469	71,667
Liabilities	71,769	66,510

€ million	2019	2018
Interest income and fee and commission income	1,681	1,693
Net profit	150	197
Other comprehensive income/loss	408	-85
Total comprehensive income	558	112
Cash flow	101	-7

DZ PRIVATBANK

DZ PRIVATBANK S.A., Strassen, Luxembourg, (DZ PRIVATBANK S.A.), headquartered in Luxembourg, together with its wholly owned subsidiaries DZ PRIVATBANK (Schweiz) AG, Zurich, Switzerland, IPConcept (Luxemburg) S.A., Strassen, Luxembourg, and IPConcept (Schweiz) AG, Zurich, Switzerland, is the cooperative center of excellence for the private banking business of the local cooperative banks in Germany.

DZ BANK directly holds 91.5 percent (December 31, 2018: 91.3 percent) of the shares in DZ PRIVATBANK S.A. The share of voting rights is equal to the shareholding. The other shares are held by local cooperative banks and cooperative investors.

The net income for the year attributable to the non-controlling interests was €2 million (2018: net loss of €14 million). The carrying amount of the non-controlling interests was €64 million (December 31, 2018: €64 million). The dividend distributed to the non-controlling interests came to €1 million in 2019 (2018: €1 million).

Aggregated financial information for DZ PRIVATBANK:

€ million	Dec. 31, 2019	Dec. 31, 2018
Assets	19,464	18,322
Liabilities	18,622	17,503

€ million	2019	2018
Interest income and fee and commission income	544	541
Net profit/loss	28	-136
Other comprehensive income	6	3
Total comprehensive income/loss	34	-133
Cash flow	640	1,516

R+V Versicherung

The R+V Group is a subgroup of the DZ BANK Group that, with its individual companies, offers all types of insurance in all of the non-life, life, and health insurance sectors. It also takes on inward reinsurance business in the international market.

R+V Versicherung AG, Wiesbaden, (R+V) is the parent company of the R+V subgroup. R+V is headquartered in Wiesbaden. DZ BANK directly holds 92.1 percent of the shares in R+V (December 31, 2018: 92.1 percent). The share of voting rights is equal to the shareholding. Non-controlling interests account for 7.9 percent of the voting rights and shares (December 31, 2018: 7.9 percent). Within this figure, local cooperative banks hold 6.1 percent (December 31, 2018: 6.1 percent). The other 1.8 percent (December 31, 2018: 1.8 percent) is held by other entities in the cooperative sector.

The net income for the year attributable to the non-controlling interests was €97 million (2018: €42 million). This included the net income for the year attributable to non-controlling interests in the R+V subgroup of €47 million (2018: €20 million). The carrying amount of the non-controlling interests in the DZ BANK Group was €1,168 million (December 31, 2018: €951 million). Of this amount, €583 million was attributable to non-controlling interests within the R+V subgroup (December 31, 2018: €486 million). DZ BANK has entered into a profit-transfer agreement with R+V. This guarantees an annual cash settlement of €6.30 per non-par-value share (after corporation tax and ancillary taxes) for the outside shareholders of R+V until the end of the 2021 financial year. Guaranteed dividends of €7 million were paid to outside shareholders of R+V in 2019 (2018: €7 million). In the R+V subgroup, dividends of €8 million were paid to non-controlling interests (2018: €8 million).

Aggregated financial information for the R+V subgroup:

€ million	Dec. 31, 2019	Dec. 31, 2018
Assets	121,973	107,351
Liabilities	113,761	100,684

€ million	2019	2018
Premiums earned	17,249	15,997
Net profit	600	220
Other comprehensive income/loss	952	-497
Total comprehensive income/loss	1,552	-277

Union Asset Management Holding

Union Asset Management Holding AG, Frankfurt am Main, (UMH) is the parent company of the UMH subgroup. UMH is headquartered in Frankfurt am Main. Other major locations are Hamburg and Luxembourg. DZ BANK's aggregated shareholding in UMH is 96.6 percent (December 31, 2018: 96.6 percent). The share of voting rights is equal to the aggregated shareholding. Non-controlling interests account for 3.4 percent of the shares (December 31, 2018: 3.4 percent). Most of these non-controlling interests are held by local cooperative banks. The proportion held indirectly by DZ BANK is 95.8 percent (December 31, 2018: 95.8 percent).

The carrying amount of the non-controlling interests within the DZ BANK Group was €46 million (December 31, 2018: €38 million) and related to the multiplicative share of the capital of UMH. Of this amount, €24 million was attributable to non-controlling interests within the UMH subgroup (December 31, 2018: €24 million). The net income for the year attributable to the non-controlling interests was €23 million (2018: €18 million). This included the net income for the year attributable to non-controlling interests in the UMH subgroup of €8 million (2018: €8 million). The dividend distributed to the non-controlling interests totaled €14 million in 2019 (2018: €15 million). €7 million of this amount was paid as dividends to non-controlling interests in the UMH subgroup (2018: €6 million).

Aggregated financial information for the UMH subgroup:

€ million	Dec. 31, 2019	Dec. 31, 2018
Assets	3,012	2,559
Liabilities	1,406	1,167

€ million	2019	2018
Interest income and fee and commission income	2,671	2,474
Net profit	478	347
Other comprehensive income/loss	-2	-3
Total comprehensive income	476	344

DZ BANK Capital Funding Trust I, II, and III and DZ BANK Perpetual Funding Issuer (Jersey) Limited

DZ BANK has established companies in Delaware, USA, and Jersey, Channel Islands, in order to increase own funds in accordance with section 10a of the German Banking Act (KWG). The business activities of these companies are limited to the issuance of open-ended equity instruments without redemption incentives. These equity instruments that have been issued are held by non-voting non-controlling interests in the DZ BANK Group. The companies in question are:

– DZ BANK Capital Funding Trust I, Wilmington, Delaware,
– DZ BANK Capital Funding Trust II, Wilmington, Delaware,
– DZ BANK Capital Funding Trust III, Wilmington, Delaware,
– DZ BANK Perpetual Funding Issuer (Jersey) Limited, St. Helier, Jersey.

The companies were established at their current registered office. The Delaware companies are headquartered in New York, USA. The Channel Islands company is headquartered in Frankfurt am Main. Virtually 100 percent of the issued share capital of each of the companies is attributable to non-voting non-controlling interests, while the voting rights in the companies are attached to only a small proportion of the shares. As a result, virtually all of the profits and losses of the companies are attributable to the non-controlling interests.

The companies' net income for the year is shown in the following table:

€ million	2019	2018
DZ BANK Capital Funding Trust I	7	7
DZ BANK Capital Funding Trust II	6	6
DZ BANK Capital Funding Trust III	4	4
DZ BANK Perpetual Funding Issuer (Jersey) Limited	1	1

Distributions of dividends to the non-controlling interests generally take the form of a variable or fixed-rate coupon whose actual payment is not subject to a contractual obligation.

The dividends paid to the non-controlling interests in the financial year are shown in the following table:

€ million	2019	2018
DZ BANK Capital Funding Trust I	7	7
DZ BANK Capital Funding Trust II	6	6
DZ BANK Capital Funding Trust III	4	4
DZ BANK Perpetual Funding Issuer (Jersey) Limited	1	1

Aggregated financial information for the DZ BANK Capital Funding Trust companies and the DZ BANK Perpetual Funding Issuer company:

€ million	Dec. 31, 2019	Dec. 31, 2018
Non-current assets	1,410	1,410
Liabilities	-	-

€ million	2019	2018
Interest income and fee and commission income	18	18
Net profit	18	18
Total comprehensive income	18	18

Nature and extent of significant restrictions

National regulatory requirements, contractual provisions, and provisions of company law restrict the DZ BANK Group's ability to transfer assets within the group. Where these restrictions can be specifically assigned to individual line items on the balance sheet, the carrying amounts of the assets and liabilities subject to restrictions on the balance sheet date are shown in the following table:

€ million	Dec. 31, 2019	Dec. 31, 2018
Assets	**89,997**	**85,850**
Loans and advances to customers	2,699	2,689
Investments	5	5
Investments held by insurance companies	87,290	83,152
Other assets	3	4
Liabilities	**148,690**	**140,359**
Deposits from banks	1,788	1,793
Deposits from customers	63,226	59,996
Provisions	1,406	1,072
Insurance liabilities	82,270	77,498

Nature of the risks associated with interests in consolidated structured entities

Risks arising from interests in consolidated structured entities largely result from loans to fully consolidated funds, some of which are extended in the form of junior loans.

>> 30 Interests in joint arrangements and associates

Nature, extent, and financial effects of interests in joint arrangements

Českomoravská stavební spořitelna

Českomoravská stavební spořitelna, a.s., Prague, Czech Republic, (ČMSS) was a joint venture between BSH and the Czech Republic's largest bank, Československá obchodní banka, a.s., Prague, Czech Republic, (ČSOB) until the disposal on May 31, 2019. ČMSS is headquartered in Prague, Czech Republic. It is one of Europe's largest building societies. ČMSS is a leading provider of home savings and home finance products in the Czech Republic. Until the disposal, BSH's shareholding was 45.0 percent, as it had been at December 31, 2018. The other 55.0 percent was held by ČSOB (December 31, 2018: 55.0 percent). The carrying amount of the investment under the equity method had been €146 million as at December 31, 2018. ČMSS did not pay any dividend to BSH in 2019 (2018: €19 million).

Prvá stavebná sporiteľňa

Prvá stavebná sporiteľňa a.s., Bratislava, Slovakia, (PSS) is a joint venture between BSH and its partners Raiffeisen Bausparkasse Holding GmbH, Vienna, Austria, Slovenská sporiteľňa a.s., Bratislava, Slovakia, and Erste Group Bank AG, Vienna, Austria. PSS is headquartered in Bratislava, Slovakia. PSS is the market leader for building society operations in Slovakia. BSH's shareholding in PSS was 32.5 percent on the balance sheet date, as it had been at December 31, 2018. In the DZ BANK Group, the interests in PSS are accounted for using the equity method. PSS did not pay any dividend to BSH in 2019 (2018: no dividend).

Aggregated financial information for PSS:

€ million	Dec. 31, 2019	Dec. 31, 2018
Current assets	625	636
of which: cash and cash equivalents	13	69
Non-current assets	2,405	2,443
Current liabilities	690	762
of which: financial liabilities	670	744
Non-current liabilities	2,082	2,074
of which: financial liabilities	2,068	2,062

€ million	2019	2018
Interest income	101	96
Interest expense	-38	-47
Fee and commission income	16	17
Fee and commission expenses	-1	-1
Administrative expenses	-34	-35
Income taxes	-5	-5
Profit from continuing operations, net of tax	15	16
Other comprehensive income	-	-
Total comprehensive income	15	16

Reconciliation from the aggregated financial information to the carrying amount of the interests in PSS:

€ million	Dec. 31, 2019	Dec. 31, 2018
Total net assets	**258**	**243**
Share of net assets	**84**	**79**
Cumulative impairment losses on the carrying amount of the investment	-11	-
Carrying amount under the equity method	**73**	**79**

Zhong De Zuh Fang Chu Xu Yin Hang (Sino-German-Bausparkasse)

Zhong De Zuh Fang Chu Xu Yin Hang (Sino-German-Bausparkasse), Tianjin, China, (SGB) is a joint venture between BSH and China Construction Bank Corporation, Beijing, China. SGB is headquartered in Tianjin, China. Its business activities are concentrated in the regions of Tianjin (population of approx. 13 million) and Chongqing (population of approx. 30 million). BSH's shareholding in this Chinese building society was 24.9 percent on the balance sheet date, as it had been at December 31, 2018. In the DZ BANK Group, the interests in SGB are accounted for using the equity method. SGB did not pay a dividend in 2019, as had also been the case in the previous year.

Aggregated financial information for SGB:

€ million	Dec. 31, 2019	Dec. 31, 2018
Current assets	578	618
of which: cash and cash equivalents	502	467
Non-current assets	2,332	2,663
Current liabilities	1,931	2,497
of which: financial liabilities	1,743	2,459
Non-current liabilities	602	415
of which: financial liabilities	598	414

€ million	2019	2018
Interest income	84	129
Interest expense	-47	-86
Fee and commission income	9	9
Fee and commission expenses	-13	-11
Administrative expenses	-36	-36
Income taxes	-2	-
Profit/loss from continuing operations, net of tax	6	-2
Other comprehensive income/loss	3	-3
Total comprehensive income/loss	9	-5

Reconciliation from the aggregated financial information to the carrying amount of the interests in SGB:

€ million	Dec. 31, 2019	Dec. 31, 2018
Total net assets	**377**	**369**
Share of net assets	**94**	**92**
Cumulative impairment losses on the carrying amount of the investment	-64	-62
Carrying amount under the equity method	**30**	**30**

Deutsche WertpapierService Bank

Deutsche WertpapierService Bank AG, Frankfurt am Main, (dwpbank) is a joint venture of DZ BANK with Westfälisch-Lippische Sparkassen- und Giroverband, Münster, Rheinischer Sparkassen- und Giroverband, Düsseldorf, and 3 other regional development banks in Germany and is accounted for in the DZ BANK Group's financial statements using the equity method. dwpbank is headquartered in Frankfurt am Main. Its capital is divided into 20,000,000 voting registered shares with transfer restrictions. DZ BANK holds a 50.0 percent stake in dwpbank, as it did at December 31, 2018. The equity method is applied to dwpbank on the basis of financial statements prepared in accordance with HGB.

The shares in dwpbank are not traded in an active market. In 2019, dwpbank did not pay any dividend to DZ BANK (2018: €8 million).

Aggregated financial information for dwpbank:

€ million	Dec. 31, 2019	Dec. 31, 2018
Assets	583	590
Liabilities	373	386
of which: financial liabilities	150	177

dwpbank only has a small amount of cash and cash equivalents.

€ million	2019	2018
Interest income	4	4
Interest expense	-3	-2
Fee and commission income	321	299
Fee and commission expenses	-76	-59
Administrative expenses	-211	-211
Income taxes	-10	-3
Profit from continuing operations, net of tax	6	23
Total comprehensive income	6	23

Reconciliation from the aggregated financial information to the carrying amount of the interests in dwpbank:

€ million	Dec. 31, 2019	Dec. 31, 2018
Total net assets	**210**	**204**
Share of net assets	**105**	**102**
Capitalization of goodwill	29	29
Carrying amount under the equity method	**134**	**131**

Other joint ventures

The carrying amount of the equity-accounted joint ventures that, individually, are not material totaled €76 million on the balance sheet date (December 31, 2018: €96 million).

Aggregated financial information for equity-accounted joint ventures that, individually, are not material:

€ million	2019	2018
Share of profit from continuing operations, net of tax	4	5
Share of other comprehensive income	-	-
Share of total comprehensive income	4	5

Nature, extent, and financial effects of investments in associates

Other associates

The carrying amount of the equity-accounted associates that, individually, are not material totaled €201 million on the balance sheet date (December 31, 2018: €288 million).

Aggregated financial information for equity-accounted associates that, individually, are not material:

€ million	2019	2018
Share of profit from continuing operations, net of tax	21	5
Share of profit from discontinued operations, net of tax	7	-
Share of other comprehensive income	-	-
Share of total comprehensive income	28	5

>> 31 Interests in unconsolidated structured entities

Structured entities are entities that have been designed so that voting rights or similar rights are not the dominant factor in deciding who controls the entity. The DZ BANK Group distinguishes between the following types of interests in unconsolidated structured entities, based on their design and the related risks:
– Interests in investment funds issued by the DZ BANK Group,
– Interests in investment funds not issued by the DZ BANK Group,
– Interests in securitization vehicles,
– Interests in asset-leasing vehicles.

Interests in investment funds issued by the DZ BANK Group

The interests in the investment funds issued by the DZ BANK Group largely comprise investment funds issued by entities in the Union Investment Group in accordance with the contractual form model without voting rights and, to a lesser extent, those that are structured as a company with a separate legal personality. The number of unit/share types and volume of investment funds issued and managed by the UMH subgroup can be broken down as follows:

	Dec. 31, 2019		Dec. 31, 2018	
€ million	Volume	Number	Volume	Number
Mutual funds	184,703	334	165,032	387
of which: guarantee funds	1,703	25	2,809	36
Special funds	116,299	418	99,899	392
of which: guarantee funds	-	-	-	-
Total	**301,002**	**752**	**264,931**	**779**
of which: guarantee funds	1,703	25	2,809	36

Furthermore, DVB Bank SE, Frankfurt am Main, (DVB) makes subordinated loans available to fully consolidated funds for the purpose of transport finance. In turn, these funds make subordinated loans or direct equity investments available to unconsolidated entities.

The maximum exposure of the investment funds issued and managed by the DZ BANK Group is shown in the following tables as a gross value, excluding deduction of available collateral:

AS AT DECEMBER 31, 2019

€ million	Mutual funds	of which: guarantee funds	Special funds	of which: guarantee funds	Total
Assets	**1,824**	**-**	**6,012**	**-**	**7,836**
Loans and advances to customers	5	-	7	-	12
Investments	1,464	-	35	-	1,499
Investments held by insurance companies	122	-	5,477	-	5,599
Property, plant and equipment, investment property, and right-of-use assets	46	-	-	-	46
Other assets	149	-	19	-	168
Non-current assets and disposal groups classified as held for sale	38	-	474	-	512
Liabilities	**57**	**10**	**-**	**-**	**57**
Hedging instruments (negative fair values)	10	10	-	-	10
Other liabilities	47	-	-	-	47
Net exposure recognized on the balance sheet	1,767	-10	6,012	-	7,779
Contingent liabilities	-	-	-	-	-
Financial guarantee contracts, loan commitments and other obligations	**1,573**	**1,573**	**-**	**-**	**1,573**
Financial guarantee contracts	-	-	-	-	-
Loan commitments	-	-	-	-	-
Other obligations	1,573	1,573	-	-	1,573
Actual maximum exposure	**3,340**	**1,563**	**6,012**	**-**	**9,352**

AS AT DECEMBER 31, 2018

€ million	Mutual funds	of which: guarantee funds	Special funds	of which: guarantee funds	Total
Assets	**1,207**	**-**	**5,025**	**-**	**6,232**
Loans and advances to customers	3	-	77	-	80
Investments	964	-	201	-	1,165
Investments held by insurance companies	97	-	4,573	-	4,670
Property, plant and equipment, investment property, and right-of-use assets	-	-	-	-	-
Other assets	121	-	17	-	138
Non-current assets and disposal groups classified as held for sale	22	-	157	-	179
Liabilities	**6**	**6**	**-**	**-**	**6**
Hedging instruments (negative fair values)	6	6	-	-	6
Other liabilities	-	-	-	-	-
Net exposure recognized on the balance sheet	1,201	-6	5,025	-	6,226
Contingent liabilities	-	-	-	-	-
Financial guarantee contracts, loan commitments and other obligations	**2,629**	**2,629**	**-**	**-**	**2,629**
Financial guarantee contracts	-	-	-	-	-
Loan commitments	-	-	-	-	-
Other obligations	2,629	2,629	-	-	2,629
Actual maximum exposure	**3,830**	**2,623**	**5,025**	**-**	**8,855**

Regarding the disclosure of the maximum exposure, it must be noted that the 'Other obligations' line item in the table above includes market price guarantees in the amount of the nominal amounts of the guarantee commitments for guarantee funds of €1,584 million (December 31, 2018: €2,635 million), less negative fair values of €10 million (December 31, 2018: €6 million) recognized as a liability for the put options embedded in these products. The maximum exposure for market price guarantees for the guarantee funds does not represent the economic risk of this product type because the economic risk also has to reflect these guarantee funds' net assets of €1,703 million on the balance sheet date (December 31, 2018: €2,809 million) (net asset value) and the management model used with these products to safeguard the minimum payment commitments. The benefit under a market price guarantee is triggered if the fair value of the affected units does not reach the specified guaranteed level on particular dates. The put options embedded in the guarantee funds are reported as derivatives (negative fair values) under equity and liabilities on the balance sheet.

The interests in investment funds issued and managed by the DZ BANK Group resulted in losses of €13 million in the financial year (2018: losses of €85 million). Distributions in 2019 relating to each investment fund were offset in the calculation of the losses incurred in respect of each fund. An amount of €146 million was also added to loss allowances (2018: €80 million).

The revenue generated from investment funds issued by the DZ BANK Group was as follows:

2019

€ million	Mutual funds	of which: guarantee funds	Special funds	of which: guarantee funds	**Total**
Interest income and current income and expense	8	-	-1	-	7
Fee and commission income	2,190	16	173	-	2,363
Gains and losses on investments	2	-	1	-	3
Other gains and losses on valuation of financial instruments	16	-	-1	-	15
Gains and losses on investments held by insurance companies and other insurance company gains and losses	-	-	33	-	33
Total	**2,216**	**16**	**205**	**-**	**2,421**

2018

€ million	Mutual funds	of which: guarantee funds	Special funds	of which: guarantee funds	**Total**
Interest income and current income and expense	8	-	9	-	17
Fee and commission income	2,025	29	167	-	2,192
Gains and losses on investments	-23	-	-	-	-23
Other gains and losses on valuation of financial instruments	-17	-	-	-	-17
Gains and losses on investments held by insurance companies and other insurance company gains and losses	-	-	23	-	23
Total	**1,993**	**29**	**199**	**-**	**2,192**

Interests in investment funds not issued by the DZ BANK Group

The interests in the investment funds not issued by the DZ BANK Group above all comprise investment funds managed by entities in the Union Investment Group within the scope of their own decision-making powers that have been issued by entities outside the DZ BANK Group and parts of such investment funds. Their total volume amounted to €40,256 million (December 31, 2018: €37,405 million). The DZ BANK Group also extends loans to investment funds in order to generate interest income.

In addition, there were investment funds issued by entities outside the group in connection with unit-linked life insurance amounting to €8,837 million (December 31, 2018: €7,244 million) that, however, do not result in a maximum exposure.

The maximum exposure arising from the investment funds not issued by the DZ BANK Group is shown as a gross value, excluding deduction of available collateral. The following assets and liabilities have been recognized on the DZ BANK Group's balance sheet in connection with interests in investment funds not issued by the DZ BANK Group:

€ million	Dec. 31, 2019	Dec. 31, 2018
Assets	**6,771**	**4,311**
Loans and advances to customers	6,771	4,311
Liabilities	**-**	**-**
Net exposure recognized on the balance sheet	6,771	4,311
Contingent liabilities	**-**	**-**
Financial guarantee contracts, loan commitments and other obligations	**229**	**182**
Financial guarantee contracts	-	-
Loan commitments	229	182
Other obligations	-	-
Maximum exposure	**7,000**	**4,493**

The revenue generated from interests in investment funds not issued by the DZ BANK Group was as follows:

€ million	2019	2018
Interest income	82	74
Fee and commission income	83	80
Total	**165**	**154**

Interests in securitization vehicles

The interests in securitization vehicles are interests in vehicles where the DZ BANK Group's involvement goes beyond that of an investor. The assets and liabilities listed below have been recognized on the DZ BANK Group's balance sheet in connection with these interests. There is also an additional exposure from contingent liabilities and from financial guarantee contracts, loan commitments, and other obligations, which are shown at their nominal amounts. Only financial guarantee contracts, loan commitments, and other obligations for which no liability or contingent liability has been recognized are included. The maximum exposure is determined as a gross value, excluding deduction of available collateral.

€ million	Dec. 31, 2019	Dec. 31, 2018
Assets	**1,529**	**1,432**
Loans and advances to customers	1,386	1,354
Financial assets held for trading	82	21
Investments	61	57
Liabilities	**4**	**4**
Deposits from customers	3	2
Financial liabilities held for trading	-	1
Provisions	1	1
Net exposure recognized on the balance sheet	1,525	1,428
Contingent liabilities	**-**	**-**
Financial guarantee contracts, loan commitments and other obligations	**2,479**	**2,467**
Financial guarantee contracts	-	-
Loan commitments	2,479	2,467
Other obligations	-	-
Maximum exposure	**4,004**	**3,895**

The revenue generated from interests in securitization vehicles was as follows:

€ million	2019	2018
Interest income	7	7
Fee and commission income	45	46
Gains and losses on trading activities	10	-6
Gains and losses on investments	1	1
Total	**63**	**48**

The material interests in securitization vehicles comprise the two multi-seller asset-backed commercial paper (ABCP) programs: CORAL and AUTOBAHN.

DZ BANK acts as sponsor and program agent for both programs. It is also the program administrator for AUTOBAHN. As sponsor, DZ BANK was involved in setting up the structured entities and provides various services for them. Under the CORAL program, customers of the bank sell assets to separate special-purpose entities. The assets purchased essentially consist of trade receivables, loans, and lease receivables. Under the AUTOBAHN program, assets of North American customers are sold to specially established special-purpose entities and funded through the issuing company by means of ABCP issues.

The special-purpose entities are unconsolidated structured entities. Owing to the cellular structure of the transactions, there are no investee companies to be assessed. DZ BANK does not have control over the individual silos because it acts as agent and not as principal.

The purchase of the assets is funded using liquidity lines and by issuing money market-linked ABCPs. DZ BANK is a liquidity agent for the program, which involves making liquidity facilities available.

In 2019, DZ BANK did not provide either of the programs with any non-contractual support. Moreover, it currently has no intention to provide financial or other support. Because the ABCP programs are fully supported programs, DZ BANK bears all the credit risk.

Interests in asset-leasing vehicles

In 2018, the interests in asset-leasing vehicles comprised shares in limited partnerships and voting shares, other than the shares in limited partnerships, in partnerships established by VR Smart Finanz for the purpose of real estate leasing (asset-leasing vehicles), in which the asset, and the funding occasionally provided by the DZ BANK Group, were placed.

The assets and liabilities listed below were recognized on the DZ BANK Group's balance sheet in connection with the interests in real estate asset-leasing vehicles. There was also an additional exposure from contingent liabilities and from financial guarantee contracts, loan commitments, and other obligations, which were shown at their nominal amounts. Only financial guarantee contracts, loan commitments, and other obligations for which no liability or contingent liability had been recognized were included. The actual maximum exposure was determined as a gross value, excluding deduction of any collateral available.

Following the disposal of the asset-leasing vehicles by VR Smart Finanz, no assets or liabilities were recognized on the DZ BANK Group's balance sheet as at December 31, 2019. Moreover, there was no longer any additional exposure from contingent liabilities or from financial guarantee contracts, loan commitments, or other obligations.

€ million	Dec. 31, 2018
Assets	**5**
Loans and advances to customers	4
Investments	1
Liabilities	**11**
Deposits from customers	11
Net exposure recognized on the balance sheet	-6
Contingent liabilities	**-**
Financial guarantee contracts, loan commitments and other obligations	**2**
Financial guarantee contracts	2
Loan commitments	-
Other obligations	-
Maximum exposure	**-4**

The interests in asset-leasing vehicles gave rise to interest income and current income and expense of €1 million (2018: €5 million) and other net operating income of €2 million. These interests did not generate other net operating income in 2018.

>> 32 Sponsoring arrangements for unconsolidated structured entities

The DZ BANK Group sponsors an unconsolidated structured entity within the meaning of IFRS 12 if it was involved in establishing the structured entity or if the structured entity is linked by name to DZ BANK or a subsidiary within the DZ BANK Group and there are no interests, within the meaning of IFRS 12, in the structured entity.

The DZ BANK Group acts as sponsor for an unconsolidated structured entity because it is linked with the structured entity by name and it does not have any interests in the structured entity within the meaning of IFRS 12. The structured entity is an open-ended real estate fund for which the DZ BANK Group receives a fee for sales and for services. In 2019, the fees amounted to €28 million (2018: €4 million) under net fee and commission income and €1 million under other net operating income. No fees were recognized under other net operating income in 2018.

C Disclosures relating to the income statement and the statement of comprehensive income

>> 33 Segment information

Information on operating segments

2019

€ million	BSH	R+V	TeamBank	UMH
Net interest income	450	-	482	40
Net fee and commission income	-28	-	-28	1,468
Gains and losses on trading activities	-	-	-	-
Gains and losses on investments	163	-	-	2
Other gains and losses on valuation of financial instruments	18	-	-	-43
Gains and losses from the derecognition of financial assets measured at amortized cost	18	-	-	-
Premiums earned	-	17,249	-	-
Gains and losses on investments held by insurance companies and other insurance company gains and losses	-	6,204	-	-
Insurance benefit payments	-	-19,340	-	-
Insurance business operating expenses	-	-2,973	-	-
Gains and losses from the derecognition of financial assets measured at amortized cost in the insurance business	-	-12	-	-
Loss allowances	-4	-	-77	-
Administrative expenses	-486	-	-230	-910
Other net operating income	58	-11	5	91
Profit/loss before taxes	**189**	**1,117**	**152**	**648**
Cost/income ratio (%)	71.6	-	50.1	58.4
Regulatory RORAC (%)	16.5	13.3	30.0	>100.0
Average own funds/solvency requirement	1,147	8,415	506	357
Total assets/total equity and liabilities as at Dec. 31, 2019	77,469	121,973	9,455	3,012

	DZ BANK – CICB	DZ HYP	DZ PRIVAT-BANK	VR Smart Finanz	DVB	DZ BANK – holding function	Other/ Consolidation	**Total**
	772	656	65	147	146	-55	35	2,738
	388	2	176	-10	48	-	-41	1,975
	437	-2	9	-	6	-	22	472
	-3	10	-	-	-1	-	11	182
	39	275	2	1	-36	-	-1	255
	50	-	-	-	-	-	-53	15
	-	-	-	-	-	-	-	17,249
	-	-	-	-	-	-	-47	6,157
	-	-	-	-	-	-	-	-19,340
	-	-	-	-	-	-	150	-2,823
	-	-	-	-	-	-	-3	-15
	-77	1	-	-30	-141	-	-1	-329
	-1,296	-259	-220	-127	-202	-203	-141	-4,074
	-17	4	4	9	72	-	35	250
	293	**687**	**36**	**-10**	**-108**	**-258**	**-34**	**2,712**
	77.8	27.4	85.9	86.4	86.0	-	-	57.3
	5.8	44.5	11.2	-3.4	-42.1	-	-	15.2
	5,056	1,543	319	291	256	-	-	17,890
	288,841	92,284	19,464	4,283	14,239	20,191	-91,832	559,379

2018

€ million	BSH	R+V	TeamBank	UMH
Net interest income [1]	760	-	449	25
Net fee and commission income	-40	-	-13	1,416
Gains and losses on trading activities	-	-	-	-
Gains and losses on investments [1]	5	-	-	-23
Other gains and losses on valuation of financial instruments [1]	8	-	-	-51
Gains and losses from the derecognition of financial assets measured at amortized cost [1]	14	-	-	-
Premiums earned	-	15,997	-	-
Gains and losses on investments held by insurance companies and other insurance company gains and losses [1]	-	1,343	-	-
Insurance benefit payments	-	-14,208	-	-
Insurance business operating expenses	-	-2,721	-	-
Gains and losses from the derecognition of financial assets measured at amortized cost in the insurance business [1]	-	-1	-	-
Loss allowances	-11	-	-70	-
Administrative expenses	-480	-	-222	-895
Other net operating income	39	3	1	30
Profit/loss before taxes	**295**	**413**	**145**	**502**
Cost/income ratio (%)	61.1	-	50.8	64.1
Regulatory RORAC (%)	26.8	5.5	31.8	>100.0
Average own funds/solvency requirement	1,098	7,564	458	346
Total assets/total equity and liabilities as at Dec. 31, 2018 [1]	71,667	107,351	8,536	2,559

1 Amount restated (see note 2).

	DZ BANK – CICB	DZ HYP	DZ PRIVAT-BANK	VR Smart Finanz	DVB	DZ BANK – holding function	Other/ Consolidation	**Total**
	713	588	64	153	177	-71	-	2,858
	362	2	182	7	84	-	-45	1,955
	258	1	10	-	-3	-	19	285
	24	-10	-	22	-18	-	24	24
	36	-86	-	-	-105	-	12	-186
	119	-	-	-	-	-	-	133
	-	-	-	-	-	-	-	15,997
	-	-	-	-	-	-	-69	1,274
	-	-	-	-	-	-	-	-14,208
	-	-	-	-	-	-	149	-2,572
	-	-	-	-	-	-	-	-1
	140	12	-	-13	-80	-	1	-21
	-1,256	-299	-219	-142	-200	-210	-136	-4,059
	-34	24	-188	-26	15	-	27	-109
	362	**232**	**-151**	**1**	**-130**	**-281**	**-18**	**1,370**
	85.0	57.6	>100.0	91.0	>100.0	-	-	74.5
	7.6	16.0	-44.8	0.2	-33.8	-	-	8.2
	4,772	1,460	336	325	352	-	-	16,711
	259,904	85,882	18,322	4,768	20,566	19,484	-80,306	518,733

General information on operating segments

The information on operating segments has been prepared using the management approach in accordance with IFRS 8. Under this standard, external reporting must include segment information that is used internally for the management of the entity and for the purposes of quantitative reporting to the chief operating decision-makers. The DZ BANK Group's information on operating segments has therefore been prepared on the basis of the internal management reporting system.

Definition of operating segments

Segmentation is fundamentally based on the integrated risk and capital management system in the DZ BANK Group, the function of which is to create transparency, notably in respect of the risk structure and risk-bearing capacity of the individual management units in the group. The segment information presents separate disclosures for the management units DZ HYP AG, Hamburg/Münster, (DZ HYP), TeamBank AG Nürnberg, Nuremberg, (TeamBank), DZ PRIVATBANK, and the BSH, DVB, R+V, UMH, and VR Smart Finanz subgroups. From 2019, the previous DZ BANK management unit has been broken down into central institution and corporate bank (DZ BANK – CICB) and the group management function (DZ BANK – holding function) because of changes to the internal business management structure and the associated modification of the internal financial reporting system. The related reorganization of the management units in the internal financial reporting system has been adopted for the presentation of the operating segments. The DZ BANK – CICB operating segment comprises the cooperative central institution function, which supports the operating activities of the local cooperative banks, and the corporate bank function. DZ BANK – holding function is mainly used to pool tasks carried out on behalf of the DZ BANK Group in relation to commercial law, tax, and prudential supervision. The total assets of DZ BANK – holding function include the equity, plus a number of other items such as a notional carrying amount for the long-term equity investment in DZ BANK – CICB, together with the carrying amounts of the long-term equity investments in the other management units. The notional long-term equity investment in DZ BANK – CICB is measured in an amount equating to 11 percent of the risk-weighted assets of DZ BANK – CICB. The dividend payments of the management units and the intragroup income relating to the liabilities to dormant partners, which were previously included in the DZ BANK operating segment, are reported under Other/Consolidation from 2019. The relevant consolidation activities are still included under Other/Consolidation. DZ BANK – holding function does not constitute an operating segment within the meaning of IFRS 8.5 but is presented separately in line with the internal reporting structure. The prior-year figures have been restated accordingly. All other companies in the DZ BANK Group, which are not required to provide regular quantitative reports to the chief operating decision-makers, and the consolidations are reported on an aggregated basis under Other/Consolidation.

Presentation of operating segments

Interest income and associated interest expenses generated by the operating segments are offset and reported as net interest income in the information on operating segments because, from a group perspective, the operating segments are managed solely on the basis of the net figure.

Measurement

Internal reporting to the chief operating decision-makers in the DZ BANK Group is primarily based on the generally accepted accounting and measurement principles applicable to the DZ BANK Group.

Intragroup transactions between operating segments are carried out on an arm's-length basis. These transactions are reported internally using the financial reporting standards applied to external financial reporting.

The key indicators for assessing the performance of the operating segments are profit/loss before taxes, the cost/income ratio, and the return on risk-adjusted capital (regulatory RORAC).

The cost/income ratio shows the ratio of administrative expenses to operating income and reflects the economic efficiency of the operating segment concerned.

Operating income comprises net interest income, net fee and commission income, gains and losses on trading activities, gains and losses on investments, other gains and losses on valuation of financial instruments, gains and losses from the derecognition of financial assets measured at amortized cost, net income from insurance business, and other net operating income.

Regulatory RORAC is a risk-adjusted performance measure. In the financial year, it reflected the relationship between profit before taxes and the average own funds for the year (calculated as an average of the figure for the four quarters) in accordance with the own funds/solvency requirements for the financial conglomerate. It therefore shows the return on the regulatory risk capital employed.

Other/Consolidation

The consolidation-related adjustments shown under Other/Consolidation to reconcile operating segment profit/loss before taxes to consolidated profit/loss before taxes are attributable to the elimination of intragroup transactions and to the fact that investments in joint ventures and associates were accounted for using the equity method.

The adjustments to net interest income were primarily the result of the elimination of intragroup dividend payments and profit distributions in connection with intragroup liabilities to dormant partners and were also attributable to the early redemption of issued bonds and commercial paper that had been acquired by entities in the DZ BANK Group other than the issuer.

The figure under Other/Consolidation for net fee and commission income largely relates to the fee and commission business of TeamBank and the BSH subgroup with the R+V subgroup.

The remaining adjustments are mostly also attributable to the consolidation of income and expenses.

DZ BANK Group-wide disclosures

Information about geographical areas

The DZ BANK Group's operating income was generated in the following geographical areas:

€ million	2019	2018
Germany	6,327	4,630
Rest of Europe	836	727
Rest of World	103	309
Consolidation/reconciliation	-151	-216
Total	**7,115**	**5,450**

Information on geographical areas is presented according to the home countries of the companies included in the consolidated financial statements.

This information does not include the separate disclosure of certain non-current (largely tangible) assets because these assets are of minor significance in the DZ BANK Group's business model.

Information about products and services

Information on products and services offered by the DZ BANK Group is included in the income statement disclosures below.

>> 34 Net interest income

€ million	2019	2018
INTEREST INCOME AND CURRENT INCOME AND EXPENSE	**6,364**	**5,976**
Interest income from	**6,281**	**5,903**
Lending and money market business	6,053	6,013[1]
of which relating to: mortgage loans	918	860
home savings loans advanced by building society	1,073	1,044
pass-through loans	674	696
registered securities	356	378
finance leases	76	115
Bonds and other fixed-income securities	656	401[1]
Portfolio hedges of interest-rate risk	-162	-259[1]
Financial assets with a negative effective interest rate	-266	-253
Other assets	-	1
Current income and expense from	**83**	**73**
Shares and other variable-yield securities	27	29
of which: income from other shareholdings	16	18
Investments in subsidiaries	2	3
Investments in associates	2	-
Operating leases	13	-1
Entities accounted for using the equity method	35	38
of which relating to: investments in joint ventures	7	24
investments in associates	28	14
Income from profit-pooling, profit-transfer and partial profit-transfer agreements	4	4
INTEREST EXPENSE ON	**-3,626**	**-3,118**
Deposits from banks and customers	-3,181	-2,980[1]
of which relating to: home savings deposits	-1,145	-852[1]
Debt certificates issued including bonds	-695	-433[1]
Subordinated capital	-71	-110
Portfolio hedges of interest-rate risk	76	174
Financial liabilities with a positive effective interest rate	252	237
Provisions and other liabilities	-7	-6
Total	**2,738**	**2,858**

1 Amount restated (see note 2).

The interest expense on provisions and other liabilities included interest expense on lease liabilities of €4 million in the financial year.

>> 35 Net fee and commission income

€ million	2019	2018
Fee and commission income	**4,044**	**3,760**
Securities business	3,051	2,793
Asset management	251	222
Payments processing including card processing	289	270
Lending business and trust activities	149	164
Financial guarantee contracts and loan commitments	58	52
International business	10	11
Building society operations	34	31
Other	202	217
Fee and commission expenses	**-2,069**	**-1,805**
Securities business	-1,369	-1,145
Asset management	-163	-149
Payments processing including card processing	-144	-134
Lending business	-88	-74
Financial guarantee contracts and loan commitments	-10	-9
Building society operations	-84	-89
Other	-211	-205
Total	**1,975**	**1,955**

In the financial year, fee and commission income included revenue from contracts with customers pursuant to IFRS 15 in an amount of €4,032 million (2018: €3,749 million); see note 93.

>> 36 Gains and losses on trading activities

€ million	2019	2018
Gains and losses on non-derivative financial instruments and embedded derivatives	-1,373	548
Gains and losses on derivatives	1,794	-364
Gains and losses on exchange differences	51	101
Total	**472**	**285**

>> 37 Gains and losses on investments

€ million	2019	2018
Gains and losses on the disposal of bonds and other fixed-income securities	**70**	16[1]
Gains and losses on the disposal of shares and other variable-yield securities	**2**	-23
Gains and losses on the disposal of investments in subsidiaries	**-1**	11
Gains and losses on investments in joint ventures	**116**	46
Disposals	116	27
Impairment losses	-	-4
Reversals of impairment losses	-	23
Gains and losses on investments in associates	**-5**	-26
Disposals	4	7
Impairment losses	-16	-33
Reversals of impairment losses	7	-
Total	**182**	24

1 Amount restated (see note 2).

In the financial year, the bulk of the gains from the sale of interests in joint ventures were derived from the disposal of ČMSS.

>> 38 Other gains and losses on valuation of financial instruments

€ million	2019	2018
Gains and losses from hedge accounting	**-2**	-21
Gains and losses on fair value hedges	-2	-22
Gains and losses (ineffective portion) on hedges of net investments in foreign operations	-	1
Gains and losses on derivatives used for purposes other than trading	**-45**	-53
Gains and losses on financial instruments designated as at fair value through profit or loss	**273**	-104
Gains and losses on non-derivative financial instruments and embedded derivatives	211	-226[1]
Gains and losses on derivatives	62	122[1]
Gains and losses on financial assets mandatorily measured at fair value through profit or loss	**29**	3
Gains and losses on contingent considerations in a business combination	**-**	-11
Total	**255**	-186

1 Amount restated (see note 2).

Gains and losses on derivatives used for purposes other than trading result from the recognition and measurement of derivatives that are used for economic hedging but are not included in hedge accounting.

>> 39 Gains and losses from the derecognition of assets measured at amortized cost

€ million	2019	2018
Gains from the derecognition of financial assets measured at amortized cost	**47**	**141**
Loans and advances to banks and customers	9	12
Investments	38	129
Losses from the derecognition of financial assets measured at amortized cost	**-32**	**-8**
Loans and advances to banks and customers	-	-5
Investments	-2	-3
Fair value changes of the hedged items in portfolio hedges of interest-rate risk	-30	-
Total	**15**	**133**

The derecognition of financial assets measured at amortized cost was primarily attributable to the sale of impaired loans and advances to customers and early redemptions at the request of customers.

>> 40 Premiums earned

€ million	2019	2018
Net premiums written	**17,255**	**16,009**
Gross premiums written	17,398	16,133
Reinsurance premiums ceded	-143	-124
Change in provision for unearned premiums	**-6**	**-12**
Gross premiums	-10	-7
Reinsurers' share	4	-5
Total	**17,249**	**15,997**

>> 41 Gains and losses on investments held by insurance companies and other insurance company gains and losses

€ million	2019	2018
Income from investments held by insurance companies	**8,961**	**5,209**
Interest income and current income	2,476	2,437
Income from reversals of impairment losses and reversals of loss allowances, and unrealized gains	655	512
Gains on valuation through profit or loss of investments held by insurance companies	5,058	1,475
Gains on disposals	772	785[1]
Expenses in connection with investments held by insurance companies	**-2,694**	**-4,107**
Administrative expenses	-171	-150
Depreciation/amortization expense, additions to loss allowances, and impairment losses and unrealized losses	-507	-381
Losses on valuation through profit or loss of investments held by insurance companies	-1,539	-2,792
Losses on disposals	-477	-784[1]
Other gains and losses of insurance companies	**-110**	**172**
Other insurance gains and losses	317	251
Other non-insurance gains and losses	-427	-79
Total	**6,157**	**1,274**

1 Amount restated (see note 2).

Other non-insurance gains and losses included interest expenses on lease liabilities amounting to €1 million.

Income from and expenses in connection with investments held by insurance companies and other gains and losses of insurance companies included currency translation gains of €123 million. The currency translation gains included in the previous year amounted to €196 million (amount restated; see note 2).

Income from and expenses in connection with investments held by insurance companies included additions to loss allowances of €5 million (2018: €8 million), reversals of loss allowances of €8 million (2018: €9 million), and directly recognized impairment losses of €1 million (2018: none).

>> 42 Insurance benefit payments

€ million	2019	2018
EXPENSES FOR CLAIMS	**-11,953**	**-10,742**
Payments for claims	**-10,710**	**-9,721**
Gross payments for claims	-10,753	-9,765
Reinsurers' share	43	44
Change in the provision for claims outstanding	**-1,243**	**-1,021**
Gross change in the provision for claims outstanding	-1,228	-1,021
Reinsurers' share	-15	-
CHANGE IN THE BENEFIT RESERVE AND IN OTHER INSURANCE LIABILITIES	**-5,649**	**-3,130**
Change in the benefit reserve	**-5,654**	**-3,134**
Gross change in the benefit reserve	-5,669	-3,151
Reinsurers' share	15	17
Change in other insurance liabilities	**5**	**4**
EXPENSES FOR PREMIUM REFUNDS	**-1,738**	**-336**
Gross expenses for premium refunds	-622	-878
Expenses for deferred premium refunds	-1,116	542
Total	**-19,340**	**-14,208**

The net reinsurance expense amounted to €76 million. The corresponding figure in the prior year was a net expense of €46 million (amount restated; see note 2).

Claims rate trend for direct non-life insurance business including claim settlement costs

Gross claims provisions in direct business and payments made against the original provisions:

€ million	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009
At the end of the year	4,716	4,551	4,276	4,173	3,856	3,634	3,901	3,345	3,341	3,324	2,953
1 year later		4,471	4,142	4,103	3,767	3,523	3,847	3,336	3,359	3,135	2,901
2 years later			4,067	4,046	3,682	3,457	3,769	3,247	3,279	3,160	2,763
3 years later				4,020	3,647	3,389	3,731	3,220	3,254	3,139	2,756
4 years later					3,625	3,382	3,696	3,189	3,241	3,122	2,756
5 years later						3,389	3,691	3,198	3,250	3,139	2,768
6 years later							3,626	3,126	3,183	3,080	2,710
7 years later								3,118	3,172	3,065	2,685
8 years later									3,165	3,060	2,680
9 years later										3,059	2,680
10 years later											2,674
Settlements	**-**	**80**	**209**	**153**	**231**	**245**	**275**	**227**	**176**	**265**	**279**

Net claims provisions in direct business and payments made against the original provisions:

€ million	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010
At the end of the year	4,702	4,518	4,255	4,110	3,827	3,574	3,669	3,313	3,298	3,254
1 year later		4,438	4,118	4,050	3,736	3,460	3,613	3,300	3,317	3,056
2 years later			4,044	3,994	3,655	3,393	3,533	3,211	3,236	3,077
3 years later				3,965	3,624	3,331	3,490	3,180	3,208	3,057
4 years later					3,601	3,361	3,465	3,139	3,194	2,939
5 years later						3,369	3,670	3,166	3,191	3,049
6 years later							3,605	3,095	3,144	2,957
7 years later								3,087	3,134	2,981
8 years later									3,127	2,977
9 years later										2,977
Settlements	**-**	**80**	**211**	**145**	**226**	**205**	**64**	**226**	**171**	**277**

Claims rate trend for inward reinsurance business

Gross claims provisions in inward reinsurance business and payments made against the original provisions:

€ million	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009
Gross provisions for claims outstanding	**4,411**	**3,642**	**3,197**	**2,718**	**2,433**	**1,976**	**1,710**	**1,506**	**1,409**	**1,190**	**892**
Cumulative payments for the year concerned and prior years											
1 year later		955	852	569	622	464	481	385	463	437	282
2 years later			1,237	852	867	783	685	630	640	632	399
3 years later				1,062	1,022	919	897	764	345	739	468
4 years later					1,154	1,026	987	930	891	856	516
5 years later						1,117	1,051	996	1,029	922	588
6 years later							1,114	1,035	1,072	1,043	626
7 years later								1,085	1,103	1,067	652
8 years later									1,140	1,090	668
9 years later										1,106	684
10 years later											696
Gross provisions for claims outstanding and payments made against the original provision											
At the end of the year	4,411	3,642	3,197	2,718	2,433	1,976	1,710	1,506	1,409	1,190	892
1 year later		3,951	3,392	2,654	2,434	2,157	1,840	1,593	1,536	1,401	1,026
2 years later			3,315	2,561	2,271	2,004	1,859	1,569	1,472	1,343	872
3 years later				2,486	2,224	1,915	1,779	1,628	1,014	1,338	826
4 years later					2,179	1,887	1,720	1,580	1,528	1,360	837
5 years later						1,848	1,699	1,550	1,501	1,396	858
6 years later							1,677	1,536	1,486	1,379	870
7 years later								1,526	1,481	1,368	876
8 years later									1,468	1,354	873
9 years later										1,337	864
10 years later											856
Settlements	**-**	**-309**	**-118**	**232**	**254**	**128**	**33**	**-20**	**-59**	**-147**	**36**

Net claims provisions in inward reinsurance business and payments made against the original provisions:

€ million	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010
Net provisions for claims outstanding	**4,408**	**3,639**	**3,193**	**2,710**	**2,428**	**1,970**	**1,695**	**1,491**	**1,389**	**1,164**
Cumulative payments for the year concerned and prior years										
1 year later		955	851	567	622	464	473	383	461	432
2 years later			1,236	849	866	782	677	620	636	625
3 years later				1,058	1,020	918	888	754	333	729
4 years later					1,153	1,025	978	919	878	839
5 years later						1,115	1,042	985	1,016	904
6 years later							1,105	1,024	1,059	1,025
7 years later								1,074	1,090	1,049
8 years later									1,126	1,071
9 years later										1,086
Net provisions for claims outstanding and payments made against the original provision										
At the end of the year	4,408	3,639	3,193	2,710	2,428	1,970	1,695	1,491	1,389	1,164
1 year later		3,950	3,388	2,648	2,429	2,152	1,827	1,576	1,519	1,377
2 years later			3,312	2,555	2,267	1,999	1,845	1,554	1,454	1,321
3 years later				2,482	2,219	1,911	1,766	1,612	997	1,314
4 years later					2,176	1,883	1,708	1,566	1,510	1,337
5 years later						1,845	1,687	1,536	1,484	1,372
6 years later							1,666	1,522	1,470	1,357
7 years later								1,513	1,464	1,346
8 years later									1,453	1,332
9 years later										1,317
Settlements	**-**	**-311**	**-119**	**228**	**252**	**125**	**29**	**-22**	**-64**	**-153**

>> 43 Insurance business operating expenses

€ million	2019	2018
Gross expenses	-2,842	-2,593
Reinsurers’ share	19	21
Total	**-2,823**	**-2,572**

>>44 Gains and losses from the derecognition of financial assets measured at amortized cost in the insurance business

The derecognition of financial assets measured at amortized cost in the insurance business gave rise to gains of €9 million (2018: €11 million) and losses of €24 million (2018: €12 million).

The gains and losses from the derecognition of financial assets measured at amortized cost may include gains and losses from disposals and also gains and losses from derecognition as a result of substantial modification.

>>45 Loss allowances

€ million	2019	2018
Loss allowances for cash and cash equivalents	**-1**	**-**
Additions	-3	-2
Reversals	2	2
Loss allowances for loans and advances to banks	**2**	**22**
Additions	-26	-17
Reversals	26	36
Recoveries on loans and advances to banks previously impaired	2	3
Loss allowances for loans and advances to customers	**-307**	**-144**
Additions	-1,907	-1,811
Reversals	1,525	1,601
Directly recognized impairment losses	-28	-39
Recoveries on loans and advances to customers previously impaired	76	87
Other	27	18
Loss allowances for investments	**7**	**17**
Additions	-21	-43
Reversals	28	60
Loss allowances for other assets	**-1**	**-**
Additions	-1	-
Other loss allowances for loans and advances	**-29**	**84**
Additions to and reversals of provisions for loan commitments	-22	27
Additions to and reversals of provisions for financial guarantee contracts	-13	7
Additions to and reversals of other provisions for loans and advances	6	50
Total	**-329**	**-21**

Gains and losses from credit-risk-related modifications and other gains and losses on POCI assets are reported under the ‘Other’ line item. Other gains and losses on POCI assets consist of the changes in the loss allowances for these assets within the financial year.

>> 46 Administrative expenses

€ million	2019	2018
Staff expenses	**-1,878**	**-1,843**
Wages and salaries	-1,562	-1,535
Social security contributions	-198	-191
Pension and other post-employment benefit expenses	-109	-108
Expenses for share-based payment transactions	-9	-9
General and administrative expenses	**-1,921**	**-2,030**
Expenses for temporary staff	-31	-32
Contributions and fees	-199	-189
of which: contributions to the resolution fund for CRR credit institutions	-68	-80
Consultancy	-517	-580
Office expenses	-198	-217
IT expenses	-486	-465
Property and occupancy costs	-122	-176
Information procurement	-85	-78
Public relations and marketing	-161	-168
Other general and administrative expenses	-116	-119
Expenses for administrative bodies	-6	-6
Depreciation and amortization	**-275**	**-186**
Property, plant and equipment, and investment property	-81	-81
Right-of-use assets	-72	
Other assets	-122	-105
Total	**-4,074**	**-4,059**

>> 47 Other net operating income

€ million	2019	2018
Gains and losses on non-current assets and disposal groups classified as held for sale	211	2
Income from the reversal of provisions and accruals	103	130
Restructuring expenses	-84	-103
Expenses for other taxes	-24	-9
Impairment losses, reversals of impairment losses, and disposal gains and losses on software and other intangible assets	-1	-48
Impairment losses on goodwill	-	-128
Residual other net operating income	45	47
Total	**250**	**-109**

Gains and losses on non-current assets and disposal groups classified as held for sale included realized gains of €333 million on disposals (2018: €8 million) and impairment losses of €122 million (2018: €6 million).

Restructuring expenses included additions of €72 million to provisions for termination benefits linked with restructuring (2018: €86 million).

Residual other net operating income included rental income from investment property of €13 million (2018: €13 million) and directly assignable expenses of €3 million (2018: €3 million).

>> 48 Income taxes

€ million	2019	2018
Current tax expense	-615	-724
Deferred tax income/expense	-224	272
Total	**-839**	**-452**

The total for current taxes includes expenses of €19 million (2018: €13 million) attributable to previous years. Deferred taxes include expenses of €228 million (2018: income of €336 million) related to temporary differences and their reversal.

Current taxes in relation to the German limited companies in the group are calculated using an effective corporation tax rate of 15.825 percent based on a corporation tax rate of 15.0 percent plus the solidarity surcharge. The corporation tax rate applied in 2019 was unchanged from the rate used in 2018. The effective rate of trade tax for DZ BANK and subsidiaries that are members of the tax group is 15.435 percent (2018: 15.365 percent).

Deferred taxes must be calculated using tax rates expected to apply when the tax asset is recovered or liability settled. The tax rates used are therefore those that are valid or have been announced for the periods in question as at the balance sheet date.

The following table shows a reconciliation from expected income taxes to recognized income taxes based on application of the current tax law in Germany:

€ million	2019	2018
Profit before taxes	**2,712**	**1,370**
Group income tax rate	31.26%	31.19%
Expected income taxes	**-848**	**-427**
Income tax effects	**9**	**-25**
Impact of tax-exempt income and non-deductible expenses	29	-72
Adjustments resulting from other types of income tax, other trade tax multipliers, and changes in tax rates	17	28
Tax rate differences on income subject to taxation in other countries	10	-20
Current and deferred taxes relating to prior years	-12	32
Change in impairment losses on deferred tax assets	-37	3
Other effects	-2	4
Recognized income taxes	**-839**	**-452**

>> 49 Items reclassified to the income statement

The following amounts were recognized in other comprehensive income/loss or reclassified from other comprehensive income/loss to the income statement in the reporting period:

€ million	2019	2018
Gains and losses on debt instruments measured at fair value through other comprehensive income	**1,669**	-654
Gains (+)/losses (-) arising during the reporting period	1,887	-489
Gains (-)/losses (+) reclassified to the income statement during the reporting period	-218	-165
Gains and losses on cash flow hedges	**-**	-6
Gains (+)/losses (-) arising during the reporting period	-	-3
Gains (-)/losses (+) reclassified to the income statement during the reporting period	-	-3
Exchange differences on currency translation of foreign operations	**-1**	24
Gains (+)/losses (-) arising during the reporting period	5	32
Gains (-)/losses (+) reclassified to the income statement during the reporting period	-6	-8
Gains and losses on hedges of net investments in foreign operations	**3**	-6
Gains (+)/losses (-) arising during the reporting period	3	-13
Gains (-)/losses (+) reclassified to the income statement during the reporting period	-	7
Share of other comprehensive income/loss of joint ventures and associates accounted for using the equity method	**1**	-
Gains (+)/losses (-) arising during the reporting period	1	-
Gains (-)/losses (+) reclassified to the income statement	-	-

>> 50 Income taxes relating to components of other comprehensive income

The table below shows the income taxes on the various components of other comprehensive income:

	2019			2018		
€ million	Amount before taxes	Income taxes	Amount after taxes	Amount before taxes	Income taxes	Amount after taxes
Items that may be reclassified to the income statement	**1,672**	**-498**	**1,174**	-642	197	-445
Gains and losses on debt instruments measured at fair value through other comprehensive income	1,669	-501	1,168	-654	190	-464
Gains and losses on cash flow hedges	-	-	-	-6	-	-6
Exchange differences on currency translation of foreign operations	-1	-	-1	24	-1	23
Gains and losses on hedges of net investments in foreign operations	3	3	6	-6	8	2
Share of other comprehensive income/loss of joint ventures and associates accounted for using the equity method	1	-	1	-	-	-
Items that will not be reclassified to the income statement	**182**	**73**	**255**	-57	19	-38
Gains and losses on equity instruments for which the fair value OCI option has been exercised	453	-13	440	-8	1	-7
Gains and losses in relation to financial liabilities for which the fair value option has been exercised, attributable to changes in own credit risk	-96	30	-66	35	-11	24
Gains and losses arising from remeasurement of defined benefit plans	-175	56	-119	-84	29	-55
Total	**1,854**	**-425**	**1,429**	-699	216	-483

D Balance sheet disclosures

>> 51 Cash and cash equivalents

€ million	Dec. 31, 2019	Dec. 31, 2018
Cash on hand	378	386
Balances with central banks	52,167	51,459
Total	**52,545**	**51,845**

The average target minimum reserve for 2019 was €3,971 million (2018: €2,103 million).

>> 52 Loans and advances to banks

	Repayable on demand		Other loans and advances		Total	
€ million	Dec. 31, 2019	Dec. 31, 2018	Dec. 31, 2019	Dec. 31, 2018	Dec. 31, 2019	Dec. 31, 2018
Domestic banks	**5,811**	**4,392**	**83,288**	**80,599**	**89,099**	**84,991**
Affiliated banks	2,720	1,443	76,286	72,625	79,006	74,068
Other banks	3,091	2,949	7,002	7,974	10,093	10,923
Foreign banks	**4,923**	**4,107**	**3,522**	**2,529**	**8,445**	**6,636**
Total	**10,734**	**8,499**	**86,810**	**83,128**	**97,544**	**91,627**

The following table shows the breakdown of loans and advances to banks by type of business:

€ million	Dec. 31, 2019	Dec. 31, 2018
Mortgage loans	99	110
Registered securities	9,823	9,843
Pass-through loans	51,773	50,716
Other bank loans	16,596	15,854
Money market placements	16,214	12,425
Current account debit balances	2,882	2,384
Other loans and advances	157	295
Total	**97,544**	**91,627**

>> 53 Loans and advances to customers

€ million	Dec. 31, 2019	Dec. 31, 2018
Loans and advances to domestic customers	157,573	145,932
Loans and advances to foreign customers	28,651	28,617[1]
Total	**186,224**	**174,549**

1 Amount restated (see note 2).

The following table shows the breakdown of loans and advances to customers by type of business:

€ million	Dec. 31, 2019	Dec. 31, 2018
Mortgage loans	50,935	46,826
Ship mortgage loans	583	788
Home savings loans advanced by building society	50,372	45,454
Finance leases	1,547	2,020
Registered securities	10,033	8,630
Pass-through loans	6,275	5,844
Other bank loans	44,338	42,302
Money market placements	3,056	1,887
Current account debit balances	5,443	5,722
Other loans and advances	13,642	15,076[1]
Total	**186,224**	**174,549**

1 Amount restated (see note 2).

>> 54 Hedging instruments (positive fair values)

Hedging instruments (positive fair values) amounted to €201 million (December 31, 2018: €883 million) and resulted solely from derivatives used as fair value hedges.

>> 55 Financial assets held for trading

€ million	Dec. 31, 2019	Dec. 31, 2018
DERIVATIVES (POSITIVE FAIR VALUES)	**19,291**	**15,647**
Interest-linked contracts	17,063	13,773
Currency-linked contracts	1,270	1,194
Share-/index-linked contracts	554	403
Other contracts	30	52
Credit derivatives	374	225
BONDS AND OTHER FIXED-INCOME SECURITIES	**12,644**	**10,939**
Money market instruments	978	187
Bonds	11,666	10,752
SHARES AND OTHER VARIABLE-YIELD SECURITIES	**1,210**	**989**
Shares	1,208	959
Investment fund units	1	29
Other variable-yield securities	1	1
RECEIVABLES	**11,636**	**10,367**
of which: from affiliated banks	400	485
from other banks	8,505	7,927
Money market placements	**10,594**	**9,619**
with banks	8,242	7,975
with customers	2,352	1,644
Promissory notes and registered bonds	**1,042**	**748**
from banks	663	437
from customers	379	311
Total	**44,781**	**37,942**

>> 56 Investments

€ million	Dec. 31, 2019	Dec. 31, 2018
Bonds and other fixed-income securities	**54,231**	**45,614**
Money market instruments	419	466
Bonds	53,812	45,148
Shares and other variable-yield securities	**1,872**	**1,577**
Shares and other shareholdings	321	526
Investment fund units	1,541	1,041
Other variable-yield securities	10	10
Investments in subsidiaries	**310**	**300**
Investments in joint ventures	**313**	**482**
Investments in associates	**201**	**289**
Total	**56,927**	**48,262**

The carrying amount of investments in joint ventures accounted for using the equity method totaled €313 million (December 31, 2018: €482 million). €201 million of the investments in associates has been accounted for using the equity method (December 31, 2018: €288 million).

>> 57 Investments held by insurance companies

€ million	Dec. 31, 2019	Dec. 31, 2018
Investment property	3,558	2,842
Investments in subsidiaries	785	758
Investments in joint ventures	17	15
Investments in associates	1	3
Mortgage loans	9,749	9,307
Promissory notes and loans	7,235	7,386
Registered bonds	9,146	9,567
Other loans	716	654
Variable-yield securities	11,300	9,186
Fixed-income securities	55,811	48,954
Derivatives (positive fair values)	417	168
Loss allowances	-3	-4
Deposits with ceding insurers and other investments	449	294
Assets related to unit-linked contracts	14,368	11,710
Total	**113,549**	**100,840**

The fair value of investment property was €4,601 million as at the balance sheet date (December 31, 2018: €3,799 million). Government grants of €18 million were deducted from the carrying amount of investment property (December 31, 2018: €18 million). The grants are non-interest-bearing, low-interest or forgivable loans.

Some investment property has been pledged as collateral and is subject to restrictions on disposal, the total furnished collateral value of the property being €760 million (December 31, 2018: €762 million). The group also has capital expenditure commitments amounting to €394 million (December 31, 2018: €100 million). A total of €30 million was spent on the repair and maintenance of investment property in 2019 (2018: €22 million). Vacant property resulted in repair and maintenance expenses of €1 million (2018: €1 million).

Loss allowances in stage 3 declined from €4 million to €3 million in the financial year (2018: increase from €3 million to €4 million).

>> 58 Property, plant and equipment, investment property, and right-of-use assets

€ million	Dec. 31, 2019	Dec. 31, 2018
Land and buildings	917	911
Office furniture and equipment	182	182
Assets subject to operating leases	17	72
Investment property	238	258
Right-of-use assets	278	
Total	**1,632**	**1,423**

The fair value of investment property was €273 million as at the balance sheet date (December 31, 2018: €286 million). Payments in advance are allocated to the relevant item of property, plant and equipment.

>> 59 Income tax assets and liabilities

€ million	Dec. 31, 2019	Dec. 31, 2018
Income tax assets	**1,018**	**1,457**
Current income tax assets	372	401
Deferred tax assets	646	1,056
Income tax liabilities	**1,069**	**920**
Current income tax liabilities	293	384
Deferred tax liabilities	776	536

In addition to deferred tax assets recognized for tax loss carryforwards, deferred tax assets and liabilities are also recognized for temporary differences in respect of the items shown below:

	Deferred tax assets		Deferred tax liabilities	
€ million	Dec. 31, 2019	Dec. 31, 2018	Dec. 31, 2019	Dec. 31, 2018
Tax loss carryforwards	43	39		
Loans and advances to banks and customers	51	129	1,115	1,106[1]
Financial assets and liabilities held for trading, hedging instruments (positive and negative fair values)	837	764[1]	169	197
Investments	19	42[1]	840	403[1]
Loss allowances	202	145	5	2
Investments held by insurance companies	115	123	1,150	641
Property, plant and equipment, investment property, and right-of-use assets	24	32	146	46
Deposits from banks and customers	1,021	1,053[1]	174	239
Debt certificates issued including bonds	177	152	-	4
Provisions for employee benefits and for share-based payment transactions	685	621	59	36
Other provisions	206	193[1]	30	39[1]
Insurance liabilities	77	78	115	195
Other balance sheet items	247	159	31	102
Total (gross)	**3,704**	**3,530**	**3,834**	**3,010**
Netting of deferred tax assets and deferred tax liabilities	-3,058	-2,474[1]	-3,058	-2,474[1]
Total (net)	**646**	**1,056**	**776**	**536**

1 Amount restated (see note 2).

Deferred tax assets for temporary differences and tax loss carryforwards are only recognized if it is sufficiently probable that the asset can be recovered in the future. No deferred tax assets have been recognized for corporation tax loss carryforwards amounting to €308 million (December 31, 2018: €369 million), which can be carried forward indefinitely, or for trade tax loss carryforwards amounting to €224 million (December 31, 2018: €296 million). There remained foreign loss carryforwards of €1,049 million (December 31, 2018: €879 million) for which no deferred tax assets are recognized. Of this total, €483 million will expire by 2031 and €566 million can be used indefinitely. As regards companies (or permanent establishments of companies) in the DZ BANK Group that have suffered tax losses in 2019 or 2018 in their tax jurisdiction, it will be possible to utilize deferred tax assets amounting to €4 million (December 31, 2018: €27 million) in the future if a corresponding level of taxable income is available. It is assumed that this will in fact be the case based on information available from planning of taxable income.

Overall, there was a net deferred tax liability recognized through other comprehensive income of €330 million (December 31, 2018: net deferred tax asset of €92 million).

Deferred tax assets of €5 million (December 31, 2018: €394 million) and deferred tax liabilities of €313 million (December 31, 2018: €181 million) are expected to be realized only after a period of 12 months.

As at December 31, 2019, no deferred tax liabilities were recognized for temporary differences of €290 million (December 31, 2018: €186 million) relating to long-term equity investments in subsidiaries.

>> 60 Other assets

€ million	Dec. 31, 2019	Dec. 31, 2018
Other assets held by insurance companies	3,759	3,372
Goodwill	41	41
Other intangible assets	462	436
of which: software	419	394
acquired customer relationships	4	4
Other loans and advances	382	338
Residual other assets	800	468
Total	**5,444**	**4,655**

Other intangible assets include internally generated intangible assets amounting to €23 million (December 31, 2018: €22 million).

The breakdown of other assets held by insurance companies is as follows:

€ million	Dec. 31, 2019	Dec. 31, 2018
Intangible assets	**157**	**140**
Reinsurers' share of insurance liabilities	**130**	**139**
Provision for unearned premiums	11	6
Benefit reserve	38	36
Provision for claims outstanding	81	97
Receivables	**1,593**	**1,650**
Receivables arising out of direct insurance operations	422	450
Receivables arising out of reinsurance operations	282	271
Other receivables	889	929
Credit balances with banks, checks and cash on hand	**826**	**409**
Residual other assets	**1,055**	**1,036**
Property, plant and equipment	425	379
Prepaid expenses	67	34
Remaining assets held by insurance companies	563	623
Loss allowances	**-2**	**-2**
Total	**3,759**	**3,372**

The intangible assets in the other assets held by insurance companies include internally generated intangible assets amounting to €1 million (December 31, 2018: €7 million).

Property, plant and equipment includes right-of-use assets amounting to €56 million.

The following tables show the reinsurers' share of the changes in insurance liabilities:

REINSURERS' SHARE OF THE CHANGES IN THE PROVISION FOR UNEARNED PREMIUMS

€ million	2019	2018
Balance as at Jan. 1	6	11
Additions	17	14
Utilizations/reversals	-12	-19
Balance as at Dec. 31	**11**	**6**

REINSURERS' SHARE OF THE CHANGES IN THE BENEFIT RESERVE

€ million	2019	2018
Balance as at Jan. 1	36	60
Additions	2	5
Utilizations/reversals	-	-29
Balance as at Dec. 31	**38**	**36**

REINSURERS' SHARE OF THE CHANGES IN THE PROVISION FOR CLAIMS OUTSTANDING

€ million	2019	2018
Balance as at Jan. 1	97	97
Claims expenses	19	32
less payments	-35	-32
Balance as at Dec. 31	**81**	**97**

The breakdown of maturities for the reinsurers' share of insurance liabilities is shown in the following tables:

AS AT DECEMBER 31, 2019

€ million	≤ 1 year	> 1 year – 5 years	> 5 years	Indefinite
Provision for unearned premiums	8	2	1	-
Benefit reserve	1	2	10	25
Provision for claims outstanding	34	20	27	-
Total	**43**	**24**	**38**	**25**

AS AT DECEMBER 31, 2018

€ million	≤ 1 year	> 1 year – 5 years	> 5 years	Indefinite
Provision for unearned premiums	4	1	1	-
Benefit reserve	1	2	7	26
Provision for claims outstanding	38	24	33	2
Total	**43**	**27**	**41**	**28**

>> 61 Loss allowances

Loss allowances for loans and advances to banks and for loans and advances to customers also comprise the loss allowances recognized for finance lease receivables.

The following table shows the changes in loss allowances, which are reported on the assets side of the balance sheet, broken down by individual balance sheet item:

€ million	Cash and cash equivalents	Loans and advances to banks			Loans and advances to customers			
	Stage 1	Stage 1	Stage 2	Stage 3	Stage 1	Stage 2	Stage 3	POCI assets
Balance as at Jan. 1, 2018	-	9	-	22	217	185	2,420[1]	11
Additions	-	11	2	4	258	387	1,148	18
Utilizations	-	-	-	-	-	-1	-805[1]	-
Reversals	-	-12	-2	-22	-406	-196	-972	-25
Other changes	-	-	-	-	149	-211	166[1]	-1
Balance as at Dec. 31, 2018	-	8	-	4	218	164	1,957	3
Additions	3	22	-	4	288	457	1,150	12
Utilizations	-	-	-	-	-	-1	-559	-1
Reversals	-2	-23	-	-3	-432	-202	-876	-13
Other changes	-	-	-	-	128	-215	135	-
Balance as at Dec. 31, 2019	**1**	**7**	**-**	**5**	**202**	**203**	**1,807**	**1**

1 Amount restated (see note 2).

€ million	Investments			Other assets	Total
	Stage 1	Stage 2	Stage 3	Stage 1	
Balance as at Jan. 1, 2018	10	36	24	-	2,934
Additions	25	13	-	-	1,866
Utilizations	-	-	-1	-	-807
Reversals	-28	-11	-7	-	-1,681
Other changes	-2	2	1	-	104
Balance as at Dec. 31, 2018	5	40	17	-	2,416
Additions	3	8	1	1	1,949
Utilizations	-	-	-	-	-561
Reversals	-7	-16	-	-	-1,574
Other changes	5	-6	-	-	47
Balance as at Dec. 31, 2019	**6**	**26**	**18**	**1**	**2,277**

>> 62 Changes in non-current assets

The following table shows the changes in investment property included in the investments held by insurance companies, the changes in property, plant and equipment, and investment property, and the changes in intangible assets included in other assets:

€ million	Investments held by insurance companies Investment property
Carrying amounts as at Jan. 1, 2018	2,539
Cost as at Jan. 1, 2018	2,986
Additions	381
Reclassifications	-
Reclassifications to/from non-current assets and disposal groups classified as held for sale	-32
Disposals	-5
Changes attributable to currency translation	-
Changes in scope of consolidation	-
Cost as at Dec. 31, 2018	**3,330**
Reversals of impairment losses as at Jan. 1, 2018	16
Additions	9
Reclassifications to/from non-current assets and disposal groups classified as held for sale	-
Reversals of impairment losses as at Dec. 31, 2018	**25**
Depreciation/amortization and impairment losses as at Jan. 1, 2018	-463
Depreciation/amortization expense for the year	-60
Impairment losses for the year	-2
Reclassifications to/from non-current assets and disposal groups classified as held for sale	11
Disposals	1
Changes attributable to currency translation	-
Changes in scope of consolidation	-
Depreciation/amortization and impairment losses as at Dec. 31, 2018	**-513**
Carrying amounts as at Dec. 31, 2018	2,842
Cost as at Jan. 1, 2019	3,330
Adjustment due to first-time adoption of IFRS 16	19
Adjusted cost as at Jan. 1, 2019	3,349
Additions	671
Additions in respect of borrowing costs eligible for capitalization	1
Reclassifications	-
Reclassifications to/from non-current assets and disposal groups classified as held for sale	9
Disposals	-14
Changes attributable to currency translation	-
Changes in scope of consolidation	108
Cost as at Dec. 31, 2019	**4,124**
Reversals of impairment losses as at Jan. 1, 2019	25
Additions	1
Reclassifications	8
Changes attributable to currency translation	-
Reversals of impairment losses as at Dec. 31, 2019	**34**
Depreciation/amortization and impairment losses as at Jan. 1, 2019	-513
Depreciation/amortization expense for the year	-77
Impairment losses for the year	-
Reclassifications	-8
Reclassifications to/from non-current assets and disposal groups classified as held for sale	-3
Disposals	1
Changes attributable to currency translation	-
Depreciation/amortization and impairment losses as at Dec. 31, 2019	**-600**
Carrying amounts as at Dec. 31, 2019	**3,558**

	Property, plant and equipment, and investment property				Other assets	
	Land and buildings	Office furniture and equipment	Assets subject to operating leases	Investment property	Goodwill	Other intangible assets
	928	178	138	254	169	466
	1,291	537	278	274	272	1,563
	7	61	6	9	-	149
	-	-	-	-	-	1
	-	-4	-	-	-	-10
	-4	-44	-121	-	-	-29
	-	-	10	-	-	-1
	-	-	-4	-	-	-
	1,294	**550**	**169**	**283**	**272**	**1,673**
	13	-	59	5	-	-
	-	-	5	-	-	-
	-	-	-	-	-	5
	13	**-**	**64**	**5**	**-**	**5**
	-376	-359	-199	-25	-103	-1,097
	-24	-52	-16	-5	-	-123
	-	-	-5	-	-128	-45
	-	2	-	-	-	2
	4	41	61	-	-	21
	-	-	-6	-	-	-
	-	-	4	-	-	-
	-396	**-368**	**-161**	**-30**	**-231**	**-1,242**
	911	182	72	258	41	436
	1,294	550	169	283	272	1,673
	-	-	-	-	-	-
	1,294	550	169	283	272	1,673
	12	65	-	2	-	154
	-	-	-	-	-	-
	20	-	-	-19	-	-
	-	-	-	-	-	-
	-	-77	-98	-	-3	-16
	-	1	3	-	-	-
	-	-	-	-	-	-
	1,326	**539**	**74**	**266**	**269**	**1,811**
	13	-	64	5	-	5
	-	-	13	-	-	-
	-	-	-	-	-	-
	-	-	4	-	-	-
	13	**-**	**81**	**5**	**-**	**5**
	-396	-368	-161	-30	-231	-1,242
	-24	-52	-8	-5	-	-122
	-	-	-5	-	-	-1
	-2	-	-	2	-	-
	-	-	-	-	-	-
	-	64	42	-	3	11
	-	-1	-6	-	-	-
	-422	**-357**	**-138**	**-33**	**-228**	**-1,354**
	917	**182**	**17**	**238**	**41**	**462**

In 2019, the useful life of the assets ranged from 2 to 61 years for buildings (2018: 7 to 62 years), from 3 to 25 years for office furniture and equipment (2018: 2.5 to 25 years), and – as in 2018 – from 6 months to 25 years for assets subject to an operating lease; the useful life for investment property was 1 to 67 years (2018: 1 to 68 years). Software included in other intangible assets was amortized over a useful life of 1 to 20 years (2018: 1 to 10 years) while acquired customer relationships were amortized over 10 to 12 years (as in 2018). Depreciation and amortization are recognized on a straight-line basis over the useful life of the asset.

The assets subject to an operating lease comprised office furniture and equipment.

Payments in advance are allocated to the relevant item of property, plant and equipment.

In 2019, borrowing costs relating to investment property held by insurance companies were capitalized in an amount of €1 million (2018: no borrowing costs capitalized). The capitalization rate used for borrowing costs was 1.07 percent for investment property held by insurance companies (2018: 0.0 percent).

Disclosures regarding the changes in goodwill are included in note 91.

Other intangible assets include acquired customer relationships amounting to €4 million (December 31, 2018: €4 million). The associated amortization expense was not material (2018: €17 million).

The changes in right-of-use assets are described in note 92 (Leases).

>> 63 Non-current assets and disposal groups classified as held for sale

The non-current assets and disposal groups classified as held for sale include individual non-current assets together with assets and liabilities from disposal groups not qualifying as discontinued operations, as described below. Gains and losses arising from the classification of assets and disposal groups as held for sale are reported under other net operating income.

At the level of the DVB subgroup, the entire credit portfolio for the land transport finance business, which previously constituted a disposal group not qualifying as a discontinued operation, was sold in 2019, as was the fully consolidated subsidiary LogPay Financial Services GmbH, Eschborn, (LogPay). The net gain on disposal was reported under other net operating income. €12 million was attributable to the sale of the land transport finance business and €28 million to the disposal of LogPay.

Most of the aviation finance business in the DVB subgroup, which was reported with assets of €5,009 million and liabilities of €5 million as at December 31, 2018, was sold in 2019. The disposal gave rise to a net gain of €206 million, which was recognized under other net operating income. The remainder of the aviation finance business continues to be reported as a disposal group not qualifying as a discontinued operation because the subgroup still intends to sell this business. As at December 31, 2019, the assets amounted to €380 million and the liabilities €1 million. The impairment loss requirement of €95 million identified for this disposal group was recognized accordingly and is also included under other net operating income. The sale is expected to be completed by the end of 2020.

In the fourth quarter of 2019, associates and joint ventures in the DVB subgroup with a total value of €94 million were identified as a disposal group not qualifying as a discontinued operation. In connection with this reclassification, the assets were no longer recognized using the equity method but, instead, at fair value less costs of disposal, which gave rise to a net loss of €24 million.

BFL Leasing GmbH, Eschborn, which previously constituted a disposal group not qualifying as a discontinued operation and no longer formed part of the core business of VR Smart Finanz, was sold in the financial year, as was VR-IMMOBILIEN-LEASING GmbH, Eschborn. The net loss on disposal of €1 million was reported under other net operating income.

A fully consolidated subsidiary was also sold. The net gain on disposal of €72 million was reported under other net operating income.

In further transactions, one associate and one long-term equity investment that had been reported as assets held for sale as at December 31, 2018 were sold in the financial year.

Other disposal groups not qualifying as discontinued operations included units in various investment funds. The individual non-current assets classified as held for sale comprise items of property, plant and equipment, and investment property.

>> 64 Deposits from banks

	Repayable on demand		With agreed maturity or notice period		Total	
€ million	Dec. 31, 2019	Dec. 31, 2018	Dec. 31, 2019	Dec. 31, 2018	Dec. 31, 2019	Dec. 31, 2018
Domestic banks	**43,890**	**44,142**	**84,059**	**84,606**	**127,949**	**128,748**
Affiliated banks	38,831	38,365	20,237	22,193	59,068	60,558
Other banks	5,059	5,777	63,822	62,413	68,881	68,190
Foreign banks	**3,566**	**3,968**	**9,606**	**9,770**	**13,172**	**13,738**
Total	**47,456**	**48,110**	**93,665**	**94,376**	**141,121**	**142,486**

The following table shows the breakdown of deposits from banks by type of business:

€ million	Dec. 31, 2019	Dec. 31, 2018
Home savings deposits	1,653	1,652
Money market deposits	24,576	24,991
Other deposits	114,892	115,843
Total	**141,121**	**142,486**

>> 65 Deposits from customers

€ million	Repayable on demand Dec. 31, 2019	Repayable on demand Dec. 31, 2018	With agreed maturity or notice period Dec. 31, 2019	With agreed maturity or notice period Dec. 31, 2018	Total Dec. 31, 2019	Total Dec. 31, 2018
Domestic customers	17,158	19,907	95,887	97,084	113,045	116,991
Foreign customers	12,144	10,555	6,327	5,002	18,471	15,557
Total	**29,302**	**30,462**	**102,214**	**102,086**	**131,516**	**132,548**

The following table shows the breakdown of deposits from customers by type of business:

€ million	Dec. 31, 2019	Dec. 31, 2018
Home savings deposits	63,226	59,996
Money market deposits	21,880	20,694
Other deposits	46,410	51,858
Total	**131,516**	**132,548**

>> 66 Debt certificates issued including bonds

€ million	Dec. 31, 2019	Dec. 31, 2018
Bonds issued	**51,536**	**50,958**
Mortgage Pfandbriefe	22,445	19,318
Public-sector Pfandbriefe	2,180	2,452
Other bonds	26,911	29,188
Other debt certificates issued	**33,587**	**12,951**
Total	**85,123**	**63,909**

All other debt certificates issued are commercial paper.

>> 67 Hedging instruments (negative fair values)

Hedging instruments (negative fair values) amounted to €1,306 million (December 31, 2018: €2,516 million) and resulted solely from derivatives used as fair value hedges.

>> 68 Financial liabilities held for trading

€ million	Dec. 31, 2019	Dec. 31, 2018
DERIVATIVES (NEGATIVE FAIR VALUES)	**18,901**	**16,079**
Interest-linked contracts	15,768	12,099
Currency-linked contracts	1,772	1,975
Share-/index-linked contracts	1,181	1,853
Other contracts	105	78
Credit derivatives	75	74
SHORT POSITIONS	**1,128**	**1,102**
BONDS ISSUED	**22,261**	**20,250**
DEPOSITS	**9,472**	**7,548**
of which: from affiliated banks	2,616	2,582
from other banks	6,659	4,346
Money market deposits	**9,306**	**7,292**
from banks	9,167	6,816
from customers	139	476
Promissory notes and registered bonds issued	**166**	**256**
to banks	108	112
to customers	58	144
Total	**51,762**	**44,979**

Bonds issued mainly comprise share certificates and index-linked certificates.

>> 69 Provisions

€ million	Dec. 31, 2019	Dec. 31, 2018
Provisions for employee benefits	**1,706**	**1,635**
Provisions for defined benefit plans	1,198	1,161
Provisions for other long-term employee benefits	165	155
of which: for semi-retirement schemes	27	26
Provisions for termination benefits	305	282
of which: for early retirement schemes	15	11
for restructuring	263	242
Provisions for short-term employee benefits	38	37
Provisions for share-based payment transactions	**39**	**42**
Other provisions	**2,090**	**1,703**
Provisions for onerous contracts	15	13
Provisions for restructuring	24	25
Provisions for loan commitments	71	49
Provisions for financial guarantee contracts	124	113
Other provisions for loans and advances	33	39
Provisions relating to building society operations	1,406	1,072
Residual provisions	417	392
Total	**3,835**	**3,380**

Provisions for defined benefit plans

The provisions for defined benefit plans predominantly result from pension plans that employees can no longer join (closed plans). There are also defined benefit pension plans for members of boards of managing directors. New employees in Germany are almost always only offered defined contribution pension plans, for which it is not generally necessary to recognize a provision. The picture outside Germany is more varied because there are both defined contribution and defined benefit plans that are open to new employees. However, the proportion of the group's total obligations accounted for by obligations outside Germany is not material. The expense for defined contribution pension plans came to €21 million in 2019 (2018: €22 million).

The present value of the defined benefit obligations is broken down by risk category as follows:

	Germany		Other countries		Total	
€ million	Dec. 31, 2019	Dec. 31, 2018	Dec. 31, 2019	Dec. 31, 2018	Dec. 31, 2019	Dec. 31, 2018
Final-salary-dependent plans	2,703	2,459	124	102	2,827	2,561
Defined benefit contributory plans	519	471	243	219	762	690
Accessorial plans	70	64	4	2	74	66
Total	**3,292**	**2,994**	**371**	**323**	**3,663**	**3,317**

A significant risk factor for all plans is the level of market interest rates for investment-grade fixed-income corporate bonds because the discount rate determined from this data affects both the amount of the obligations and the measurement of the plan assets.

Final-salary-dependent plans are pension obligations to employees, the amount of which depends on the employee's final salary before the pension trigger event occurs and that, for the most part, can be assumed to constitute a life-long payment obligation. In Germany, section 16 (1) of the Occupational Pensions Act (BetrAVG) requires the amount of the pension to be adjusted every 3 years to reflect the change in consumer prices or net wages. The main risk factors for final-salary-dependent pension plans are longevity, changes in salary, inflation risk, and the discount rate.

The majority of defined benefit contributory plans comprise obligations to pay fixed capital amounts or amounts at fixed interest rates. An annuitization option exists for around half of the obligations. As a result, there may be lifelong payment obligations as well as lump-sum payments and installments. For most obligations, the contributions are linked to remuneration. Most of these plans are closed.

Accessorial plans are when the employer commits to a benefit that essentially corresponds to the benefit that is provided when an insured event occurs if the contributions are invested in a financial product of a third-party pension provider or insurer. The amount of the pension benefits therefore depends on the pension plan of the third-party pension provider, which is directly exposed to the risk factors longevity, changes in salary, and market interest rate risk. Accessorial plans are almost risk free for the employer.

The pension plans agreed in Germany are not subject to minimum funding requirements. Minimum funding is required for some pension plans outside Germany owing to local regulations.

The changes in the present value of the defined benefit obligations were as follows:

€ million	2019	2018
Present value of defined benefit obligations as at Jan. 1	3,317	3,282
Current service cost	57	59
Interest expense	58	57
Employee contributions	6	7
Pension benefits paid including plan settlements	-118	-116
of which: relating to plan settlements	-5	-1
Actuarial gains (-)/losses (+)	340	8
of which: due to changes in demographic assumptions	-1	23
due to changes in financial assumptions	334	-
experience-based	7	-15
Changes attributable to currency translation	5	1
Changes in scope of consolidation	-	19
Reclassifications	-2	-
Present value of defined benefit obligations as at Dec. 31	**3,663**	**3,317**

The actuarial losses from the change in financial assumptions mainly resulted from the decrease in the underlying discount rate to 1.0 percent (2018: 1.75 percent).

The following actuarial assumptions were used in the measurement of the defined benefit obligations:

%	Dec. 31, 2019	Dec. 31, 2018
Discount rate	1.00	1.75
Weighted salary increases	1.97	1.95
Weighted pension increases	1.67	1.78

Sensitivity analysis

The following table shows the sensitivity of the present value of the defined benefit obligations to changes in the actuarial parameters. The effects shown are based on an isolated change to one parameter, with the other parameters remaining constant. Correlation effects between individual parameters are not considered.

	Dec. 31, 2019		Dec. 31, 2018	
	€ million	%	€ million	%
Change in the present value of defined benefit obligations as at balance sheet date if				
the discount rate were 100 basis points higher	-479	-13.08	-421	-12.69
the discount rate were 100 basis points lower	604	16.49	529	15.95
the future salary increase were 50 basis points higher	38	1.04	36	1.09
the future salary increase were 50 basis points lower	-38	-1.04	-35	-1.06
the future pension increase were 25 basis points higher	87	2.38	75	2.26
the future pension increase were 25 basis points lower	-84	-2.29	-72	-2.17

The duration of the defined benefit obligations as at December 31, 2019 was 15.22 years (December 31, 2018: 14.78 years).

Plan assets

Defined benefit obligations are offset by plan assets. €1,904 million of the plan assets (December 31, 2018: €1,677 million) are attributable to contractual trust arrangements (CTAs) at DZ BANK and BSH, and are managed as trust assets by DZ BANK Pension Trust e.V., Frankfurt am Main. The relevant CTA investment committee defines the investment policy and strategy for the asset management company. Plan assets relating to obligations in the United States and United Kingdom are also managed by independent trusts. In Luxembourg, the assets were transferred to a pension fund and, in Switzerland, to a foundation. Trustees/administrators are responsible for the administration and management of the pension plans and for compliance with regulatory requirements.

The changes in the funding status of the defined benefit obligations were as follows:

€ million	Dec. 31, 2019	Dec. 31, 2018
Present value of defined benefit obligations funded by plan assets	3,025	2,732
Present value of defined benefit obligations not funded by plan assets	638	585
Present value of defined benefit obligations	**3,663**	**3,317**
less fair value of plan assets	-2,466	-2,158
Recognized surplus	1	2
Provisions for defined benefit plans	**1,198**	**1,161**
Reimbursement rights recognized as assets	3	3

The following table shows the changes in plan assets:

€ million	2019	2018
Fair value of plan assets as at Jan. 1	2,158	2,016
Interest income	38	37
Return on/expenses from plan assets (excluding interest income)	196	-65
Contributions to plan assets	139	231
of which: contributions by employer	133	225
employee contributions	6	6
Pension benefits paid	-70	-69
Changes attributable to currency translation	5	5
Changes in scope of consolidation	-	3
Fair value of plan assets as at Dec. 31	**2,466**	**2,158**

Contributions to plan assets of €18 million are expected for 2020 (2019: €19 million).

As at of December 31, 2019, 62 percent of the plan assets (December 31, 2018: 67 percent) were invested in fixed-income assets, thereby allowing for the defined benefit obligations' sensitivity to interest rates. The defined benefit obligations and the plan assets are largely in the euro, US dollar, and pound sterling currency areas. If the defined benefit obligations and the plan assets are in different currencies, derivative hedges are entered into in order to hedge the currency risk. The fixed-income investments in the form of Pfandbriefe, government bonds, and corporate bonds are generally of high quality. The bulk of the investments (particularly Pfandbriefe and government bonds) are of prime quality (AAA to AA). Most of the corporate bonds have ratings of AAA to BBB, although there is some diversification involving investments with ratings of BB and B.

The other investments are predominantly floating-rate securities (equities and investment fund units) from around the world, plus entitlements arising from insurance policies, short-term investments, and real estate assets.

The fair value of the plan assets is broken down by asset class as follows:

	Dec. 31, 2019			Dec. 31, 2018		
€ million	With quoted market price in an active market	Without quoted market price in an active market	Total	With quoted market price in an active market	Without quoted market price in an active market	Total
Cash and money market investments	-	50	50	-	43	43
Bonds and other fixed-income securities	1,531	-	1,531	1,440	-	1,440
Shares	130	-	130	99	-	99
Investment fund units	297	134	431	177	105	282
Other variable-yield securities	-	-	-	3	-	3
Other shareholdings	-	35	35	-	34	34
Derivatives	1	1	2	1	-	1
Land and buildings	-	5	5	-	5	5
Entitlements arising from insurance policies	-	158	158	-	134	134
Other assets	-	124	124	-	117	117
Total	**1,959**	**507**	**2,466**	**1,720**	**438**	**2,158**

As at December 31, 2019, the plan assets included €244 million of the group’s own financial instruments (December 31, 2018: €158 million). The real estate and other assets contained in the plan assets are not used by the companies themselves.

In Luxembourg, there is a joint plan with other employers. Provisions and contributions are allocated to the contributors as stipulated in the regulations. The gains or losses on investments are distributed to the contributors on the basis of the proportion of the net assets attributable to them at the start of the year.

Other provisions

The following table shows the changes in other provisions in 2019:

€ million	Provisions for onerous contracts	Provisions for restructuring	Provisions for loan commitments	Provisions for financial guarantee contracts	Other provisions for loans and advances	Provisions relating to building society operations	Residual provisions	**Total**
Balance as at Jan. 1, 2019	13	25	49	113	39	1,072	392	1,703
Additions	4	17	191	89	12	480	243	1,036
Utilizations	-	-5	-	-	-1	-146	-176	-328
Reversals	-3	-13	-169	-76	-18	-	-46	-325
Interest expense/changes in discount rate	1	-	-	-	1	-	1	3
Other changes	-	-	-	-2	-	-	3	1
Balance as at Dec. 31, 2019	**15**	**24**	**71**	**124**	**33**	**1,406**	**417**	**2,090**

The residual provisions include provisions totaling €36 million for litigation risk (December 31, 2018: €42 million). In particular, provisions have been recognized in connection with capital market and lending products. No information pursuant to IAS 37.84 and IAS 37.85 is disclosed for these provisions because it is believed that disclosure of this information would seriously harm the outcome of the proceedings.

The expected maturities of other provisions are shown in the tables below.

AS AT DECEMBER 31, 2019

€ million	≤ 3 months	> 3 months – 1 year	> 1 year – 5 years	> 5 years	Indefinite
Provisions for onerous contracts	-	-	-	15	-
Provisions for restructuring	1	2	21	-	-
Provisions for loan commitments	7	6	38	16	4
Provisions for financial guarantee contracts	21	22	65	16	-
Other provisions for loans and advances	-	30	1	2	-
Provisions relating to building society operations	6	883	454	63	-
Residual provisions	63	153	64	109	28
Total	**98**	**1,096**	**643**	**221**	**32**

AS AT DECEMBER 31, 2018

€ million	≤ 3 months	> 3 months – 1 year	> 1 year – 5 years	> 5 years	Indefinite
Provisions for onerous contracts[1]	-	-	-	13	-
Provisions for restructuring	3	3	19	-	-
Provisions for loan commitments	2	8	22	15	2
Provisions for financial guarantee contracts	19	29	49	16	-
Other provisions for loans and advances	2	32	2	2	1
Provisions relating to building society operations	5	495	450	122	-
Residual provisions	26	128	48	13	177
Total	**57**	**695**	**590**	**181**	**180**

1 Amount restated for the maturity bands '≤ 3 months' and '> 5 years' (see note 2)

The changes in loss allowances recognized under provisions for loan commitments and provisions for financial guarantee contracts were as follows:

	Loss allowances for loan commitments			Loss allowances for financial guarantee contracts			Total
€ million	Stage 1	Stage 2	Stage 3	Stage 1	Stage 2	Stage 3	
Balance as at Jan. 1, 2018	27	5	44	12	4	103	195
Additions	80	37	38	15	13	53	236
Reversals	-83	-47	-52	-19	-19	-50	-270
Other changes	3	11	-14	-	5	-4	1
Balance as at Dec. 31, 2018	27	6	16	8	3	102	162
Additions	123	21	47	11	7	71	280
Reversals	-111	-15	-43	-16	-4	-56	-245
Other changes	1	-4	3	2	-4	-	-2
Balance as at Dec. 31, 2019	**40**	**8**	**23**	**5**	**2**	**117**	**195**

>> 70 Insurance liabilities

€ million	Dec. 31, 2019	Dec. 31, 2018
Provision for unearned premiums	1,188	1,171
Benefit reserve	65,502	61,709
Provision for claims outstanding	13,415	12,079
Provision for premium refunds	12,149	8,283
Other insurance liabilities	59	64
Reserve for unit-linked insurance contracts	12,033	9,946
Total	**104,346**	**93,252**

CHANGES IN THE PROVISION FOR UNEARNED PREMIUMS

€ million	2019	2018
Balance as at Jan. 1	1,171	1,169
Additions	1,252	1,235
Utilizations/reversals	-1,241	-1,228
Changes attributable to currency translation	6	-5
Balance as at Dec. 31	**1,188**	**1,171**

CHANGES IN THE BENEFIT RESERVE

€ million	2019	2018
Balance as at Jan. 1	61,709	58,670
Additions	7,095	5,876
Interest component	1,015	1,045
Utilizations/reversals	-4,318	-3,882
Changes attributable to currency translation	1	-
Balance as at Dec. 31	**65,502**	**61,709**

Supplementary change-in-discount-rate reserves totaling €3,957 million have been recognized for policies with a discount rate in excess of the reference rate specified in the DeckRV (December 31, 2018: €3,306 million).

CHANGES IN THE PROVISION FOR CLAIMS OUTSTANDING

€ million	2019	2018
Balance as at Jan. 1	12,079	11,064
Claims expenses	7,504	6,650
less payments	-6,276	-5,630
Changes attributable to currency translation	108	-5
Balance as at Dec. 31	**13,415**	**12,079**

CHANGES IN THE PROVISION FOR PREMIUM REFUNDS

€ million	2019	2018
Balance as at Jan. 1	8,283	10,140
Additions	689	878
Utilizations/reversals	-794	-705
Changes resulting from unrealized gains and losses on investments (through other comprehensive income)	2,850	-1,488
Changes resulting from other remeasurements (through profit or loss)	1,116	-542
Changes attributable to currency translation	5	-
Balance as at Dec. 31	**12,149**	**8,283**

The breakdown of maturities for insurance liabilities is shown in the following tables:

AS AT DECEMBER 31, 2019

€ million	≤ 1 year	> 1 year – 5 years	> 5 years	Indefinite
Provision for unearned premiums	983	168	37	-
Benefit reserve	1,749	5,998	13,181	44,574
Provision for claims outstanding	4,868	4,918	3,629	-
Provision for premium refunds	843	685	734	9,887
Other insurance liabilities	37	10	8	4
Total	**8,480**	**11,779**	**17,589**	**54,465**

AS AT DECEMBER 31, 2018

€ million	≤ 1 year	> 1 year – 5 years	> 5 years	Indefinite
Provision for unearned premiums	950	166	55	-
Benefit reserve	1,810	6,178	13,050	40,671
Provision for claims outstanding	4,388	4,301	3,390	-
Provision for premium refunds	833	644	713	6,093
Other insurance liabilities	41	13	7	3
Total	**8,022**	**11,302**	**17,215**	**46,767**

>> 71 Other liabilities

€ million	Dec. 31, 2019	Dec. 31, 2018
Other liabilities of insurance companies	6,780	5,806
Accruals	1,256	1,155
Financial liabilities from contingent considerations in a business combination	5	5
Other payables	189	399
Lease liabilities	279	
Residual other liabilities	664	554
Total	**9,173**	**7,919**

The table below gives a breakdown of insurance companies' other liabilities.

€ million	Dec. 31, 2019	Dec. 31, 2018
Other provisions	**428**	**373**
Provisions for employee benefits	389	336
Provisions for share-based payment transactions	3	2
Other provisions	36	35
Payables and residual other liabilities	**6,352**	**5,433**
Subordinated capital	89	87
Deposits received from reinsurers	41	43
Payables arising out of direct insurance operations	1,464	1,500
Payables arising out of reinsurance operations	442	342
Debt certificates issued including bonds	31	30
Deposits from banks	581	580
Derivatives (negative fair values)	20	11
Liabilities from capitalization transactions	2,751	2,086
Insurance lease liabilities	63	
Other payables	284	120
Residual other liabilities	586	634
Total	**6,780**	**5,806**

>> 72 Subordinated capital

€ million	Dec. 31, 2019	Dec. 31, 2018
Subordinated liabilities	2,106	2,810
Profit-sharing rights	68	68
Other hybrid capital	-	6
Share capital repayable on demand	13	13
Total	**2,187**	**2,897**

>> 73 Equity

Subscribed capital

The subscribed capital of DZ BANK consists of 1,791,344,757 registered non-par-value shares each with an imputed value of €2.75. All shares in issue are fully paid-up.

For the 2018 financial year, DZ BANK paid a dividend of €0.18 per share in 2019 (paid in 2018: €0.18 per share). A dividend of €0.18 per share for 2019 will be proposed to the Annual General Meeting.

Authorized capital

The Board of Managing Directors is authorized, subject to the approval of the Supervisory Board, to increase the share capital by May 31, 2021 on one or more occasions by up to a total of €100 million by way of issuing new registered non-par-value shares in return for cash or non-cash contributions. The Board of Managing Directors is authorized, subject to the approval of the Supervisory Board, to exclude the subscription right of shareholders both in the case of capital increases in return for non-cash contributions and in the case of capital increases in return for cash contributions if the capital is increased for the purpose of

- issuing new shares to employees of the corporation (employee shares),
- issuing new shares to one or more cooperative banks which, measured in terms of their total assets, directly and indirectly have a below-average stake in the corporation's share capital, i.e. less than 0.5 percent of their total assets (based on the nominal value of €2.75 per DZ BANK share),
- acquiring companies, equity investments in companies or for granting equity investments in the corporation in order to back strategic partnerships.

The Board of Managing Directors is also authorized, subject to the approval of the Supervisory Board, to exclude fractions from the subscription right of shareholders ('Authorized Capital I').

The Board of Managing Directors is authorized, subject to the approval of the Supervisory Board, to increase the share capital by May 31, 2021 on one or more occasions by up to a total of €300 million by issuing new registered non-par-value shares in return for cash contributions. The Board of Managing Directors is authorized, subject to the approval of the Supervisory Board, to exclude fractions from the subscription right of shareholders ('Authorized Capital II').

The new shares issued on the basis of utilizing Authorized Capital I or Authorized Capital II can also be acquired by credit institutions determined by the Board of Managing Directors if aforesaid credit institutions agree to offer said shares to the shareholders (indirect subscription right).

The Board of Managing Directors did not make use of any of this authorized action in 2019.

Contingent capital

The share capital is to be contingently raised by up to €52,859,413.75 by issuing up to 19,221,605 new, registered non-par-value shares (Contingent Capital). The increase in the Contingent Capital shall serve to grant registered non-par value shares (subscription shares) for the fulfillment of corresponding conversion rights and/or conversion obligations of creditors of convertible bonds or registered bonds, as the case may be, that were issued until June 24, 2015 in return for a cash contribution on the basis of the authorization resolution of the

Annual General Meeting of WGZ BANK AG Westdeutsche Genossenschafts-Zentralbank of June 24, 2014. The increase in the Contingent Capital must only be carried out to the extent that the creditors of aforesaid convertible bonds or registered bonds, as the case may be, entitled or obliged to convert make use of their conversion right or fulfill their conversion obligation and that no own shares are used for aforesaid fulfillment. The subscription shares shall at all times be issued at a ratio of one registered bond to 7,435.824 subscription shares.

The subscription shares participate from the beginning of the financial year in which they come into existence in the profits of the current financial year as well as in the profits of previous years if a resolution of the appropriation of said profits has yet to be passed.

The Board of Managing Directors is authorized, subject to the approval of the Supervisory Board, to determine the further details pertaining to the execution of the increase in the Contingent Capital.

Disclosures on shareholders

At the end of 2019, 99.5 percent of shares were held by cooperative enterprises (December 31, 2018: 99.4 percent). These cooperative enterprises include the cooperative banks and other legal entities and trading companies economically associated with the cooperative movement or cooperative housing sector.

Capital reserve

The capital reserve comprises the amounts from the issue of DZ BANK shares in excess of the imputed par value of the shares.

Retained earnings

Retained earnings comprise earned, undistributed consolidated profit together with gains and losses arising from remeasurement of defined benefit plans after taking into account deferred taxes. Cumulative gains and losses arising from remeasurement of defined benefit plans amounted to a loss of €682 million (December 31, 2018: loss of €568 million).

Reserve from other comprehensive income

Reserve from equity instruments for which the fair value OCI option has been exercised

The reserve from equity instruments for which the fair value OCI option has been applied is used to report the changes in the fair value of equity instruments measured at fair value through other comprehensive income after taking into account deferred taxes. If the equity instruments are sold, the related reserve is reclassified to retained earnings.

Reserve from gains and losses on financial liabilities for which the fair value option has been exercised, attributable to changes in own credit risk

The portion of the changes in fair value of financial liabilities designated as at fair value through profit or loss attributable to changes in the DZ BANK Group's own credit risk is also recognized in the reserve from other comprehensive income. If the liabilities are derecognized, the cumulative gains and losses recognized through other comprehensive income are reclassified to retained earnings.

Reserve from debt instruments measured at fair value through other comprehensive income

The reserve from debt instruments measured at fair value through other comprehensive income is used to report the changes in fair value after taking into account deferred taxes. In the case of debt instruments, gains and losses are only recognized in profit or loss when the relevant asset is sold. Loss allowances are recognized for these assets in accordance with IFRS 9.

Cash flow hedge reserve

The cash flow hedge reserve comprises the gains and losses on the measurement of hedging instruments attributable to the effective portion of the hedge after taking into account deferred taxes.

Currency translation reserve

The currency translation reserve is the result of the translation of financial statements of subsidiaries denominated in foreign currency into euros (the group reporting currency). It also includes the gains and losses on hedges of net investments in foreign operations and the change in the currency translation reserve for entities accounted for using the equity method.

Additional equity components

Additional Tier 1 notes

In 2019, DZ BANK issued a tranche of additional Tier 1 notes ('AT1 bonds') with a total volume of €1,400 million.

The AT1 bonds are split into 4 types depending on their interest-rate arrangements (types A to D). Type A has a variable interest rate, whereas types B to D have fixed interest rates. At the end of the fixed-interest period, types B and C are aligned with the variable interest rate attaching to type A. In the case of type D, a new interest rate is fixed for a further period of 5 years. Interest is payable annually. The date for the payment of interest has been specified as August 1 each year.

Under the terms and conditions of the bond, interest payments are at the discretion of the issuer. They may be canceled, either wholly or in part, depending on the items eligible for distribution or by order of the competent supervisory authority. Interest payments are not cumulative; canceled or reduced payments will not be made up in subsequent periods.

The bonds do not have any maturity date and are subject to the terms and conditions set out in the relevant prospectus. Among other things, the terms and conditions specify that DZ BANK may only call the bonds in their entirety, and not in part, provided that there are certain regulatory or tax reasons for doing so. In all instances, DZ BANK must obtain the consent of the competent supervisory authority in order to call the bonds.

In previous years, DZ BANK had issued a tranche of additional Tier 1 notes (AT1 bonds) with a total volume of €750 million.

The tranches of AT1 bonds issued are shown in the 'Additional equity components' sub-item. According to the provisions of IAS 32, the AT1 bonds have characteristics of equity. The AT1 bonds are unsecured, subordinated bearer bonds of DZ BANK.

Other hybrid capital

As a result of the merger of DZ BANK with WGZ BANK, the convertible bond issued by WGZ BANK was taken over by DZ BANK as the legal successor. Upon initial recognition when the convertible bond was taken over, the components had to be defined as a financial liability or an equity instrument. The portion of the convertible bond that was not classified as a component of equity was recognized under subordinated capital. As was the case in the previous year, the equity component of €95 million is included as an additional equity component within the equity of the DZ BANK Group until such time as it is potentially converted into non-par-value shares of DZ BANK. Further disclosures on conversion into non-par-value shares of DZ BANK can be found in the section on contingent capital.

Non-controlling interests

Non-controlling interests comprise the equity of subsidiaries not attributable to DZ BANK.

Breakdown of changes in equity by component of other comprehensive income

2019

€ million	Equity earned by the group	Reserve from other comprehen-sive income	Non-controlling interests
Gains and losses on debt instruments measured at fair value through other comprehensive income	-	1,055	113
Exchange differences on currency translation of foreign operations	-	-	-1
Gains and losses on hedges of net investments in foreign operations	-	6	-
Gains and losses on equity instruments for which the fair value OCI option has been exercised	-	401	39
Gains and losses in relation to financial liabilities for which the fair value option has been exercised, attributable to changes in own credit risk	-	-64	-2
Gains and losses arising from remeasurement of defined benefit plans	-114	-	-5
Share of other comprehensive income/loss of joint ventures and associates accounted for using the equity method	-	1	-
Other comprehensive income/loss	**-114**	**1,399**	**144**

2018

€ million	Equity earned by the group	Reserve from other comprehen-sive income	Non-controlling interests
Gains and losses on debt instruments measured at fair value through other comprehensive income	-	-407	-57
Gains and losses on cash flow hedges	-	-6	-
Exchange differences on currency translation of foreign operations	-	25	-2
Gains and losses on hedges of net investments in foreign operations	-	2	-
Gains and losses on equity instruments for which the fair value OCI option has been exercised	-	9	-16
Gains and losses in relation to financial liabilities for which the fair value option has been exercised, attributable to changes in own credit risk	-	23	1
Gains and losses arising from remeasurement of defined benefit plans	-53	-	-2
Other comprehensive income/loss	**-53**	**-354**	**-76**

The table below shows a breakdown of the reserve from other comprehensive income:

€ million	Items not reclassified to the income statement: Reserve from equity instruments for which the fair value OCI option has been exercised	Items not reclassified to the income statement: Reserve from gains and losses on financial liabilities for which the fair value option has been exercised, attributable to changes in own credit risk	Items reclassified to the income statement: Reserve from debt instruments measured at fair value through other comprehensive income	Items reclassified to the income statement: Cash flow hedge reserve	Items reclassified to the income statement: Currency translation reserve
Equity as at Jan. 1, 2018	380	-	537	5	43
Other comprehensive income/loss	9	23	-409	-6	29
Total comprehensive income/loss	**9**	**23**	**-409**	**-6**	**29**
Changes in scope of consolidation	-	-	-	1	12
Acquisition/disposal of non-controlling interests	4	-	3	-	-
Reclassifications within equity	-32	-	-	-	-
Equity as at Dec. 31, 2018	361	23	131	-	84
Other comprehensive income/loss	401	-65	1,055	-	8
Total comprehensive income/loss	**401**	**-65**	**1,055**	**-**	**8**
Changes in scope of consolidation	-	-	-	-	-7
Acquisition/disposal of non-controlling interests	1	-	-	-	-
Reclassifications within equity	-298	-	-	-	-
Equity as at Dec. 31, 2019	**465**	**-42**	**1,186**	**-**	**85**

The changes in loss allowances included in the reserve from other comprehensive income, broken down by individual balance sheet item, were as follows:

	Loans and advances to customers			Investments		
€ million	Stage 1	Stage 2	Stage 3	Stage 1	Stage 2	Stage 3
Balance as at Jan. 1, 2018	1	3	-	4	7	33
Additions	-	-	-	4	1	-
Utilizations	-	-	-	-1	-	-5
Reversals	-	-2	-	-9	-5	-
Other changes	-	1	-	5	-2	1
Balance as at Dec. 31, 2018	1	2	-	3	1	29
Additions	-	-	-	5	-	4
Reversals	-1	-1	-	-4	-	-1
Other changes	1	-1	-	-	-	-2
Balance as at Dec. 31, 2019	**1**	**-**	**-**	**4**	**1**	**30**

€ million	Investments held by insurance companies			Total
	Stage 1	Stage 2	Stage 3	
Balance as at Jan. 1, 2018	4	-	-	52
Additions	7	-	-	12
Utilizations	-	-	-	-6
Reversals	-7	-	-	-23
Other changes	-	-	-	5
Balance as at Dec. 31, 2018	4	-	-	40
Additions	5	-	-	14
Reversals	-5	-	-	-12
Other changes	-	-	-	-2
Balance as at Dec. 31, 2019	**4**	**-**	**-**	**40**

E Financial instruments and fair value disclosures

>> 74 Classes, categories, and fair values of financial instruments

The following tables show the breakdown of net carrying amounts and fair values of financial assets and financial liabilities by class (in accordance with IFRS 7) and by category of financial instruments (in accordance with IFRS 9):

€ million	Dec. 31, 2019 Carrying amount	Dec. 31, 2019 Fair value	Dec. 31, 2018 Carrying amount	Dec. 31, 2018 Fair value
FINANCIAL ASSETS MEASURED AT FAIR VALUE	**187,377**	**187,377**	**159,271**	**159,271**
Financial assets measured at fair value through profit or loss	**84,894**	**84,894**	**73,091**	**73,091**
Financial assets mandatorily measured at fair value through profit or loss	***74,563***	***74,563***	***63,324***	***63,324***
Loans and advances to banks	-	-	1	1
Loans and advances to customers	258	258	234	234
Hedging instruments (positive fair values)	201	201	883	883
Financial assets held for trading	44,781	44,781	37,942	37,942
Investments	2,591	2,591	2,219	2,219
Investments held by insurance companies	26,732	26,732	22,045[1]	22,045[1]
Financial assets designated as at fair value through profit or loss	***10,331***	***10,331***	***9,767***	***9,767***
Loans and advances to banks	2,427	2,427	1,874	1,874
Loans and advances to customers	1,488	1,488	1,629	1,629
Investments	6,416	6,416	6,264	6,264
Financial assets measured at fair value through other comprehensive income	**102,169**	**102,169**	**85,764**	**85,764**
Financial assets mandatorily measured at fair value through other comprehensive income	***95,857***	***95,857***	***80,275***	***80,275***
Loans and advances to banks	152	152	230	230
Loans and advances to customers	3,569	3,569	3,716	3,716
Investments	29,731	29,731	19,774	19,774
Investments held by insurance companies	62,405	62,405	56,555	56,555
Financial assets designated as at fair value through other comprehensive income	***6,312***	***6,312***	***5,489***	***5,489***
Investments	379	379	603	603
Investments held by insurance companies	5,933	5,933	4,886	4,886
Non-current assets and disposal groups classified as held for sale	**314**	**314**	**416**	**416**
FINANCIAL ASSETS MEASURED AT AMORTIZED COST	**359,569**	**366,937**	**346,553**	**352,762**
Cash and cash equivalents	52,166	52,167	51,459	51,459
Loans and advances to banks	94,953	97,570	89,510	91,398
Loans and advances to customers	177,165	180,501	164,628	167,011
Investments	17,246	18,148	18,570	19,382
Investments held by insurance companies	14,472	16,259	14,218	15,744
Other assets	2,094	2,094	1,674	1,676
Fair value changes of the hedged items in portfolio hedges of interest-rate risk	1,275		533	
Non-current assets and disposal groups classified as held for sale	**198**	**198**	**5,961**	**6,092**
FINANCE LEASES	**1,531**	**1,534**	**2,000**	**2,005**
Loans and advances to customers	1,531	1,534	2,000	2,005

1 Amount restated (see note 2).

€ million	Dec. 31, 2019 Carrying amount	Dec. 31, 2019 Fair value	Dec. 31, 2018 Carrying amount	Dec. 31, 2018 Fair value
FINANCIAL LIABILITIES MEASURED AT FAIR VALUE	**84,261**	**84,261**	**81,126**	**81,126**
Financial liabilities mandatorily measured at fair value through profit or loss	**53,093**	**53,093**	**47,511**	**47,511**
Hedging instruments (negative fair values)	1,306	1,306	2,516	2,516
Financial liabilities held for trading	51,762	51,762	44,979	44,979
Other liabilities	25	25	16	16
Financial liabilities designated as at fair value through profit or loss	**31,168**	**31,168**	**33,607**	**33,607**
Deposits from banks	5,060	5,060	5,767	5,767
Deposits from customers	10,114	10,114	10,697	10,697
Debt certificates issued including bonds	15,647	15,647	16,763	16,763
Subordinated capital	347	347	380	380
Liabilities included in disposal groups classified as held for sale	**-**	**-**	**8**	**8**
FINANCIAL LIABILITIES MEASURED AT AMORTIZED COST	**330,611**	**336,160**	**310,201**	**313,569**
Deposits from banks	136,061	139,028	136,719	138,765
Deposits from customers	121,402	123,345	121,851	123,031
Debt certificates issued including bonds	69,476	70,137	47,146	47,299
Other liabilities	1,688	1,689	1,629	1,630
Subordinated capital	1,840	1,961	2,517	2,616
Fair value changes of the hedged items in portfolio hedges of interest-rate risk	144		134	
Liabilities included in disposal groups classified as held for sale	**-**	**-**	**205**	**228**
LEASES	**342**	**342**		
Other liabilities	342	342		
FINANCIAL GUARANTEE CONTRACTS AND LOAN COMMITMENTS	**195**	**195**	**162**	**162**
Financial guarantee contracts	**124**	**124**	**113**	**113**
Provisions	124	124	113	113
Loan commitments	**71**	**71**	**49**	**49**
Provisions	71	71	49	49

Given the complex structure of home savings contracts and the multitude of scales of rates and charges, there is currently no suitable method for calculating the fair value of an individual contract as at the balance sheet date. Consequently, the fair value cannot be determined using either comparable market prices or suitable option pricing models. The fair values of financial assets and financial liabilities resulting from building society operations are therefore shown in simplified form at their carrying amounts. On the basis of the models used for building society management, which comprise both collective and non-collective business including deposits, the overall amount for building society operations during the reporting period was positive.

The carrying amounts and fair values reported under investments held by insurance companies relate to receivables and fixed-income securities matched as cover for long-term insurance contract obligations as part of insurance operations. Because these instruments are normally held over their entire maturity, interest-rate-related changes in fair value during the maturity of the financial assets balance each other out in full. The fair values of the investments held by insurance companies comprise both the proportion of the fair values that is attributable to the policyholders and the proportion attributable to the shareholders of the DZ BANK Group. The fair value attributable to the shareholders of the DZ BANK Group of investments held by insurance companies measured at amortized cost was €15,050 million (December 31, 2018: €14,771 million).

>> 75 Equity instruments designated as at fair value through other comprehensive income

Investments and investments held by insurance companies include shares and other variable-yield securities and investments in subsidiaries, joint ventures, and associates that the DZ BANK Group has elected to measure at fair value through other comprehensive income. These investments and investments held by insurance companies are not held for trading or to generate returns. The DZ BANK Group believes that it would be inappropriate to report gains and losses in profit or loss in this case.

€ million	Dec. 31, 2019	Dec. 31, 2018
Investments	**379**	**603**
Shares and other variable-yield securities	222	440
Investments in subsidiaries	157	163
Investments held by insurance companies	**5,933**	**4,886**
Shares and other variable-yield securities	5,537	4,519
Investments in subsidiaries	378	349
Investments in joint ventures	17	15
Investments in associates	1	3
Total	**6,312**	**5,489**

Dividends of €176 million (2018: €159 million) were recognized in 2019 in respect of investments and investments held by insurance companies as at the reporting date.

Investments and investments held by insurance companies with a carrying amount of €712 million (2018: €745 million) were derecognized in 2019. The derecognition of these investments was attributable to capital repayments, liquidations, and disposals. No further current gains or losses are expected from these assets. These derecognitions resulted in cumulative net gains of €350 million (2018: €53 million), which were reclassified to retained earnings or the provision for premium refunds in the financial year. In 2019, dividends of €13 million (2018: €15 million) were recognized in respect of investments and investments held by insurance companies that have been sold.

>> 76 Assets and liabilities measured at fair value on the balance sheet

Fair value hierarchy

The fair value measurements are assigned to the levels of the fair value hierarchy as follows:

€ million	Level 1		Level 2		Level 3	
	Dec. 31, 2019	Dec. 31, 2018	Dec. 31, 2019	Dec. 31, 2018	Dec. 31, 2019	Dec. 31, 2018
Assets	**82,382**	70,070	**96,062**	81,558	**8,933**	8,310
Loans and advances to banks	-	-	2,579	2,105	-	-
Loans and advances to customers	-	-	4,408	4,651	907	928
Hedging instruments (positive fair values)	-	-	201	883	-	-
Financial assets held for trading	1,645	1,351	42,345	36,037	791	554
Investments	19,770	14,829	17,378	11,852	1,969	2,179
Investments held by insurance companies	60,873	53,889	29,106	25,336	5,091	4,261
Non-current assets and disposal groups classified as held for sale	94	1	45	694	175	388
of which: non-recurring measurement	94	-	-	667	41	-
Liabilities	**4,320**	3,873	**93,039**	87,348	**1,172**	1,524
Deposits from banks	-	-	5,060	5,767	-	-
Deposits from customers	-	-	10,114	10,697	-	-
Debt certificates issued including bonds	3,340	2,488	11,699	13,710	608	565
Hedging instruments (negative fair values)	-	-	1,306	2,516	-	-
Financial liabilities held for trading	973	1,376	50,274	42,696	515	907
Financial liabilities arising from unit-linked insurance products	-	-	14,270	11,619	-	-
Other liabilities	7	9	13	-	5	7
Subordinated capital	-	-	303	335	44	45
Liabilities included in disposal groups classified as held for sale	-	-	-	8	-	-

The investments held by insurance companies measured at fair value include assets related to unit-linked contracts. These are offset on the equity and liabilities side of the balance sheet by financial liabilities measured at fair value arising from unit-linked insurance products, which consist of the reserve for unit-linked insurance contracts and liabilities from capitalization transactions allocated to unit-linked life insurance.

Transfers

Assets and liabilities held at the balance sheet date and measured at fair value on a recurring basis were transferred as follows between Levels 1 and 2 of the fair value hierarchy:

	Transfers from Level 1 to Level 2		Transfers from Level 2 to Level 1	
€ million	2019	2018	2019	2018
Financial assets measured at fair value	**957**	267	**3,759**	348
Financial assets held for trading	-	-	-	87
Investments	-	35	3,577	-
Investments held by insurance companies	957	232	182	261
Financial liabilities measured at fair value	**-**	-	**-**	5
Financial liabilities held for trading	-	-	-	5

Transfers from Level 1 to Level 2 were due to quoted prices no longer being obtainable in active markets for identical assets or liabilities. Transfers from Level 2 to Level 1 were due to the availability of quoted prices in active markets that had previously not existed.

In the DZ BANK Group, transfers between Levels 1 and 2 take place when there is a change in the inputs that is relevant to categorization in the fair value hierarchy.

Fair value measurements within Levels 2 and 3

Fair value measurements within Level 2 of the fair value hierarchy either use prices available in active markets for similar, but not identical, financial instruments or use valuation techniques largely based on observable market data. If valuation techniques are used that include a significant valuation input that is not observable in the market, the relevant fair value measurements are categorized within Level 3 of the fair value hierarchy.

Generally, the discounted cash flow (DCF) method is used in the model-based measurement of the fair value of financial instruments without optionalities. Modeling of the yield curves is based on a multi-curve approach with collateral discounting. Simple products on which options exist are measured using customary standard models in which the inputs are quoted in active markets. For structured products on which options exist, a wide range of standard valuation techniques are used. Valuation models are calibrated to available market prices and validated regularly. The fair values of structured products can be measured by breaking these products into their constituent parts, which are then measured using the valuation methods described below.

The basis for measurement is the selection of an adequate yield curve for each specific instrument. The measurement is carried out by selecting appropriate tenor-specific forward curves for projecting variable cash flows. The nature and collateralization of the transactions determines how they are discounted using yield curves that can be adjusted on the basis of relevant spreads.

The DZ BANK Group uses prices in active markets (provided these prices are available) for the fair value measurement of loans and advances as well as unstructured bonds. Otherwise, it mainly uses the DCF method. Discounting is based on yield curves that are adjusted for liquidity-related and credit rating-related costs using spreads. Product-dependent funding spreads are added to the yield curve for liabilities attributable to registered creditors, debt certificates issued including bonds, and subordinated capital. Debt instruments held are adjusted using issuer-specific spreads or spreads derived from the issuer's internal and external credit rating, sector, and risk category. Customer-appropriate spreads and collateralization rates are taken into account for the measurement of loans when the DCF method is used. If significant unobservable inputs are used for measurement and there are no indications that the transaction price is not identical to the fair value at the time of first-time recognition on the balance sheet, the valuation method is calibrated in such a way that the model price at the time of acquisition corresponds to the transaction price. In exceptional cases, the nominal amount of the debt instrument in question provides the best evidence of fair value.

The fair value measurements of shares and other variable-yield securities and of long-term equity investments accounted for in accordance with IFRS 9 are determined by applying income capitalization approaches and observing transaction prices. The best indicator of fair value is deemed to be the transaction prices for recent transactions involving the relevant financial instruments, provided there have been any such transactions. Otherwise, the fair value is measured using income capitalization approaches in which future income and dividends – calculated on the basis of forecasts and estimates – are discounted, taking risk parameters into account.

The fair value measurements of investment fund units are determined using the pro rata net asset value. This is adjusted for any outstanding performance-related remuneration entitlements of fund managers; risk adjustments are also taken into account. Some long-term equity investments in real-estate companies are also measured at net asset value. In this case, the liabilities are subtracted from the fair values of the real estate tied up in the company and the result is multiplied by the percentage of shareholding. The prices of units in real-estate funds that are not managed by the DZ BANK Group are provided by the asset management company that manages these funds. These units are measured regularly at net asset value. Fair value measurements are also based on valuations, current values, and prices in recent transactions.

The fair value measurement of standardized derivatives traded in liquid markets is based on observable market prices and/or industry-standard models using observable inputs. To discount the cash flows of derivatives, a distinction is made between non-collateralized and collateralized transactions when using yield curves in order to take into account the specific funding costs. Moreover, calculation of the model prices for products on which options exist mostly requires the input of additional market data (e.g. volatilities, correlations, repo rates). As far as possible, this data is derived implicitly from quoted market prices that are available. If observable quoted market prices are not available, or only available to a limited extent, the DZ BANK Group uses customary interpolation and extrapolation mechanisms, historical time series analyses, and fundamental analyses of economic variables to generate the required inputs. It also uses expert assessments on a small scale.

The fair value measurement of OTC financial derivatives applies the option in IFRS 13.48, which enables the total net amount to be measured. In the first step, credit risk is not taken into account. Counterparty-specific credit risk arising from derivatives is recognized after the total net amount has been determined. Credit valuation adjustments (CVAs) are recognized to take into account counterparty credit risk and debt valuation adjustments (DVAs) are recognized to take into account the group's own credit risk. Their measurement also takes account of collateral and uses market-implied parameters with matching maturities or internal parameters with matching maturities for the probability of default and loss given default.

The measurement of financial instruments also involves carrying out measurement adjustments to a suitable degree. This includes, among other things, model reserves that enable uncertainties regarding model selection, model parameters, and model configuration to be taken into account. The DZ BANK Group measures financial instruments at the price at which these financial instruments can be realized in the market. If this differs from the measurement of the individual instruments (e.g. measurement at middle rates), the bid/ask adjustments (close-out reserves) are determined on a net basis applying the option in IFRS 13.48. Measurement takes account of the group's funding structure.

The following table shows the valuation techniques, the unobservable inputs, and the spreads of the unobservable inputs used for the fair value measurements at Level 3 of the fair value hierarchy as at December 31, 2019.

Class according to IFRS 13	Assets/liabilities	Fair value (€ million)	Valuation technique	Unobservable inputs	Spread of unobservable inputs (%)
Loans and advances to customers	Loans	632	DCF method	BVAL price adjustment	-4.0 to 4.0
		69	DCF method	Credit spread	0.0 to 8.3
	Profit-participation certificates	46	DCF method	Internal credit ratings	5.2 to 16.5
	Shareholders' loans	102	DCF method	Internal credit ratings	5.2 to 16.5
	Receivables arising from silent partnerships	58	DCF method	Internal credit ratings	5.2 to 16.5
Financial assets held for trading	ABSs	4	DCF method	Credit spread	6.5
	Equity/commodity basket products	6	Local volatility model	Correlation of the risk factors considered	9.9 to 85.3
	Loans and advances to issuers in default	20	DCF method	Recovery rate	-
	Collateralized loan obligations	99	Gaussian copula model	Liquidity spread	1.1 to 4.5
	Bearer securities	466	DCF method	BVAL price adjustment	-1.7 to 0.6
	Registered securities	168	DCF method	BVAL price adjustment	-4.0 to 4.0
	Option in connection with acquisition of long-term equity investments	28	Black-Scholes model	Earnings indicator	-
Investments	ABSs	79	DCF method	Credit spread	0.5 to 5.4
	Other variable-yield securities	10	DCF method	Assumptions for measurement of risk parameters	9.6 to 13.5
	Investments in subsidiaries	37	DCF method	Assumptions for measurement of risk parameters	9.6 to 13.5
		273	Income capitalization approach, net asset value method	Future income	-
	Collateralized loan obligations	6	Gaussian copula model	Liquidity spread	0.0 to 1.7
	Bearer securities	342	DCF method	BVAL price adjustment	-1.7 to 132
	Investment fund units	20	Net asset value	-	-
	Mortgage-backed securities	334	DCF method	Duration	-
		41	DCF method	Recovery rate	0.0 to 94.6
	Other shareholdings	72	DCF method	Capitalization rate, growth factor	0.0 to 11.6
		249	Income capitalization approach, net asset value method	Future income	-
	VR Circle	506	DCF method	Multiple-year default probabilities	0 to 100

Class according to IFRS 13	Assets/liabilities	Fair value (€ million)	Valuation technique	Unobservable inputs	Spread of unobservable inputs (%)
Investments held by insurance companies	ABSs	1,044	Third-party pricing information	-	-
	Investments in subsidiaries, associates, and joint ventures, real estate funds, profit-participation certificates, and other long-term equity investments	2,455	Net asset value	-	-
	Investments in subsidiaries, associates, and joint ventures, other long-term equity investments, and shares in cooperatives	404	Income capitalization approach	Future income	7.8 to 8.4
	Fixed-income securities, convertible bonds, shares, and shares in cooperatives	719	Third-party pricing information	-	-
	Profit-participation certificates and promissory notes	462	DCF method	Credit spread	4.4 to 6.0
	Other shareholdings	7	Approximation	-	-
Non-current assets and disposal groups classified as held for sale	Loans	175	DCF method	Credit spread	0.0 to 8.3
Debt certificates issued including bonds	Bearer issue	102	DCF method	BVAL price adjustment	0.1
	VR Circle	506	DCF method	Multiple-year default probabilities	0 to 100
Financial liabilities held for trading	Equity/commodity basket products	479	Local volatility model	Correlation of the risk factors considered	9.9 to 85.3
	Option in connection with acquisition of long-term equity investments	10	Black-Scholes model	Earnings indicators	-
	Products with commodity volatility derived from comparable instruments	26	Local volatility model	Volatility	7.0 to 59.5
Other liabilities	Incentivization commitment in connection with acquisition of long-term equity investments	5	Expected value	-	-
Subordinated capital	Loans	44	DCF method	Credit spread	0.3 to 3.2

The following table shows the valuation techniques, the unobservable inputs, and the spreads of the unobservable inputs used for the fair value measurements at Level 3 of the fair value hierarchy as at December 31, 2018.

Class according to IFRS 13	Assets/liabilities	Fair value (€ million)	Valuation technique	Unobservable inputs	Spread of unobservable inputs (%)
Loans and advances to customers	Loans	670	DCF method	BVAL price adjustment	-1.4 to 1.9
		56	DCF method	Credit spread	0.0 to 8.3
	Profit-participation certificates	57	DCF method	Internal credit ratings	5.2 to 16.7
	Shareholders' loans	89	DCF method	Internal credit ratings	5.2 to 16.7
	Receivables arising from silent partnerships	56	DCF method	Internal credit ratings	5.2 to 16.7
Financial assets held for trading	ABSs	4	DCF method	Credit spread	0.6 to 5.3
	Equity/commodity basket products	5	Local volatility model	Correlation of the risk factors considered	11.9 to 85.3
	Loans and advances to issuers in default	5	DCF method	Recovery rate	-
	Collateralized loan obligations	141	Gaussian copula model	Liquidity spread	0.0 to 4.4
	Bearer securities	335	DCF method	BVAL price adjustment	-1.3 to 0.7
	Registered securities	15	DCF method	BVAL price adjustment	-1.4 to 1.9
	Option in connection with acquisition of long-term equity investments	49	Black-Scholes model	Earnings indicator	-
Investments	ABSs	31	DCF method	Credit spread	0.6 to 5.3
	Other variable-yield securities	10	DCF method	Assumptions for measurement of risk parameters	9.7 to 13.4
	Investments in subsidiaries	22	DCF method	Assumptions for measurement of risk parameters	9.7 to 13.4
		277	Income capitalization approach, net asset value method	Future income	-
		1	Liquidation value	-	-
	Collateralized loan obligations	7	Gaussian copula model	Liquidity spread	0.0 to 4.4
	Bearer securities	293	DCF method	BVAL price adjustment	-1.3 to 125.0
	Investment fund units	21	Net asset value	-	-
	Mortgage-backed securities	367	DCF method	Duration	-
		62	DCF method	Recovery rate	15.8 to 95.3
	Other shareholdings	57	DCF method	Capitalization rate, growth factor	0.0 to 11.2
		14	DCF method	Assumptions for measurement of risk parameters	9.7 to 13.4
		455	Income capitalization approach, net asset value method	Future income	-
	VR Circle	562	DCF method	Multiple-year default probabilities	0 to 100

Class according to IFRS 13	Assets/liabilities	Fair value (€ million)	Valuation technique	Unobservable inputs	Spread of unobservable inputs (%)
Investments held by insurance companies	ABSs	621	Third-party pricing information	-	-
	Investments in subsidiaries, associates, and joint ventures, real estate funds, profit-participation certificates, and other long-term equity investments	2,128	Net asset value	-	-
	Investments in subsidiaries, associates, and joint ventures, other long-term equity investments, and shares in cooperatives	296	Income capitalization approach	Future income	6.9 to 11.6
	Fixed-income securities, convertible bonds, shares, and shares in cooperatives	804	Third-party pricing information	-	-
	Profit-participation certificates and promissory notes	403	DCF method	Credit spread	5.3 to 7.5
	Derivatives (positive fair values)	3	Third-party pricing information	-	-
	Other shareholdings	6	Approximation	-	-
Non-current assets and disposal groups classified as held for sale	Loans	378	DCF method	Credit spread	0.0 to 8.3
	Other shareholdings	10	Income capitalization approach, net asset value method	Future income	-
Debt certificates issued including bonds	VR Circle	565	DCF method	Multiple-year default probabilities	0 to 100
Financial liabilities held for trading	Equity/commodity basket products	863	Local volatility model	Correlation of the risk factors considered	11.9 to 85.3
	Option in connection with acquisition of long-term equity investments	8	Black-Scholes model	Earnings indicators	-
	Products with commodity volatility derived from comparable instruments	36	Local volatility model	Earnings indicators	7.0 to 64.2
Other liabilities	Incentivization commitment in connection with acquisition of long-term equity investments	5	Expected value	-	-
	Derivatives (negative fair values)	2	Third-party pricing information	-	-
Subordinated capital	Loans	45	DCF method	Credit spread	0.0 to 3.6

Fair value measurements within Level 3 of the fair value hierarchy

The table below shows the changes in the fair value measurements of assets within Level 3 of the fair value hierarchy:

€ million	Loans and advances to customers	Financial assets held for trading	Investments	Investments held by insurance companies	Non-current assets and disposal groups classified as held for sale
Balance as at Jan. 1, 2018	1,522	660	2,255	3,430	50
Additions (purchases)	68	60	132	1,216	1
Transfers	-27	-56	185	-1	-
from Level 3 to Levels 1 and 2	-27	-134	-108	-99	-
from Levels 1 and 2 to Level 3	-	78	293	98	-
Disposals (sales)	-619	-114	-550	-506	-51
Changes resulting from measurement at fair value	-19	-4	163	122	-
through profit or loss	-20	-4	29	72	-
through other comprehensive income	1	-	134	50	-
Other changes	3	8	-6	-	388
Balance as at Dec. 31, 2018	928	554	2,179	4,261	388
Additions (purchases)	51	774	187	1,488	289
Transfers	-10	223	-36	-137	-
from Level 3 to Levels 1 and 2	-10	-71	-266	-234	-
from Levels 1 and 2 to Level 3	-	294	230	97	-
Disposals (sales)	-132	-732	-201	-679	-780
Changes resulting from measurement at fair value	-26	-28	65	158	46
through profit or loss	-33	-28	43	89	-59
through other comprehensive income	7	-	22	69	105
Other changes	96	-	-225	-	232
Balance as at Dec. 31, 2019	**907**	**791**	**1,969**	**5,091**	**175**

The table below shows the changes in the fair value measurements of liabilities within Level 3 of the fair value hierarchy:

€ million	Debt certificates issued including bonds	Financial liabilities held for trading	Other liabilities	Subordinated capital
Balance as at Jan. 1, 2018	543	1,078	15	254
Additions (issues)	21	25	-	-
Transfers	-	-187	-	-
from Level 3 to Level 2	-	-252	-	-
from Level 2 to Level 3	-	65	-	-
Disposals (settlements)	-	-	-7	-205
Changes resulting from measurement at fair value through profit or loss	1	-18	-1	-4
Other changes	-	9	-	-
Balance as at Dec. 31, 2018	565	907	7	45
Additions (issues)	-	103	-	-
Transfers	101	-367	-	-
from Level 3 to Level 2	-	-468	-	-
from Level 2 to Level 3	101	101	-	-
Disposals (settlements)	-42	-154	-2	-1
Changes resulting from measurement at fair value	-16	26	-	-
through profit or loss	-16	26	-	-2
through other comprehensive income	-	-	-	2
Balance as at Dec. 31, 2019	**608**	**515**	**5**	**44**

As part of the processes for fair value measurement, the DZ BANK Group reviews whether the valuation methods used for the measurement are typical and whether the valuation inputs used in the valuation methods are observable in the market. This review takes place at every balance sheet date, i.e. at least every 6 months. On the basis of this review, the fair value measurements are assigned to the levels of the fair value hierarchy. In the DZ BANK Group, transfers between the levels generally take place as soon as there is a change in the inputs that is relevant to categorization in the fair value hierarchy.

In each step of these processes, both the distinctive features of the particular product type and the distinctive features of the business models of the group entities are taken into consideration.

Transfers of fair values from Levels 1 and 2 to Level 3 of the fair value hierarchy during the financial year are largely attributable to a revised estimate of the market observability of the valuation inputs used in the valuation methods. Transfers from Level 3 to Levels 1 or 2 are essentially due to the availability of a price listed in an active market and to the inclusion in the valuation method of material valuation inputs observable in the market.

The amount of gains or losses recognized in profit or loss resulting from the recurring fair value measurements within Level 3 of assets and liabilities held at the balance sheet date constituted a net gain of €54 million during the year under review (2018: net gain of €124 million). The gains or losses are included in the line items net interest income, gains and losses on trading activities, gains and losses on investments, other gains and losses on valuation of financial instruments, and gains and losses on investments held by insurance companies and other insurance company gains and losses.

For the fair values of investments held by insurance companies reported within Level 3, a worsening in the credit rating or a rise in the interest rate of 1 percent would lead to the recognition of a €40 million loss in the income statement (2018: loss of €32 million) and a loss of €1 million under other comprehensive income/loss (2018: loss of €1 million). In the case of the fair values of loans and advances to customers, the same change would lead to the recognition of an €8 million loss in the income statement (2018: loss of €27 million). For the fair values of investments, there would be a €26 million loss under other comprehensive income/loss (2018: loss of €27 million) and a €24 million loss in the income statement (2018: loss of €23 million). Within financial assets held for trading, the changes would give rise to a loss of €8 million recognized in profit or loss (2018: loss of €11 million); however, changes within financial liabilities held for trading would result in a gain of €3 million recognized in profit or loss (2018: gain of €2 million). In the case of debt certificates issued including bonds, the change would give rise to a gain of €3 million recognized in other comprehensive income/loss (2018: no gain or loss recognized in other comprehensive income/loss).

The fair values of bonds without liquid markets that are reported within financial assets held for trading, financial liabilities held for trading, investments, and loans and advances to customers are given an individual adjustment spread or are measured using Bloomberg Valuation Service prices, which are observable in the market. All other things being equal, an increase in the pertinent measurement assumptions of 1 percent would lead to the recognition of a €14 million loss in the income statement (2018: loss of €7 million) and a loss of €19 million under other comprehensive income/loss (2018: loss of €22 million). Historical spreads are used for bonds recognized under subordinated capital whose spread components are no longer observable in the market. All other things being equal, an increase of 1 percent in the spread would lead to a €4 million increase in fair value that would be recognized in the income statement (2018: increase of €4 million).

An alternative assumption about the credit spreads used could lead to a significant change in the fair values of some of the ABSs reported under financial assets held for trading and under investments. All other things being equal, an increase of 1 percent in these spreads would lead to the recognition of a €2 million loss in the income statement (2018: loss of €2 million) and a loss of €1 million in other comprehensive income/loss (2018: no gain or loss in other comprehensive income/loss).

Measurement of the commodities reported under financial assets and financial liabilities held for trading is based on the benchmark volatility of a comparable underlying. All other things being equal, an increase in volatility of 1 percent would not lead to any material change in fair value. In 2018, such an increase would have led to the recognition of a gain of €2 million in profit or loss.

An alternative assumption about the liquidity spreads used could lead to a significant change in respect of collateralized loan obligations reported under investments and under financial assets held for trading. All other things being equal, a rise in the liquidity spread assumptions by 1 percent would lead to a €5 million decrease in the fair values of these financial assets that would be recognized in the income statement (2018: decrease of €7 million).

Sensitivity analysis is used to calculate the aforementioned changes in the fair value measurements. Non-performing exposures and strategically held investments in subsidiaries and other shareholdings whose fair values are calculated using an income capitalization approach are not included in the sensitivity analysis.

Exercise of option pursuant to IFRS 13.48

The option offered by IFRS 13.48 of measuring a net risk position for financial assets and financial liabilities is used for portfolios whose components are recognized under the balance sheet items loans and advances to banks, loans and advances to customers, financial assets held for trading, investments, and financial liabilities held for trading.

>> 77 Assets and liabilities not measured at fair value on the balance sheet

Fair value hierarchy

Fair value measurements of assets and liabilities that are not recognized at fair value on the balance sheet, but whose fair value must be disclosed, are assigned to the levels of the fair value hierarchy as follows:

	Level 1		Level 2		Level 3	
€ million	Dec. 31, 2019	Dec. 31, 2018	Dec. 31, 2019	Dec. 31, 2018	Dec. 31, 2019	Dec. 31, 2018
Assets	**800**	**529**	**205,088**	**196,735**	**165,927**	**159,583**
Cash and cash equivalents	-	-	52,167	51,459	-	-
Loans and advances to banks	-	-	92,984	87,008	4,586	4,390
Loans and advances to customers	-	-	37,758	34,675	142,743	132,336
Investments	431	529	17,320	18,411	397	442
Investments held by insurance companies	369	-	4,357	4,693	16,134	14,850
Property, plant and equipment, and investment property	-	-	121	131	152	155
Other assets	-	-	381	338	1,713	1,338
Non-current assets and disposal groups classified as held for sale	-	-	-	20	202	6,072
Liabilities	**16,992**	**3,158**	**250,466**	**244,535**	**68,897**	**66,038**
Deposits from banks	-	-	137,288	137,017	1,740	1,748
Deposits from customers	-	-	59,747	62,675	63,598	60,356
Debt certificates issued including bonds	16,992	3,158	53,145	44,141	-	-
Provisions	-	-	19	21	176	141
Other liabilities	-	-	201	338	1,488	1,292
Subordinated capital	-	-	66	115	1,895	2,501
Liabilities included in disposal groups classified as held for sale	-	-	-	228	-	-

Fair value measurements within Levels 2 and 3

The fair value measurements of assets and liabilities that are not recognized at fair value on the balance sheet largely correspond to the fair value measurements of assets and liabilities that are recognized at fair value on the balance sheet.

The following table shows the valuation techniques and the unobservable inputs used in these techniques for the fair value measurements at Level 3 of the fair value hierarchy as at the balance sheet date.

Class according to IFRS 13	Assets/liabilities	Fair value (€ million)	Valuation technique	Unobservable inputs
Loans and advances to banks	Loans	4,586	DCF method	Credit spread, recovery rate
Loans and advances to customers	Building loans	50,209	Amortized cost	-
	Loans	92,534	DCF method	Credit spread, recovery rate, internal spread
Investments	ABSs	108	DCF method	Credit spread
	Bonds with adjustment spread	289	DCF method	BVAL price adjustment
Investments held by insurance companies		111	Cost	Nominal amounts
	Investment property	4,490	DCF method	Future rent, reference prices in the market
	Loans and bank accounts	11,482	DCF method	Yield curves, credit spread
	Loans	51	Cost	Nominal amounts
Property, plant and equipment	Investment property	152	Valuation reports	-
Other assets	Credit balances with banks	825	Cost	Nominal amounts
	Other receivables	888	Cost	Nominal amounts
Non-current assets and disposal groups classified as held for sale	Loans	198	DCF method	Credit spread
	Property, plant and equipment, and investment property	4	Cost	Nominal amounts

Class according to IFRS 13	Assets/liabilities	Fair value (€ million)	Valuation technique	Unobservable inputs
Deposits from banks	Home savings deposits	1,653	Cost	-
	Loans	87	DCF method	Credit spread
Deposits from customers	Home savings deposits	63,222	Cost	-
	Loans	358	DCF method	Credit spread
	Overpayments on consumer finance loans	18	Cost	-
Provisions	Provisions for loan commitments	176	Settlement amount	-
Other liabilities	Loans	542	Cost	Nominal amounts
	Non-controlling interests in special funds	153	Cost	Nominal amounts
	Subordinated liabilities	73	DCF method	Yield curves, credit spread
	Registered securities	31	Cost	Nominal amounts
	Other payables	169	Cost	Nominal amounts
	Liabilities arising from rented software recognized as an asset	6	Carrying amount	Assumptions regarding the exercise of extension or termination options
	Liabilities from capitalization transactions	514	Cost	Nominal amounts
Subordinated capital	Bonds with adjustment spread	1,895	DCF method	Credit spread

The following table shows the valuation techniques and the unobservable inputs used in these techniques for the fair value measurements at Level 3 of the fair value hierarchy as at December 31, 2018.

Class according to IFRS 13	**Assets/liabilities**	**Fair value (€ million)**	**Valuation technique**	**Unobservable inputs**
Loans and advances to banks	Loans	4,390	DCF method	Credit spread, recovery rate
Loans and advances to customers	Building loans	45,449	Amortized cost	-
	Loans	86,887	DCF method	Credit spread, recovery rate, internal spread
Investments	ABSs	181	DCF method	Credit spread
	Bonds with adjustment spread	261	DCF method	BVAL price adjustment
Investments held by insurance companies		255	Cost	Nominal amounts
	Investment property	3,544	DCF method	Future rent, reference prices in the market
	Loans and bank accounts	10,989	DCF method	Yield curves, credit spread
	Loans	62	Cost	Nominal amounts
Property, plant and equipment	Investment property	155	Valuation reports	-
Other assets	Credit balances with banks	409	Cost	Nominal amounts
	Other receivables	929	Cost	Nominal amounts
Non-current assets and disposal groups classified as held for sale	Loans	6,072	DCF method	Credit spread

Class according to IFRS 13	Assets/liabilities	Fair value (€ million)	Valuation technique	Unobservable inputs
Deposits from banks	Home savings deposits	1,652	Cost	-
	Loans	96	DCF method	Credit spread
Deposits from customers	Home savings deposits	59,996	Cost	-
	Loans	339	DCF method	Credit spread
	Other payables	4	Cost	-
	Overpayments on consumer finance loans	17	Cost	-
Provisions	Provisions for loan commitments	141	Settlement amount	-
Other liabilities	Loans	484	Cost	Nominal amounts
	Non-controlling interests in special funds	95	Cost	Nominal amounts
	Subordinated liabilities	59	DCF method	Yield curves, credit spread
	Registered securities	30	Cost	Nominal amounts
	Other payables	211	Cost	Nominal amounts
	Liabilities from capitalization transactions	413	Cost	Nominal amounts
Subordinated capital	Bonds with adjustment spread	2,501	DCF method	Credit spread

>> 78 Financial liabilities designated as at fair value through profit or loss

A residual value method is used to determine changes in fair value attributable to changes in the DZ BANK Group's own credit risk. In this method, the measurement effect caused by changes in own credit risk is determined by deducting the measurement effect caused by factors other than the change in own credit risk from the overall change in fair value. The cumulative changes in fair value resulting from changes in own credit risk amounted to a loss of €56 million in 2019 (2018: gain of €35 million). The use of this method ensures that the changes in fair value attributable to changes in own credit risk are not distorted by other effects caused by changes in market risk.

The following overview compares fair values with the amounts contractually required to be paid at maturity to the creditors concerned for liabilities designated as at fair value through profit or loss, but whose changes in fair value attributable to own credit risk are reported in other comprehensive income:

	Fair value		Repayment amount	
€ million	Dec. 31, 2019	Dec. 31, 2018	Dec. 31, 2019	Dec. 31, 2018
Deposits from banks	5,060	5,767	4,962	5,689
Deposits from customers	10,114	10,697	9,555	9,297
Debt certificates issued including bonds	15,647	16,763	15,383	16,716
Subordinated capital	347	380	332	358
Total	**31,168**	**33,607**	**30,232**	**32,060**

As in the previous year, only a negligible loss was reclassified to retained earnings within equity in the financial year as a result of the recognition of measurement effects in connection with changes in the DZ BANK Group's own credit risk.

The derecognition of financial liabilities gave rise to a gain of €9 million that had previously been reported in other comprehensive income/loss. Only a negligible amount had been recognized in the previous year.

>> 79 Offsetting of financial assets and financial liabilities

Financial assets and financial liabilities reference standard master agreements, such as ISDA Master Agreements and German Master Agreements for Financial Futures. However, these standard master agreements do not generally satisfy the offsetting criteria in IAS 32.42 because the legal right to set off the amounts under these agreements is contingent on the occurrence of a future event.

The following tables show financial assets that were offset or that were subject to a legally enforceable global netting agreement or a similar arrangement:

AS AT DECEMBER 31, 2019

€ million	Gross amount of financial assets before offsetting	Gross amount of offset financial liabilities	Net amount of financial assets (carrying amount)	Associated amounts not offset on the balance sheet		Net amount
				Financial instruments	Cash collateral received	
Derivatives	48,375	27,698	20,677	13,855	4,130	2,692
Reverse repos/securities borrowing	11,920	-	11,920	11,769	-	151
Total	**60,295**	**27,698**	**32,597**	**25,624**	**4,130**	**2,843**

AS AT DECEMBER 31, 2018

€ million	Gross amount of financial assets before offsetting	Gross amount of offset financial liabilities	Net amount of financial assets (carrying amount)	Associated amounts not offset on the balance sheet		Net amount
				Financial instruments	Cash collateral received	
Derivatives	25,348	8,606	16,742	12,015	2,764	1,963
Reverse repos/securities borrowing	10,677	-	10,677	10,192	-	485
Total	**36,025**	**8,606**	**27,419**	**22,207**	**2,764**	**2,448**

The following tables show financial liabilities that were offset or that were subject to a legally enforceable global netting agreement or a similar arrangement:

AS AT DECEMBER 31, 2019

€ million	Gross amount of financial liabilities before offsetting	Gross amount of offset financial assets	Net amount of financial liabilities (carrying amount)	Associated amounts not offset on the balance sheet		Net amount
				Financial instruments	Cash collateral furnished	
Derivatives	50,401	30,543	19,858	13,325	6,343	190
Repos/securities lending	7,050	-	7,050	6,998	-	52
Other financial instruments	77	77	-	-	-	-
Total	**57,528**	**30,620**	**26,908**	**20,323**	**6,343**	**242**

AS AT DECEMBER 31, 2018

€ million	Gross amount of financial liabilities before offsetting	Gross amount of offset financial assets	Net amount of financial liabilities (carrying amount)	Associated amounts not offset on the balance sheet		Net amount
				Financial instruments	Cash collateral furnished	
Derivatives	29,441	10,753	18,688	12,328	5,637	723
Repos/securities lending	7,188	-	7,188	7,164	-	24
Other financial instruments	43	43	-	-	-	-
Total	**36,672**	**10,796**	**25,876**	**19,492**	**5,637**	**747**

>> 80 Sale and repurchase agreements, securities lending

Transfers of financial assets

In 2019, the only transfers carried out by the DZ BANK Group in which the transferred assets remained on the balance sheet in their entirety were transfers under sale and repurchase agreements (repos), in which the DZ BANK Group was the original seller, and transfers as part of securities lending transactions.

Sale and repurchase agreements

The entities in the DZ BANK Group enter into sale and repurchase agreements using standard banking industry master agreements, notably the Global Master Repurchase Agreement (GMRA) and the master agreement provided by the International Securities Market Association (ISMA). Under these agreements, the buyer of the securities is permitted to make use of the securities without restriction (with no requirement for a prior counterparty default) and return securities of the same type. If the fair value of the securities received or transferred in such transactions increases or decreases, the entity concerned may be required to furnish additional collateral or may demand additional collateral.

As at the balance sheet date, the sale and repurchase agreements entered into by companies in the DZ BANK Group were exclusively genuine sale and repurchase agreements, i.e. the buyer is obliged to sell back the securities.

Sale and repurchase agreements in which DZ BANK acts as a seller (repos)

Under sale and repurchase agreements, bonds and other fixed-income securities classified as financial assets measured at fair value and financial assets measured at amortized cost are temporarily transferred to another party. As at the balance sheet date, the carrying amounts of securities subject to such sale and repurchase agreements were:

€ million	Dec. 31, 2019	Dec. 31, 2018
FINANCIAL ASSETS MEASURED AT FAIR VALUE	**959**	**2,097**
Financial assets measured at fair value through profit or loss	**959**	**1,300**
Financial assets mandatorily measured at fair value through profit or loss	***945***	***500***
Financial assets held for trading	945	500
Financial assets designated as at fair value through profit or loss	***14***	***800***
Investments	14	800
Financial assets measured at fair value through other comprehensive income	**-**	**797**
Financial assets mandatorily measured at fair value through other comprehensive income	***-***	***797***
Investments	-	797
FINANCIAL ASSETS MEASURED AT AMORTIZED COST	**966**	**1,139**
Investments	966	1,139
Total	**1,925**	**3,236**

As at the balance sheet date, additional collateral with a carrying amount of €127 million had been furnished in connection with repos (December 31, 2018: €83 million). This collateral is recognized under financial assets held for trading and may be sold or repledged by the recipient even if the provider is not in default.

The carrying amounts of liabilities arising from sale and repurchase agreements were as follows:

€ million	Dec. 31, 2019	Dec. 31, 2018
LIABILITIES ASSOCIATED WITH FINANCIAL ASSETS MEASURED AT FAIR VALUE	**956**	**2,009**
Liabilities associated with financial assets measured at fair value through profit or loss	**956**	**1,249**
Liabilities associated with financial assets mandatorily measured at fair value through profit or loss	***942***	***500***
Liabilities associated with financial assets held for trading	942	500
Liabilities associated with financial assets designated as at fair value through profit or loss	***14***	***749***
Liabilities associated with investments	14	749
Liabilities associated with financial assets measured at fair value through other comprehensive income	**-**	**760**
Liabilities associated with financial assets mandatorily measured at fair value through other comprehensive income	***-***	***760***
Liabilities associated with investments	-	760
LIABILITIES ASSOCIATED WITH FINANCIAL ASSETS MEASURED AT AMORTIZED COST	**967**	**1,087**
Liabilities associated with investments	967	1,087
Total	**1,923**	**3,096**

Sale and repurchase agreements in which DZ BANK acts as the buyer (reverse repos)

In reverse repo transactions, bonds and other fixed-income securities are bought on a temporary basis. As at December 31, 2019, the fair value of securities involved in such transactions was €11,754 million (December 31, 2018: €10,653 million).

The receivables arising from these reverse repo transactions and reported under financial assets held for trading and under investments amounted to €11,687 million as at the balance sheet date (December 31, 2018: €10,642 million). As part of the collateral management requirements, the original seller provides the DZ BANK Group with additional collateral for reverse repo transactions in which the fair value of the securities purchased is less than the amounts receivable from the seller.

Securities lending

Securities lending transactions are undertaken on the basis of the Global Master Securities Lending Agreement (GMSLA) or on the basis of individual contractual arrangements. Under these agreements, the borrower of the securities is permitted to make use of the securities without restriction and return securities of the same type. If the fair value of the securities received or transferred in such transactions increases or decreases, the entity concerned may be required to furnish additional collateral or may demand additional collateral.

Securities lending

In securities lending transactions, shares and other variable-yield securities and/or bonds and other fixed-income securities are temporarily transferred to another party. All securities lent by the DZ BANK Group are classified as financial assets at fair value. As at the balance sheet date, the carrying amounts of securities lent under securities lending arrangements were as follows:

€ million	Dec. 31, 2019	Dec. 31, 2018
Financial assets measured at fair value through profit or loss	**614**	**715**
Financial assets mandatorily measured at fair value through profit or loss	***614***	***715***
Financial assets held for trading	614	715
Financial assets measured at fair value through other comprehensive income	**2,435**	**2,189**
Financial assets mandatorily measured at fair value through other comprehensive income	***2,084***	***2,123***
Investments held by insurance companies	2,084	2,123
Financial assets designated as at fair value through other comprehensive income	***351***	***66***
Investments held by insurance companies	351	66
Total	**3,049**	**2,904**

Collateral is provided or received as part of collateral management arrangements in connection with financial assets held for trading and investments held by insurance companies that are lent under securities lending agreements. In this process, all positions with the counterparty concerned are netted to determine the collateral to be provided or received.

As at the balance sheet date, additional collateral with a carrying amount of €6 million had been furnished in connection with securities lending (December 31, 2018: €9 million). This collateral is recognized under financial assets held for trading and may be sold or repledged by the recipient even if the provider is not in default.

Securities borrowing

The fair value of borrowed securities as at the balance sheet date was as follows:

€ million	Dec. 31, 2019	Dec. 31, 2018
Bonds and other fixed-income securities	1,955	2,377
Shares and other variable-yield securities	26	28
Total	**1,981**	**2,405**

In addition to securities subject to sale and repurchase agreements or that have been borrowed, bonds and other fixed-income securities and shares and other variable-yield securities are accepted as additional collateral. These may be sold or repledged as collateral by the recipient, even if there is no default. As at December 31, 2019, the fair value of the additional collateral received was €75 million (December 31, 2018: €23 million).

Securities subject to a sale and repurchase or lending agreement that the recipient may sell or repledge as collateral with no requirement for a prior counterparty default

All securities transferred to another party by entities in the DZ BANK Group under sale and repurchase agreements or securities lending agreements may be sold or repledged as collateral by the recipient without restriction.

The carrying amounts of the individual balance sheet items concerned are as follows:

€ million	Dec. 31, 2019	Dec. 31, 2018
Financial assets held for trading	1,559	1,215
Investments	980	2,736
Investments held by insurance companies	2,435	2,189
Total	**4,974**	**6,140**

>> 81 Collateral

The breakdown of the carrying amount of financial assets pledged as collateral for liabilities is as follows:

€ million	Dec. 31, 2019	Dec. 31, 2018
Loans and advances to banks	57,142	56,023
Loans and advances to customers	136	220
Financial assets held for trading	12,677	10,752
Investments	11	1,013
Investments held by insurance companies	1,099	895
Total	**71,065**	**68,903**

Of the total financial assets pledged as collateral for liabilities, financial assets held for trading and investments with a carrying amount of €4,667 million (December 31, 2018: €4,709 million) may be sold or repledged as collateral by the recipient, even if the relevant entity in the DZ BANK Group is not in default.

Funds received from German federal and state development banks that are to be specifically used for the purposes of development program loans are mainly passed on to affiliated banks. The corresponding loans and advances to affiliated banks serve as collateral with the German federal and state development banks.

The loans and advances to customers pledged as collateral are building loans issued as part of KfW development program loans. The amounts due to Germany's KfW development bank are secured by assigning to KfW the receivables arising from the forwarding of the development loans together with the collateral furnished by the borrowers.

Securities and money market placements recognized as financial assets held for trading are pledged as collateral for exchange-traded forward transactions, non-exchange-traded derivatives and for forward forex transactions. These arrangements are governed by standard industry collateral agreements.

In the prior year, the investments pledged as collateral for the most part comprised securities furnished as collateral for transactions with central banks.

The investments held by insurance companies are predominantly securities pledged as collateral as part of the reinsurance business; this collateral may only be sold or pledged by the recipient in the event of default by the provider.

>> 82 Items of income, expense, gains, and losses

Net gains and losses

The breakdown of net gains or net losses on financial instruments by IFRS 9 category for financial assets and financial liabilities is as follows:

€ million	2019	2018
Financial instruments measured at fair value through profit or loss	**3,159**	**-640**
Financial instruments mandatorily measured at fair value through profit or loss	3,172	-96[1]
Contingent considerations in a business combination	-	-11
Financial instruments designated as at fair value through profit or loss	-13	-533
Financial assets measured at fair value through other comprehensive income	**4,619**	**1,739**
Financial assets mandatorily measured at fair value through other comprehensive income	3,974	1,571
of which: gains and losses recognized in profit or loss	1,869	1,895
gains and losses recognized in other comprehensive income	1,887	-489
gains and losses reclassified on derecognition from cumulative other comprehensive income to profit or loss	218	165
Financial assets designated as at fair value through other comprehensive income	645	168
Financial assets measured at amortized cost	**5,510**	**5,964**
Financial liabilities measured at amortized cost	**-3,135**	**-2,818**

1 Amount restated (see note 2).

Net gains or net losses comprise gains and losses on fair value measurement, impairment losses and reversals of impairment losses, and gains and losses on the sale or early repayment of the financial instruments concerned. These items also include interest income and interest expense, current income, income from profit-pooling, profit-transfer agreements, partial profit-transfer agreements, and expenses from the transfer of losses.

In connection with financial liabilities designated as at fair value through profit or loss, a loss of €96 million (2018: gain of €35 million) was recognized in other comprehensive income/loss and a loss of €849 million (2018: loss of €639 million) in profit or loss, which predominantly related to interest expense.

Interest income and expense

The following total interest income and expense arose in connection with financial assets and financial liabilities that are not measured at fair value through profit or loss:

€ million	2019	2018
Interest income	**7,248**	**7,468**
From financial assets measured at amortized cost including finance leases	5,868	6,074
From financial assets measured at fair value through other comprehensive income	1,380	1,394
Interest expense	**-3,139**	**-2,818**

Fee and commission income and expenses

€ million	2019	2018
Fee and commission income		
From financial instruments not at fair value through profit or loss	178	192
From trust and other fiduciary activities	3,308	3,018
Fee and commission expenses		
For financial instruments not at fair value through profit or loss	-251	-233
For trust and other fiduciary activities	-1,528	-1,290

>> 83 Derivatives

Derivatives are used primarily to hedge against market risk as well as for trading purposes. As at the balance sheet date, the breakdown of the portfolio of derivatives was as follows:

€ million	Nominal amount: Time to maturity ≤ 1 year	> 1 year – 5 years	> 5 years	Total amount Dec. 31, 2019	Total amount Dec. 31, 2018	Fair value Positive Dec. 31, 2019	Positive Dec. 31, 2018	Negative Dec. 31, 2019	Negative Dec. 31, 2018
INTEREST-LINKED CONTRACTS	**145,958**	**374,649**	**506,902**	**1,027,509**	**1,018,090**	**17,508**	**14,788**	**17,074**	**14,617**
OTC products									
Forward rate agreements	5,624	-	-	5,624	11,700	-	-	-	-
Interest-rate swaps	118,579	332,401	476,972	927,952	909,296	15,457	12,968	14,133	12,048
Interest-rate options – bought	7,887	19,968	13,026	40,881	38,509	1,531	1,323	105	110
Interest-rate options – written	9,857	21,820	16,904	48,581	51,061	293	391	2,836	2,459
Other interest-rate contracts	1,233	270	-	1,503	2,060	227	106	-	-
Exchange-traded products									
Interest-rate futures	2,778	190	-	2,968	5,464	-	-	-	-
CURRENCY-LINKED CONTRACTS	**114,288**	**27,326**	**10,045**	**151,659**	**136,178**	**1,326**	**1,228**	**1,785**	**1,977**
OTC products									
Cross-currency swaps (excl. portfolio hedging)	10,801	19,875	9,808	40,484	39,934	321	523	928	1,321
Forward forex transactions	95,489	6,283	165	101,937	82,459	963	643	808	590
Forex options – bought	3,420	181	-	3,601	6,163	8	23	16	15
Forex options – written	4,334	973	6	5,313	7,322	33	38	25	45
Exchange-traded products									
Forex futures	132	-	-	132	135	-	-	-	-
Forex options	112	14	66	192	165	1	1	8	6
SHARE-/INDEX-LINKED CONTRACTS	**17,451**	**12,594**	**3,451**	**33,496**	**33,772**	**671**	**405**	**1,188**	**1,860**
OTC products									
Share/index swaps	-	-	-	-	3,280	-	2	-	-
Share/index options – bought	3,105	46	11	3,162	67	122	3	-	-
Share/index options – written	195	144	-	339	302	-	-	10	42
Other share/index contracts	868	3,150	2,479	6,497	5,670	66	38	208	462
Exchange-traded products									
Share/index futures	943	75	1	1,019	608	-	-	-	-
Share/index options	12,340	9,179	960	22,479	23,845	483	362	970	1,356
OTHER CONTRACTS	**3,243**	**3,027**	**10,773**	**17,043**	**16,923**	**30**	**52**	**105**	**78**
OTC products									
Commodities contracts	22	4	-	26	39	-	-	-	4
Other contracts	2,894	3,008	10,734	16,636	16,483	28	49	97	64
Exchange-traded products									
Futures	119	1	-	120	139	-	-	-	1
Options	208	14	39	261	262	2	3	8	9
CREDIT DERIVATIVES	**1,888**	**10,378**	**5,321**	**17,587**	**17,169**	**374**	**225**	**75**	**74**
Protection buyer									
Credit default swaps	452	2,276	477	3,205	2,953	1	7	72	34
Protection seller									
Credit default swaps	1,430	8,077	4,827	14,334	14,136	373	211	3	40
Total return swaps	6	25	17	48	80	-	7	-	-
Total	**282,828**	**427,974**	**536,492**	**1,247,294**	**1,222,132**	**19,909**	**16,698**	**20,227**	**18,606**

The derivatives held at the balance sheet date involved the following counterparties:

	Fair value			
	Positive		Negative	
€ million	Dec. 31, 2019	Dec. 31, 2018	Dec. 31, 2019	Dec. 31, 2018
OECD central governments	63	72	19	35
OECD banks	16,636	13,967	17,247	16,250
OECD financial services institutions	258	172	680	367
Other companies, private individuals	2,946	2,421	2,152	1,855
Non-OECD banks	6	66	129	99
Total	**19,909**	**16,698**	**20,227**	**18,606**

The Union Investment Group has capital preservation commitments under section 1 (1) no. 3 of the German Personal Pension Plan Certification Act (AltZertG) amounting to €15,013 million (December 31, 2018: €13,808 million). These commitments are the total amount of the pension contributions paid by investors into the individual variants of the *UniProfiRente* and *UniProfiRente Select* products, which represent the minimum amount that must be made available at the start of the payout phase under statutory provisions, and the guaranteed payout amounts for existing contracts that are already in the payout phase. The group also has minimum payment commitments of €1,584 million (December 31, 2018: €2,635 million) in connection with genuine guarantee funds launched by fund management companies in the group.

>> 84 Hedge accounting

Risk management strategy

Fair value hedges are used as part of the risk management strategy to eliminate or reduce accounting mismatches.

Hedged items

Fair value hedges are used in the hedging of interest-rate risk. In this context, interest-rate risk refers to the risk of an adverse change in the fair value of fixed-income financial instruments caused by a change in market interest rates. The hedged financial assets are loans and advances to banks, loans and advances to customers, and investments that are categorized as 'financial assets measured at amortized cost' or 'financial assets measured at fair value through other comprehensive income'. Hedged financial liabilities are deposits from banks and customers, debt certificates issued including bonds, and subordinated liabilities, all of which are measured at amortized cost. Interest-rate risk portfolios under both assets and liabilities are identified and designated as hedged items in portfolio hedges.

Hedging instruments

Swaps and swaptions are designated as hedging instruments in fair value hedges of financial assets and financial liabilities. In the DZ BANK Group, hedging instruments are reported under hedging instruments (positive fair values) and hedging instruments (negative fair values).

Assessment of hedge effectiveness

The prerequisite for recognizing a hedge is that the hedge must be highly effective on both a prospective and retrospective basis. Highly effective in this case means that the changes in fair value or expected cash flows for the hedged items must be almost fully offset by the changes in fair value or expected cash flows for the hedging instruments. In the case of the individual hedges entered into by the DZ BANK Group, this is achieved by ensuring that the main features of hedged items that influence their value match those of the hedging instruments and that there is a hedging ratio of 100 percent (1:1 hedging). In portfolio hedges, there is no direct economic relationship between hedged item and hedging instrument. An individual hedging ratio based on the sensitivities of the hedged items and hedging instruments is used to ensure that the respective changes in fair value more or less balance each other out. Hedge effectiveness must be assessed and documented at every balance sheet date as a minimum.

For individual hedges accounted for in application of the rules under IFRS 9, any hedge ineffectiveness is quantified retrospectively and recognized in profit or loss. IFRS 9 does not define effectiveness in terms of a mandatory range of values. If a hedge no longer satisfies the effectiveness criterion in relation to the hedge ratio, the hedge ratio must be adjusted (recalibration). If it is no longer possible to adjust the hedge ratio or if the risk management objective for the hedge has changed, the hedge must be de-designated.

Portfolio hedges that continue to be accounted for in application of the rules under IAS 39 are deemed to be highly effective if the changes in the fair value of the hedged items are offset by the changes in the fair value of the hedging instruments within the range of 80 percent to 125 percent specified by IAS 39. If this assessment identifies that a hedge has not achieved the required effectiveness, the hedge must be reversed retrospectively to the balance sheet date of the last assessment in which the hedge was found to be effective.

In the case of fair value hedges, prospective effectiveness is assessed by using sensitivity analyses (based on the basis point value method) and regression analyses; it is also assessed qualitatively with the critical-terms-match method. Retrospective effectiveness is assessed primarily by using the dollar offset method, a noise threshold value, and regression analysis. In these methods, the cumulative changes in the fair value of the hedged items attributable to the hedged risk are compared with the changes in the fair value of the hedging instruments.

Gains and losses and hedge ineffectiveness from hedge accounting

In hedge accounting, hedge ineffectiveness arises when the changes in the fair value of hedging instruments do not fully offset the changes in the fair value of the hedged items. The ineffective portions of hedges are recognized in profit or loss under other gains and losses on valuation of financial instruments.

Hedge ineffectiveness can arise in fair value hedges of interest-rate risk. Some of the ways in which this can occur are where the changes in the fair values of hedged items and hedging instruments do not balance each other out in full because of differences in maturities, cash flows, and/or discount rates.

Extent of risks managed by the use of hedges

The table below presents information on the volume of hedged items and hedging instruments designated as hedges for the purposes of hedging interest-rate risk:

AS AT DECEMBER 31, 2019

€ million	Carrying amount	Nominal amount of hedging instruments	Fair value hedge adjustments included in carrying amount of hedged items		Fair value changes as basis for measuring hedge ineffectiveness for the period
			Existing hedges	Terminated hedges	
Assets	**50,357**	**12,511**	**1,378**	**526**	**1,027**
Loans and advances to banks	55		1	-	-1
Loans and advances to customers	1,526		74	85	219
Investments	2,875		59	32	30
Non-current assets and disposal groups classified as held for sale	197		-	-	11
Portfolio hedges of interest-rate risk	45,503		1,244	409	1,382
Hedging instruments (positive fair values)	201	12,511			-614
Liabilities	**10,597**	**45,802**	**247**	**277**	**-1,029**
Deposits from banks	615		16	7	-26
Deposits from customers	3,828		222	21	-50
Debt certificates issued including bonds	368		13	9	-9
Subordinated capital	9		-	-	-
Portfolio hedges of interest-rate risk	4,471		-4	240	-114
Hedging instruments (negative fair values)	1,306	45,802			-830

AS AT DECEMBER 31, 2018

€ million	Carrying amount	Nominal amount of hedging instruments	Fair value hedge adjustments included in carrying amount of hedged items		Fair value changes as basis for measuring hedge ineffectiveness for the period
			Existing hedges	Terminated hedges	
Assets	**68,435**	**18,822**	**612**	**29**	**224**
Loans and advances to banks	73		2	-	-1
Loans and advances to customers	2,180		22	-1	25[1]
Investments	3,823		70	3	8
Non-current assets and disposal groups classified as held for sale	2,660		-9	4	-14[1]
Portfolio hedges of interest-rate risk	58,816		527	23	196[1]
Hedging instruments (positive fair values)	883	18,822			10[1]
Liabilities	**34,469**	**60,817**	**188**	**163**	**-246**
Deposits from banks	1,089		9	1	-1[1]
Deposits from customers	5,502		208	-6	17[1]
Debt certificates issued including bonds	447		-	5	-4
Subordinated capital	34		-	-	3[1]
Portfolio hedges of interest-rate risk	24,881		-29	163	20[1]
Hedging instruments (negative fair values)	2,516	60,817			-281[1]

1 Amount restated (see note 2).

In the course of 2018, all cash flow hedges designated in connection with hedging exposure to currency risk were discontinued. In this period, the ineffectiveness measured from the countervailing changes in fair value in respect of the corresponding hedged items and hedging instruments amounted to €5 million.

Gains and losses were also reclassified to the income statement in 2018. Of these gains and losses, a loss of €2 million was recognized under net interest income, a gain of €1 million under administrative expenses, and a loss of €2 million under net fee and commission income.

As at the reporting date, there were no hedges of net investments in foreign operations. The relevant hedges, which had been designated in connection with hedging exposure to currency risk, expired during the financial year. In 2018, hedging instruments with a total nominal amount of €173 million, but only a negligible carrying amount, gave rise to changes in fair value of approximately €1 million. On the other side of the hedging equation, there were only small changes in the fair value of the hedged items. This resulted in hedging ineffectiveness of around €1 million, which was recognized in profit or loss under other gains and losses on valuation of financial instruments.

Effects of hedging instruments on cash flows

The following tables show the residual maturities of the hedging instruments entered into by the DZ BANK Group by type of risk:

Interest-rate risk

AS AT DECEMBER 31, 2019

	≤ 1 month	>1 month – 3 months	>3 months – 1 year	>1 year – 5 years	> 5 years
Nominal amount (€ million)	72	192	5,892	25,003	27,154
Average hedged interest rate (%)	1.94	1.70	1.88	1.14	1.19

AS AT DECEMBER 31, 2018

	≤ 1 month	>1 month – 3 months	>3 months – 1 year	>1 year – 5 years	> 5 years
Nominal amount (€ million)	272	557	3,102	33,252	42,456
Average hedged interest rate (%)	3.08	1.60	1.63	1.72	2.86

Currency risk

As at the reporting date, there were no hedges in connection with hedging exposure to currency risk. In 2018, an average US dollar exchange rate of US$ 1.14 USD had been hedged by hedging instruments with a nominal amount of €173 million and a residual maturity of up to one month.

Reconciliation of hedge accounting effects to equity components by type of risk

The following table shows a reconciliation of the effects from hedge accounting to corresponding components of equity. The relevant effects were those from cash flow hedges and from hedges of net investments in foreign operations. These types of hedges were used only in connection with hedging the exposure to currency risk.

€ million	Cash flow hedge reserve	Reserve from hedges of net investments in foreign operations
Balance as at Jan. 1, 2018	5	-15
GAINS AND LOSSES ON CASH FLOW HEDGES	**-6**	
Gains (+)/losses (-) arising during the reporting period	**-3**	
Gains (-)/losses (+) reclassified to the income statement	**-3**	
Amount by which the hedged item has impacted the income statement	-3	
GAINS AND LOSSES ON HEDGES OF NET INVESTMENTS IN FOREIGN OPERATIONS		**-6**
Gains (+)/losses (-) arising during the reporting period		**-13**
Gains (-)/losses (+) reclassified to the income statement		**7**
Amount by which the hedged item has impacted the income statement		7
OTHER ADJUSTMENTS	**1**	**-**
INCOME TAXES	**-**	**8**
Balance as at Dec. 31, 2018	-	-13
GAINS AND LOSSES ON HEDGES OF NET INVESTMENTS IN FOREIGN OPERATIONS		**3**
Gains (+)/losses (-) arising during the reporting period		**3**
INCOME TAXES	**-**	**3**
Balance as at Dec. 31, 2019	-	-7

As at the reporting date, there were neither cash flow hedges nor hedges of net investments in foreign operations. The relevant reserves therefore resulted solely from hedges that expired in 2018 or in 2019.

>> 85 Nature and extent of risks arising from financial instruments and insurance contracts

With the exception of the disclosures pursuant to IFRS 7.35F(a)-36(b), the disclosures on the nature and extent of risks arising from financial instruments (IFRS 7.31-42) and insurance contracts (IFRS 4.38-39A) are included in the opportunity and risk report within the group management report. The disclosures pursuant to IFRS 7.35F(a)-36(b) can be found in this note in the notes to the consolidated financial statements. Disclosures on the maturity analysis in accordance with IFRS 7.39(a) and (b) and IFRS 4.39(d)(i), together with disclosures on the claims rate trend for direct non-life insurance business and for the inward reinsurance business in accordance with IFRS 4.39(c)(iii), can be found within the notes to the consolidated financial statements in notes 42 and 86.

Credit risk management practices

The rules for recognizing loss allowances are based on the calculation of expected losses in the lending business, on investments, and on other assets. The impairment rules are applied only to those financial assets that are not measured at fair value through profit or loss. These are:

– Financial assets measured at amortized cost, and
– Debt instruments held as financial assets measured at fair value through other comprehensive income.

The impairment rules are also applied to:

– Financial guarantee contracts and loan commitments that fall within the scope of IFRS 9 and are not recognized at fair value through profit or loss,
– Lease receivables, and
– Trade receivables and contract assets pursuant to IFRS 15.

In accordance with IFRS 9, the three-stage approach is used, additionally taking POCI assets into account, to determine the expected losses:

– Stage 1: For financial assets whose credit risk has not increased significantly since initial recognition, that were not impaired upon initial recognition, the 12-month credit loss is recognized. Interest is recognized on the basis of the gross carrying amount.
– Stage 2: For financial assets whose credit risk has increased significantly since initial recognition, the loss allowances are determined in the amount of the assets' lifetime expected credit losses. Interest is recognized on the basis of the gross carrying amount.
– Stage 3: Financial assets are classified as impaired if one or more events have occurred with an adverse impact on the estimated future cash flows of these financial assets or they are deemed to be in default pursuant to article 178 of the Capital Requirements Regulation (CRR). The definition therein is the same as the DZ BANK Group's definition of default. Here too, loss allowances are recognized in the amount of the lifetime expected credit losses. Interest income is calculated on the amortized cost after loss allowances using the effective interest method.
– POCI assets: Financial assets that are already deemed impaired upon initial recognition are not assigned to the three-stage model and are reported separately. Credit-impaired financial assets are initially recognized at fair value rather than at their gross carrying amount. Consequently, interest is recognized for these assets using a risk-adjusted effective interest rate.

The review of whether the credit risk of financial assets, financial guarantee contracts, and loan commitments has increased significantly since initial recognition is carried out on an ongoing basis, but particularly on every balance sheet date. The assessment is conducted both for individual financial assets and for portfolios of assets using quantitative and qualitative analysis. As a rule, quantitative analysis looks at the expected credit risk over the entire residual life of the financial instruments in question. If the analysis based on one year does not produce a significantly different outcome, the change in the expected credit risk on a one-year basis is used in some cases for reasons of simplification. In both scenarios, macroeconomic information is also factored in. To this end, the credit risk as at the balance sheet date for the residual life is compared with the assets' credit risk over the same maturity period estimated at the time of initial recognition. The thresholds that indicate a significant increase in credit risk are determined for each portfolio separately relative to the portfolio's past migrations of default probability. Internal risk measurement systems, external credit ratings, and risk forecasts are also used to assess the credit risk of financial assets. This test has been extended to look at qualitative criteria that increase credit risk unless these criteria have already been incorporated into the probability of default. In general, allocation to stage 2 is assumed no later than when payments become 30 days past due. Depending on the business line, either this criterion has been defined as an additional backstop or the past-due period is already factored into the credit rating and scoring system. As a rule, however, financial assets are allocated to stage 2 well before payments become 30 days past due. Exceptions are only made in individual cases if it has been shown that there is no significant increase in credit risk, despite payments being 30 days past due.

Securities with low credit risk are not tested to ascertain whether credit risk has increased significantly. Investment-grade securities are thus assigned to stage 1. This exemption does not apply to loans and receivables.

If, on the balance sheet date, it is found that there is no longer a significant increase in credit risk compared with previous balance sheet dates, the financial assets in question are transferred back to stage 1 and the loss allowances are brought back down to the level of the 12-month expected credit loss. If a financial instrument in stage 3 recovers, the difference between the interest income determined for the period of credit impairment on the basis of amortized cost and the actual interest income recognized in respect of the financial instrument for the period concerned is reported as a reversal of an impairment loss or a reversal of loss allowances. In the case of a transfer back from stage 3, the default status (as defined in the regulatory requirements) is only revoked after the necessary cure period, which is implicitly taken into account in the transfer criterion.

Expected losses are calculated as the probability-weighted present value of the expected defaults over the estimated lifetime from default events within the next 12 months for assets assigned to stage 1 of the impairment model and from default events over the entire residual life for assets assigned to stages 2 and 3. The expected losses are discounted with their original effective interest rate. This calculation uses the regulatory model (probability of default, loss given default, and expected loan amount at the time of default), with adjustments to satisfy the requirements of IFRS 9. The estimated probability of default incorporates both historical and forward-looking default information. This is applied when loss allowances are determined within stage 2, in the form of shifts in the default probabilities calculated using statistical means. The calculation of the expected loss for specific exposures in stage 3 does not use this type of fundamental parameter-based approach but rather draws on individual expert appraisals of the achievable cash flows and probability-weighted scenarios at individual transaction level.

Loss histories, adjusted to reflect forecast future defaults, serve as the basis for determining expected losses. A macroeconomic scenario based on empirical estimates is also factored in. This scenario specifically looks at future trends in the labor market, interest rates in the money market, changes in GDP, inflation, and commercial real estate prices. To ensure that the expected loss is not distorted, the DZ BANK Group uses a number of scenarios when determining the risk parameters, which are then factored into the level of the loss allowance with a probability weighting. The methods and assumptions, including the forecasts, are validated regularly.

For the purpose of calculating loss allowances for portfolios, the portfolios are grouped according to shared credit risk characteristics, e.g. type of asset, credit rating, date of origination, residual life, industry, and origin of the borrower.

Directly recognized impairment losses reduce the carrying amounts of assets directly. Unlike loss allowances, which are estimates, directly recognized impairment losses are specified in an exact amount if this is justified because the receivable is not collectible (e.g. as a result of the notification of an insolvency ratio). Impairment losses can be recognized directly by writing down the asset value and/or by using existing loss allowances. As a rule, directly recognized impairment losses are recognized after all recovery and enforcement measures have been completed. Directly recognized impairment losses are also applied to insignificant amounts.

Loss allowances and gross carrying amounts

In the DZ BANK Group, loss allowances are recognized for the classes 'financial assets measured at fair value', 'financial assets measured at amortized cost', 'finance leases', and 'financial guarantee contracts and loan commitments' in the amount of the expected credit losses. Trade receivables and contract assets that fall within the scope of IFRS 15 are assigned to the 'financial assets measured at amortized cost' class.

Financial assets measured at fair value

€ million	Stage 1 Loss allowances	Stage 1 Fair value	Stage 2 Loss allowances	Stage 2 Fair value	Stage 3 Loss allowances	Stage 3 Fair value
Balance as at Jan. 1, 2018	9	83,114	10	402	33	26
Addition/increase in loan drawdowns	5	20,679	-	-	-	-
Change to financial assets due to transfer between stages	3	198	-3	-198	-	-
Transfer from stage 2	3	198	-3	-198	-	-
Use of loss allowances/directly recognized impairment losses	-1	-	-	-	-5	-
Derecognitions and repayments	-5	-22,283	-1	-29	-	-6
Changes to models/risk parameters	-5	-	-5	-	-	-
Additions	6	-	1	-	-	-
Reversals	-11	-	-6	-	-	-
Amortization, fair value changes, and other changes in measurement	-	-1,689	-	7	-	5
Exchange differences and other changes	1	50	-1	-	-1	-
Changes in scope of consolidation	-	-1	-	-	-	-
Deferred taxes	1	-	3	-	2	-
Balance as at Dec. 31, 2018	8	80,068	3	182	29	25
Addition/increase in loan drawdowns	8	26,216	-	-	-	4
Change to financial assets due to transfer between stages	1	93	-1	-93	-	-
Transfer from stage 2	1	93	-1	-93	-	-
Use of loss allowances/directly recognized impairment losses	-1	-	-	-	-	-
Derecognitions and repayments	-5	-15,375	-	-35	-1	-7
Changes to models/risk parameters	-2	-	-1	-	3	-
Additions	4	-	-	-	3	-
Reversals	-6	-	-1	-	-	-
Amortization, fair value changes, and other changes in measurement	-	4,773	-	5	-	-3
Exchange differences and other changes	-	4	-	-	-	-
Deferred taxes	-	-	-	-	-1	-
Balance as at Dec. 31, 2019	**9**	**95,779**	**1**	**59**	**30**	**19**

Financial assets measured at amortized cost

€ million	Stage 1 Loss allowances	Stage 1 Gross carrying amount	Stage 2 Loss allowances	Stage 2 Gross carrying amount	Stage 3 Loss allowances	Stage 3 Gross carrying amount	POCI assets Loss allowances	POCI assets Gross carrying amount
Balance as at Jan. 1, 2018	233	315,853	212	12,364	2,449[1]	5,422[1]	10	32
Addition/increase in loan drawdowns	163	11,201,850	26	10,596	386	2,500	7	61
Change to financial assets due to transfer between stages	141	-541	-206	254	70	287	-	-
Transfer from stage 1	-50	-5,791	44	5,604	6	187	-	-
Transfer from stage 2	169	5,070	-286	-5,617	114	547	-	-
Transfer from stage 3	22	180	36	267	-50	-447	-	-
Use of loss allowances/directly recognized impairment losses	-	-1	-1	-	-804[1]	-36	-	-2
Reclassifications to non-current assets and disposal groups classified as held for sale	-5	-5,847	-	-106	-13	-40	-	-
Derecognitions and repayments	-104	-11,181,684	-72	-15,013	-482	-3,442[1]	-13	-88
Changes to models/risk parameters	-196	-	235	-	240	-	-	-
Additions	127	-	357	-	745	-	12	-
Reversals	-323	-	-122	-	-505	-	-12	-
Modification gains	-	1	-	-	-	-	-	-
Amortization, fair value changes, and other changes in measurement	-	-634	-	133	-	26	-	-
Positive change in fair value of POCI assets	-	-	-	-	-	-	-	18
Exchange differences and other changes	-1	1,221	2	-364	126[1]	-368[1]	-1	1
Changes in the scope of consolidation	-	8	-	-	-	-	-	-
Balance as at Dec. 31, 2018	231	330,226	196	7,864	1,972	4,349	3	22
Addition/increase in loan drawdowns	168	10,429,453	29	20,979	393	1,898	-	14
Change to financial assets due to transfer between stages	128	1,005	-210	-2,041	87	1,036	-	-
Transfer from stage 1	-72	-5,886	64	5,487	8	399	-	-
Transfer from stage 2	184	6,829	-313	-7,818	134	989	-	-
Transfer from stage 3	16	62	39	290	-55	-352	-	-
Use of loss allowances/directly recognized impairment losses	-	-	-1	-	-559	-27	-1	-2
Derecognitions and repayments	-129	-10,411,693	-55	-18,511	-286	-2,866	-1	-31
Changes to models/risk parameters	-180	-	265	-	167	-	-	-
Additions	149	-	422	-	752	-	11	-
Reversals	-329	-	-157	-	-585	-	-11	-
Amortization, fair value changes, and other changes in measurement	-	-83	-	33	-	-277	-	-
Positive change in fair value of POCI assets	-	-	-	-	-	-	-	27
Exchange differences and other changes	-	-691	-	-95	49	-228	-	1
Balance as at Dec. 31, 2019	**218**	**348,217**	**224**	**8,229**	**1,823**	**3,885**	**1**	**31**

1 Amount restated (see note 2).

The undiscounted expected credit losses on purchased or originated credit-impaired assets that were recognized for the first time during the reporting period totaled €84 million (2018: €92 million).

Non-current assets and disposal groups classified as held for sale that were previously recognized as financial assets measured at amortized cost

€ million	Stage 1 Loss allowances	Stage 1 Gross carrying amount	Stage 2 Loss allowances	Stage 2 Gross carrying amount	Stage 3 Loss allowances	Stage 3 Gross carrying amount
Balance as at Jan. 1, 2019	5	5,853	-	105	13	40
Addition/increase in loan drawdowns	1	1,334	-	-	-	-
Change to financial assets due to transfer between stages	-1	-194	-1	92	2	102
Transfer from stage 1	-1	-232	1	210	-	22
Transfer from stage 2	-	16	-2	-118	2	102
Transfer from stage 3	-	22	-	-	-	-22
Derecognitions and repayments	-9	-6,785	-4	-206	-24	-138
Changes to models/risk parameters	4	-	5	-	10	-
Additions	6	-	6	-	13	-
Reversals	-2	-	-1	-	-3	-
Amortization, fair value changes, and other changes in measurement	-	21	-	1	-	-
Exchange differences and other changes	-	133	-	11	2	3
Changes in scope of consolidation	-	-168	-	-3	-	-
Balance as at Dec. 31, 2019	**-**	**194**	**-**	**-**	**3**	**7**

Finance leases

€ million	Stage 1 Loss allowances	Stage 1 Gross carrying amount	Stage 2 Loss allowances	Stage 2 Gross carrying amount	Stage 3 Loss allowances	Stage 3 Gross carrying amount
Balance as at Jan. 1, 2018	6	2,595	10	304	18	51
Addition/increase in loan drawdowns	7	870	17	12	22	23
Change to finance leases due to transfer between stages	13	-8	-4	10	-14	-3
Transfer from stage 1	-1	-199	1	175	-	24
Transfer from stage 2	3	150	-15	-190	15	40
Transfer from stage 3	11	41	10	25	-29	-67
Use of loss allowances/directly recognized impairment losses	-	-	-	-	-2	-
Reclassifications to non-current assets and disposal groups classified as held for sale	-1	-619	-1	-48	-2	-4
Derecognitions and repayments	-21	-1,027	-13	-93	-14	-44
Changes to models/risk parameters	-	-	-1	-	-	-
Reversals	-	-	-1	-	-	-
Exchange differences and other changes	-	-	-	1	-	-
Balance as at Dec. 31, 2018	4	1,811	8	186	8	23
Addition/increase in loan drawdowns	2	290	13	3	9	2
Change to finance leases due to transfer between stages	5	-43	-9	21	-1	22
Transfer from stage 1	-1	-151	1	141	-	10
Transfer from stage 2	5	99	-12	-127	2	28
Transfer from stage 3	1	9	2	7	-3	-16
Use of loss allowances/directly recognized impairment losses	-	-	-	-	-1	-
Derecognitions and repayments	-8	-684	-7	-62	-7	-22
Balance as at Dec. 31, 2019	**3**	**1,374**	**5**	**148**	**8**	**25**

Financial guarantee contracts and loan commitments

€ million	Stage 1 Loss allowances	Stage 1 Nominal amount	Stage 2 Loss allowances	Stage 2 Nominal amount	Stage 3 Loss allowances	Stage 3 Nominal amount
Balance as at Jan. 1, 2018	38	55,702	8	627	147	469
Addition/increase in loan drawdowns	70	33,294	18	415	24	41
Change to financial guarantee contracts and loan commitments due to transfer between stages	4	-317	15	250	-19	67
Transfer from stage 1	-5	-733	5	694	-	42
Transfer from stage 2	8	412	-11	-451	3	36
Transfer from stage 3	1	4	21	7	-22	-11
Reclassifications to liabilities included in disposal groups classified as held for sale	-	-549	-	-	-	-
Derecognitions and repayments	-49	-27,379	-35	-458	-74	-329
Changes to models/risk parameters	-28	-	3	-	38	-
Additions	25	-	33	-	65	-
Reversals	-53	-	-30	-	-27	-
Amortization, fair value changes, and other changes in measurement	-	74	-	-	-	-
Exchange differences and other changes	-	-38	-	-	2	2
Balance as at Dec. 31, 2018	35	60,787	9	834	118	250
Addition/increase in loan drawdowns	103	67,567	9	637	33	206
Change to financial guarantee contracts and loan commitments due to transfer between stages	3	-158	-7	45	4	113
Transfer from stage 1	-2	-615	2	553	-	62
Transfer from stage 2	4	450	-10	-511	6	61
Transfer from stage 3	1	7	1	3	-2	-10
Derecognitions and repayments	-56	-63,803	-11	-937	-36	-282
Changes to models/risk parameters	-40	-	11	-	22	-
Additions	32	-	20	-	85	-
Reversals	-72	-	-9	-	-63	-
Amortization, fair value changes, and other changes in measurement	-	69	-	-1	-	1
Exchange differences and other changes	-	475	-1	-3	-1	-6
Balance as at Dec. 31, 2019	**45**	**64,937**	**10**	**575**	**140**	**282**

Liabilities included in disposal groups classified as held for sale that were previously recognized as financial guarantee contracts and loan commitments

	Stage 1	
€ million	Loss allowances	Nominal amount
Balance as at Jan. 1, 2019	-	549
Addition/increase in loan drawdowns	-	75
Derecognitions and repayments	-2	-530
Changes to models/risk parameters	2	-
Additions	2	-
Exchange differences and other changes	-	-19
Balance as at Dec. 31, 2019	-	**75**

Contractual modifications and derecognitions

The negotiation or modification of contractually agreed cash flows relating to a financial asset leads to a modified asset. The modification of contractually agreed cash flows can lead to the derecognition of the existing financial asset and the recognition of a new one. In the case of modifications that do not lead to the derecognition of the financial asset (non-substantial contractual modifications), the modifications of the contractually agreed cash flows are recognized as a modification gain or loss in the amount of the difference between the originally agreed cash flows and the modified cash flows discounted with the original effective interest rate. If substantial modifications are made to the contract for a financial asset, the asset is derecognized and then recognized as a new asset. The POCI asset rules apply to impaired assets (stage 3). If contractual modifications for a financial asset do not have a substantial impact, the asset is reviewed to ascertain whether credit risk has increased significantly since initial recognition. The assessment to determine whether there has been a significant deterioration in the credit quality of modified assets compares the probability of default based on the modified cash flows and on the residual maturity as at the reporting date against the probability of default based on the original cash flows and residual maturity on initial recognition.

In 2019, contractually agreed payments in relation to finance assets allocated to stage 2 of the impairment model with an amortized cost of €245 million (December 31, 2018: €170 million) were modified to take account of changes in contractual cash flows.

Maximum exposure to credit risk

The DZ BANK Group is exposed to credit risk from financial instruments. The maximum exposure to credit risk is represented by the fair value, amortized cost, or nominal amount of financial instruments. The following collateral is held to reduce the exposure to this maximum credit risk:

AS AT DECEMBER 31, 2019

€ million	Maximum exposure to credit risk	
FINANCIAL ASSETS MEASURED AT FAIR VALUE	**163,287**	
Financial assets measured at fair value through profit or loss	**67,429**	
Financial assets mandatorily measured at fair value through profit or loss	57,099	
Financial assets designated as at fair value through profit or loss	10,330	
Financial assets measured at fair value through other comprehensive income	**95,858**	
Financial assets mandatorily measured at fair value through other comprehensive income	95,858	
FINANCIAL ASSETS MEASURED AT AMORTIZED COST	**359,370**	
of which: credit-impaired		
FINANCE LEASES	**1,531**	
of which: credit-impaired		
FINANCIAL GUARANTEE CONTRACTS AND LOAN COMMITMENTS	**66,202**	
of which: credit-impaired		

AS AT DECEMBER 31, 2019

€ million	Maximum exposure to credit risk	
Non-current assets and disposal groups classified as held for sale from financial assets measured at fair value	38	
Non-current assets and disposal groups classified as held for sale from financial assets measured at amortized cost	198	
Liabilities included in disposal groups classified as held for sale from financial guarantee contracts and loan commitments	74	

	of which secured with:					
	Guarantees, indemnities, risk subparticipations	Credit insurance	Land charges, mortgages, registered ship and aircraft mortgages	Pledged loans and advances, assignments, other pledged assets	Financial collateral	Other collateral
	1,117	**-**	**199**	**25**	**3,108**	**359**
	813	**-**	**29**	**25**	**896**	**68**
	441	-	29	25	896	51
	372	-	-	-	-	17
	304	**-**	**170**	**-**	**2,212**	**291**
	304	-	170	-	2,212	291
	912	**2,720**	**105,972**	**1,894**	**7,380**	**14,893**
	32	134	303	208	3	335
	11	**-**	**-**	**7**	**-**	**5**
	-	-	-	6	-	1
	374	**852**	**6,064**	**693**	**6**	**49**
	-	2	5	9	-	32

	of which secured with:					
	Guarantees, indemnities, risk subparticipations	Credit insurance	Land charges, mortgages, registered ship and aircraft mortgages	Pledged loans and advances, assignments, other pledged assets	Financial collateral	Other collateral
	-	-	-	-	-	-
	-	-	-	-	-	14
	8	-	-	-	2	10

AS AT DECEMBER 31, 2018

€ million	Maximum exposure to credit risk	
FINANCIAL ASSETS MEASURED AT FAIR VALUE	**139,120**	
Financial assets measured at fair value through profit or loss	**58,845**	
Financial assets mandatorily measured at fair value through profit or loss	49,078	
Financial assets designated as at fair value through profit or loss	9,767	
Financial assets measured at fair value through other comprehensive income	**80,275**	
Financial assets mandatorily measured at fair value through other comprehensive income	80,275	
FINANCIAL ASSETS MEASURED AT AMORTIZED COST	**340,592**	
of which: credit-impaired		
FINANCE LEASES	**2,000**	
of which: credit-impaired		
FINANCIAL GUARANTEE CONTRACTS AND LOAN COMMITMENTS	**62,271**	
of which: credit-impaired		

1 Amount restated (see note 2).

AS AT DECEMBER 31, 2018

€ million	Maximum exposure to credit risk	
Non-current assets and disposal groups classified as held for sale from financial assets measured at fair value	404	
Non-current assets and disposal groups classified as held for sale from financial assets measured at amortized cost	5,960	
Liabilities included in disposal groups classified as held for sale from financial guarantee contracts and loan commitments	549	

	of which secured with:					
	Guarantees, indemnities, risk subparticipations	Credit insurance	Land charges, mortgages, registered ship and aircraft mortgages	Pledged loans and advances, assignments, other pledged assets	Financial collateral	Other collateral
	1,141	**-**	**303**	**39**	**2,241**	**162**
	608	**-**	**31**	**39**	**12**	**40**
	180	-	31	39	12	16
	428	-	-	-	-	24
	533	**-**	**272**	**-**	**2,229**	**122**
	533	-	272	-	2,229	122
	1,014	**2,332**	**96,178**	**1,915**	**6,405**	**19,061** [1]
	24	183	401	170	24	842 [1]
	14	**-**	**-**	**10**	**1**	**7**
	-	-	-	6	-	1
	233	**908**	**6,368**	**1,245**	**3**	**150**
	1	25	4	7	-	10

	of which secured with:					
	Guarantees, indemnities, risk subparticipations	Credit insurance	Land charges, mortgages, registered ship and aircraft mortgages	Pledged loans and advances, assignments, other pledged assets	Financial collateral	Other collateral
	4	-	-	-	-	327
	56	-	-	-	37	5,583
	9	-	-	-	4	246

A range of different collateral is held in the traditional lending business to reduce the exposure to the maximum credit risk. Specifically, this collateral includes mortgages on residential and commercial real estate, registered ship and aircraft mortgages, guarantees (including indemnities and credit insurance), financial security (e.g. certain fixed-income securities, shares, and investment fund units), blanket and individual assignments of trade receivables, and various types of physical collateral. Generally, cash collateral, high-quality government bonds, and Pfandbriefe are held in the trading business in accordance with the collateral policy to reduce the risk attaching to OTC derivatives. Some financial instruments in stage 3 are not written down because they are fully covered by collateral.

As a result of changes in the credit risk, the fair value of financial assets designated as at fair value through profit or loss had increased by €4 million at the end of 2019 (December 31, 2018: decrease of €3 million). As at the balance sheet date, the cumulative amount by which the fair value had increased owing to changes in the credit risk was €129 million (December 31, 2018: €501 million (amount restated; see note 2)).

The credit risk associated with financial assets designated as at fair value through profit or loss was mitigated as at the reporting date by financial guarantee contracts with a value of €332 million (December 31, 2018: €390 million) furnished by affiliated banks.

Credit risk concentrations

The credit risk from financial instruments to which the DZ BANK Group is exposed is broken down by sector using the Deutsche Bundesbank industry codes and by geographic region using the annually updated country groups published by the International Monetary Fund (IMF). Volumes, measured on the basis of fair values and gross carrying amounts of financial assets and the credit risk from financial guarantee contracts and loan commitments, are broken down using the following credit rating classes:

– Investment grade: equates to internal rating classes 1A–3A
– Non-investment grade: equates to internal rating classes 3B–4E
– Default: equates to internal rating classes 5A–5E
– Not rated: no rating necessary or not classified

‘Not rated’ comprises counterparties for which a rating classification is not required.

AS AT DECEMBER 31, 2019

€ million		Financial sector	Public sector	Corporates	Retail	Industry conglome-rates
Investment grade						
Fair value	Stage 1	48,971	30,089	14,127	-	257
Gross carrying amount	Stage 1	149,404	22,031	61,507	33,598	7,437
	Stage 2	25	8	135	467	297
Nominal amount	Stage 1	21,815	401	20,233	7,641	2,133
	Stage 2	77	-	23	-	37
Non-investment grade						
Fair value	Stage 1	401	345	230	-	1
	Stage 2	28	30	-	-	1
Gross carrying amount	Stage 1	8,954	171	19,102	32,692	82
	Stage 2	35	197	1,536	3,643	35
	Stage 3	-	-	994	15	-
Nominal amount	Stage 1	606	23	7,153	138	56
	Stage 2	3	-	357	1	-

AS AT DECEMBER 31, 2018

€ million		Financial sector	Public sector	Corporates	Retail	Industry conglome-rates
Investment grade						
Fair value	Stage 1	37,120	27,267	11,931	259	702
Gross carrying amount	Stage 1	149,644	21,409	49,012	35,950	4,597
	Stage 2	24	6	298	461	-
Nominal amount	Stage 1	22,061	209	19,310	6,203	1,791
	Stage 2	93	-	129	-	166
Non-investment grade						
Fair value	Stage 1	456	948	738	-	1
	Stage 2	-	143	-	38	1
Gross carrying amount	Stage 1	6,264	146	19,740	31,071	110
	Stage 2	44	224	1,818	3,768	51
	Stage 3	-	-	1,628[1]	13	-
Nominal amount	Stage 1	363	-	5,904	339	52
	Stage 2	40	-	291	1	-

1 Amount restated (see note 2).

AS AT DECEMBER 31, 2019

€ million		Financial sector	Public sector	Corporates	Retail	Industry conglome-rates	Other
Default							
Fair value	Stage 3	19	-	-	-	-	-
Gross carrying amount	Stage 2	-	-	4	-	-	-
	Stage 3	125	-	1,620	708	144	-
	POCI assets	-	-	13	-	-	-
Nominal amount	Stage 3	3	-	279	-	-	-
Not rated							
Fair value	Stage 1	333	718	80	-	227	-
Gross carrying amount	Stage 1	2,351	870	1,416	8,540	1,436	-
	Stage 2	891	41	234	608	194	27
	Stage 3	-	-	3	301	-	-
	POCI assets	-	-	-	18	-	-
Nominal amount	Stage 1	955	9	944	2,027	803	-
	Stage 2	10	-	57	9	1	-

AS AT DECEMBER 31, 2018

€ million		Financial sector	Public sector	Corporates	Retail	Industry conglome-rates	Other
Default							
Fair value	Stage 3	-	-	-	25	-	-
Gross carrying amount	Stage 3	47	-	1,469	653	169	-
	POCI assets	-	-	10	-	-	-
Nominal amount	Stage 2	-	-	1	-	-	-
	Stage 3	27	-	213	-	-	-
Not rated							
Fair value	Stage 1	165	162	67	-	252	-
Gross carrying amount	Stage 1	2,527	947	1,128	8,096	1,380	16
	Stage 2	512	42	242	385	142	33
	Stage 3	8	-	110	275	-	-
	POCI assets	-	-	-	12	-	-
Nominal amount	Stage 1	945	9	914	2,001	686	-
	Stage 2	42	-	56	15	-	-
	Stage 3	-	-	10	-	-	-

AS AT DECEMBER 31, 2019

€ million		Germany	Other industrialized countries	Advanced economies	Emerging markets	Supranational institutions
Investment grade						
Fair value	Stage 1	29,276	56,414	1,457	2,748	3,549
Gross carrying amount	Stage 1	242,384	28,455	1,005	1,602	531
	Stage 2	903	28	1	-	-
Nominal amount	Stage 1	45,766	6,021	45	391	-
	Stage 2	73	64	-	-	-
Non-investment grade						
Fair value	Stage 1	183	491	-	303	-
	Stage 2	-	59	-	-	-
Gross carrying amount	Stage 1	50,071	3,960	1,049	5,921	-
	Stage 2	4,504	536	17	389	-
	Stage 3	4	549	217	239	-
Nominal amount	Stage 1	6,121	1,069	99	687	-
	Stage 2	295	54	2	10	-

AS AT DECEMBER 31, 2018

€ million		Germany	Other industrialized countries	Advanced economies	Emerging markets	Supranational institutions
Investment grade						
Fair value	Stage 1	24,206	46,554	1,305	2,150	3,064
Gross carrying amount	Stage 1	229,372	28,330	727	1,527	656
	Stage 2	754	33	1	1	-
Nominal amount	Stage 1	44,840	4,178	148	408	-
	Stage 2	199	188	1	-	-
Non-investment grade						
Fair value	Stage 1	888	1,025	-	155	75
	Stage 2	-	182	-	-	-
Gross carrying amount	Stage 1	45,428	4,183	1,492	6,228	-
	Stage 2	4,584	509	130	682	-
	Stage 3	7	813[1]	252[1]	569[1]	-
Nominal amount	Stage 1	4,943	809	68	838	-
	Stage 2	277	10	17	28	-

1 Amount restated (see note 2).

AS AT DECEMBER 31, 2019

€ million		Germany	Other industrialized countries	Advanced economies	Emerging markets	Supranational institutions
Default						
Fair value	Stage 3	-	19	-	-	-
Gross carrying amount	Stage 2	4	-	-	-	-
	Stage 3	2,092	245	53	207	-
	POCI assets	13	-	-	-	-
Nominal amount	Stage 3	156	76	17	33	-
Not rated						
Fair value	Stage 1	516	684	-	-	158
Gross carrying amount	Stage 1	11,987	2,189	8	293	136
	Stage 2	1,479	471	7	38	-
	Stage 3	278	26	-	-	-
	POCI assets	17	1	-	-	-
Nominal amount	Stage 1	4,239	450	-	49	-
	Stage 2	66	11	-	-	-

AS AT DECEMBER 31, 2018

€ million		Germany	Other industrialized countries	Advanced economies	Emerging markets	Supranational institutions
Default						
Fair value	Stage 3	1	24	-	-	-
Gross carrying amount	Stage 3	1,792	269	8	269	-
	POCI assets	10	-	-	-	-
Nominal amount	Stage 2	1	-	-	-	-
	Stage 3	139	65	-	36	-
Not rated						
Fair value	Stage 1	68	421	-	-	157
Gross carrying amount	Stage 1	11,797	1,989	18	179	111
	Stage 2	968	320	1	67	-
	Stage 3	353	25	-	15	-
	POCI assets	11	1	-	-	-
Nominal amount	Stage 1	3,949	539	-	67	-
	Stage 2	103	10	-	-	-
	Stage 3	10	-	-	-	-

>> 86 Maturity analysis

AS AT DECEMBER 31, 2019

€ million	≤ 1 month	> 1 month – 3 months	> 3 months – 1 year	> 1 year – 5 years	> 5 years	Indefinite
Financial assets	**92,411**	**14,815**	**42,241**	**162,214**	**241,372**	**20,985**
Cash and cash equivalents	52,167	-	-	-	-	-
Loans and advances to banks	10,845	4,213	13,098	37,610	35,522	-
Loans and advances to customers	16,754	6,598	17,124	73,270	91,693	-
Derivatives used for hedging (positive fair values)	-	3	19	121	66	-
Financial assets held for trading	8,313	1,831	4,755	8,805	20,996	1,667
of which: non-derivative financial assets held for trading	7,968	1,346	3,283	4,095	7,153	1,667
derivatives (positive fair values)	345	485	1,472	4,710	13,843	-
Investments	1,079	1,233	4,227	22,269	29,329	2,173
Investments held by insurance companies	662	898	2,974	19,600	63,682	17,116
of which: non-derivative investments held by insurance companies	478	870	2,959	19,577	63,649	17,109
derivatives (positive fair values)	184	28	15	23	33	7
Other assets	2,591	39	44	539	84	29
Financial liabilities	**-105,297**	**-27,558**	**-32,895**	**-90,139**	**-105,318**	**-68,427**
Deposits from banks	-55,086	-3,621	-10,018	-39,397	-33,962	-1,652
Deposits from customers	-33,188	-2,287	-4,217	-8,768	-25,151	-63,789
Debt certificates issued including bonds	-9,290	-19,660	-12,809	-20,651	-24,108	-
Derivatives used for hedging (negative fair values)	-4	-18	-122	-436	-723	-
Financial liabilities held for trading	-6,813	-1,378	-5,243	-18,186	-19,686	-552
of which: non-derivative financial liabilities held for trading	-6,263	-862	-3,393	-12,229	-9,562	-552
derivatives (negative fair values)	-550	-516	-1,850	-5,957	-10,124	-
Other liabilities	-916	-434	-93	-1,368	-1,143	-2,409
of which: non-derivative other liabilities	-906	-412	-85	-1,275	-927	-2,402
derivatives (negative fair values)	-10	-22	-8	-93	-216	-7
Subordinated capital	-	-160	-393	-1,333	-545	-25
Financial guarantee contracts and loan commitments	**-63,140**	**-277**	**-405**	**-312**	**-30**	**-1,630**
Financial guarantee contracts	-7,494	-58	-36	-168	-30	-56
Loan commitments	-55,646	-219	-369	-144	-	-1,574

AS AT DECEMBER 31, 2018

€ million	≤ 1 month	> 1 month – 3 months	> 3 months – 1 year	> 1 year – 5 years	> 5 years	Indefinite
Financial assets	**85,132**	**14,793**	**36,465**	**155,003**	**223,603**	**18,180**
Cash and cash equivalents	51,459	-	-	-	-	-
Loans and advances to banks	9,960	4,452	10,469	36,932	34,014	1
Loans and advances to customers	15,082[1]	6,400	16,567	68,569	85,281	-
Derivatives used for hedging (positive fair values)	2	1	35	319	524	-
Financial assets held for trading	5,425	2,393	4,072	8,041	16,698	1,415
of which: non-derivative financial assets held for trading	5,166	2,020	3,182	3,876	6,678	1,415
derivatives (positive fair values)	259	373	890	4,165	10,020	-
Investments	437	632	2,556	21,326	25,323	2,016
Investments held by insurance companies	544	882	2,722	19,425	61,710	14,724
of which: non-derivative investments held by insurance companies	484	861	2,708	19,398	61,657	14,720
derivatives (positive fair values)	60	21	14	27	53	4
Other assets	2,223	33	44	391	53	24
Financial liabilities	**-100,343**	**-17,616**	**-25,756**	**-91,979**	**-107,463**	**-63,875**
Deposits from banks	-56,085	-5,364	-9,295	-40,698	-35,025	-1,652
Deposits from customers	-33,723	-1,851	-4,741	-9,245	-26,993	-60,519
Debt certificates issued including bonds	-4,965	-8,143	-6,604	-21,310	-24,507	-
Derivatives used for hedging (negative fair values)	-8	-15	-61	-660	-1,779	-
Financial liabilities held for trading	-4,172	-1,770	-4,244	-17,114	-17,179	-388
of which: non-derivative financial liabilities held for trading	-4,030	-1,321	-2,279	-11,925	-8,956	-388
derivatives (negative fair values)	-142	-449	-1,965	-5,189	-8,223	-
Other liabilities	-1,346	-423	-123	-1,231	-1,212	-1,291
of which: non-derivative other liabilities	-1,342	-401	-122	-1,140	-975	-1,289
derivatives (negative fair values)	-4	-22	-1	-91	-237	-2
Subordinated capital	-44	-50	-688	-1,721	-768	-25
Financial guarantee contracts and loan commitments	**-59,531**	**-134**	**-282**	**-324**	**-290**	**-1,310**
Financial guarantee contracts	-7,251	-24	-15	-141	-105	-65
Loan commitments	-52,280	-110	-267	-183	-185	-1,245

1 Amount restated (see note 2).

The maturity analysis shows contractually agreed cash inflows with a plus sign and contractually agreed cash outflows with a minus sign. In the case of financial guarantee contracts and loan commitments, the potential cash outflows are shown.

The contractual maturities do not match the estimated actual cash inflows and cash outflows, especially in the case of financial guarantee contracts and loan commitments. The management of liquidity risk based on expected and unexpected cash flows is described in section 6.2.5 of the opportunity and risk report in the group management report.

The maturity analysis for lease liabilities in accordance with IFRS 16.58 is presented in note 92.

>> 87 Exposures to countries particularly affected by the sovereign debt crisis

The table below shows the carrying amounts of the DZ BANK Group's exposures to bonds issued by governments and public authorities in countries particularly affected by the sovereign debt crisis, broken down into the categories applied to financial instruments under IFRS 9.

€ million	Dec. 31, 2019 Carrying amount	Dec. 31, 2019 Fair value	Dec. 31, 2018 Carrying amount	Dec. 31, 2018 Fair value
Portugal	**814**	**831**	**718**	**731**
Financial assets measured at fair value through profit or loss	423	423	347	347
Financial assets measured at fair value through other comprehensive income	342	342	322	322
Financial assets measured at amortized cost	49	66	49	62
Italy	**4,973**	**5,058**	**4,937**	**4,982**
Financial assets measured at fair value through profit or loss	1,915	1,915	1,734	1,734
Financial assets measured at fair value through other comprehensive income	2,538	2,538	2,683	2,683
Financial assets measured at amortized cost	520	605	520	565
Spain	**2,123**	**2,170**	**1,925**	**1,942**
Financial assets measured at fair value through profit or loss	1,253	1,253	1,122	1,122
Financial assets measured at fair value through other comprehensive income	630	630	563	563
Financial assets measured at amortized cost	240	287	240	257
Total	**7,910**	**8,059**	**7,580**	**7,655**

Bonds issued by countries particularly affected by the sovereign debt crisis and held as part of the insurance business are only recognized in the proportion attributable to the shareholders of the DZ BANK Group.

Fair value hierarchy

The recurring fair value measurements as measured and recognized on the balance sheet are assigned to the levels of the fair value hierarchy as follows:

€ million	Level 1 Dec. 31, 2019	Level 1 Dec. 31, 2018	Level 2 Dec. 31, 2019	Level 2 Dec. 31, 2018	Level 3 Dec. 31, 2019	Level 3 Dec. 31, 2018
Portugal	**765**	669	**-**	-	**-**	-
Financial assets measured at fair value through profit or loss	423	347	-	-	-	-
Financial assets measured at fair value through other comprehensive income	342	322	-	-	-	-
Italy	**4,382**	4,183	**41**	211	**30**	23
Financial assets measured at fair value through profit or loss	1,897	1,715	18	19	-	-
Financial assets measured at fair value through other comprehensive income	2,485	2,468	23	192	30	23
Spain	**1,659**	1,347	**158**	282	**66**	56
Financial assets measured at fair value through profit or loss	1,029	902	158	164	66	56
Financial assets measured at fair value through other comprehensive income	630	445	-	118	-	-
Total	**6,806**	6,199	**199**	493	**96**	79

Maturity analysis

AS AT DECEMBER 31, 2019

€ million	≤ 1 month	> 1 month – 3 months	> 3 months – 1 year	> 1 year – 5 years	> 5 years
Portugal	-	-	25	102	783
Italy	7	95	237	1,521	4,091
Spain	4	9	64	555	1,876
Total	**11**	**104**	**326**	**2,178**	**6,750**

AS AT DECEMBER 31, 2018

€ million	≤ 1 month	> 1 month – 3 months	> 3 months – 1 year	> 1 year – 5 years	> 5 years
Portugal	-	-	26	101	808
Italy	15	86	282	1,598	4,581
Spain	4	6	109	614	2,030
Total	**19**	**92**	**417**	**2,313**	**7,419**

The maturity analysis shows the contractually agreed cash inflows.

F Other disclosures

>> 88 Contingent liabilities

€ million	Dec. 31, 2019	Dec. 31, 2018
Contingent liabilities arising from contributions to the resolution fund for CRR credit institutions	37	25
Contingent liabilities in respect of litigation risk	9	10
Total	**46**	**35**

The contingent liabilities arising from contributions to the resolution fund for CRR credit institutions consist of irrevocable payment commitments that were made after the applications to furnish collateral in partial settlement of the annual contribution to the European bank levy for 2017 to 2019 were approved by the Single Resolution Board (SRB).

The contingent liabilities in respect of litigation risk comprise a small number of court proceedings relating to different cases. Where provisions have been recognized for particular claims, no contingent liabilities are recognized.

>> 89 Financial guarantee contracts and loan commitments

€ million	Dec. 31, 2019	Dec. 31, 2018
Financial guarantee contracts	**7,842**	**7,601**
Loan guarantees	4,187	4,022
Letters of credit	562	465
Other guarantees and warranties	3,093	3,114
Loan commitments	**57,952**	**54,270**
Credit facilities to banks	17,163	17,723
Credit facilities to customers	18,690	15,866
Guarantee credits	464	436
Letters of credit	1	1
Global limits	21,634	20,244
Total	**65,794**	**61,871**

The amounts shown for financial guarantee contracts and loan commitments are the nominal values of the commitment in each case.

>> 90 Trust activities

Assets held and liabilities entered into as part of trust activities do not satisfy the criteria for recognition on the balance sheet. The following table shows the breakdown for trust activities:

€ million	Dec. 31, 2019	Dec. 31, 2018
Trust assets	**761**	**944**
Loans and advances to banks	140	143
Loans and advances to customers	12	24
Investments	609	777
Trust liabilities	**761**	**944**
Deposits from banks	57	71
Deposits from customers	704	873

Trust assets and trust liabilities each include trust loans amounting to €57 million (December 31, 2018: €79 million).

>> 91 Business combinations

Goodwill is allocated to the DZ BANK Group's operating segments, each of which constitutes a cash-generating unit. As had been the case a year earlier, goodwill of €39 million was allocated to the UMH subgroup operating segment and €2 million to the TeamBank operating segment as at the balance sheet date.

Goodwill is regularly tested for possible impairment in the last quarter of the financial year. If there are any indications of possible impairment, more frequent impairment tests are also carried out. In an impairment test, the carrying amount of the goodwill-bearing units is compared with the relevant recoverable amount. The carrying amount is equivalent to the equity attributable to the goodwill-bearing entity. For the purposes of the test, the goodwill is notionally increased by the amount attributable to non-controlling interests. If the recoverable amount exceeds the carrying amount, no impairment of the goodwill is recognized. The recoverable amount is determined as the value in use of the goodwill-bearing entity. Value in use is based on the DZ BANK Group's 4-year plan, from which estimated future cash flows can be derived.

The basic assumptions are determined using an overall assessment based on past experience, current market and economic conditions, and estimates of future market trends. The macroeconomic scenario used as the basis for the 4-year plan assumes that Germany and the other countries of the European Monetary Union are continuing in a phase of moderate economic recovery, although a slowdown in growth is increasingly taking hold. It also assumes that both the euro area and the US dollar area will initially be hit by rising inflation, although the ECB's target for the euro area of 2.0 percent is unlikely to be exceeded for very long. The US inflation rate will temporarily rise beyond the 2.0 percent mark, but will not accelerate any further. Central banks are expected to adjust key interest rates accordingly after some delay. The scenario anticipates a widening of spreads on government bonds issued by the peripheral countries of the eurozone.

Cash flows beyond the end of the 4-year period were estimated using a constant rate of growth of 0.75 percent (2018: 1.00 percent) for the following operating segments: UMH subgroup and TeamBank.

The value in use for a goodwill-bearing entity is produced by discounting these cash flows back to the date of the impairment test. In 2019, the following discount rates (before taxes) used in the calculation were determined on the basis of the capital asset pricing model: 13.09 percent for the UMH subgroup operating segment (2018: 14.02 percent) and 13.09 percent for the TeamBank operating segment (2018: 14.02 percent).

There were no impairment losses in the financial year. In 2018, there had been indications that the goodwill allocated to the DZ PRIVATBANK operating segment might be impaired. The subsequent impairment test resulted in the recognition of an impairment loss of €128 million in respect of the goodwill.

Sensitivity analyses are also carried out in which parameters relevant to the calculation of value in use are modified within a plausible range of values. The parameters that are particularly relevant to the DZ BANK Group are the forecast cash flows and the discount rates. No impairment requirement would result in the TeamBank operating segment or in the UMH subgroup in any of the scenarios.

>> 92 Leases

DZ BANK Group as lessor

The underlying assets in leases in which the DZ BANK Group is the lessor can be subdivided into the following classes: land and buildings, office furniture and equipment, and intangible assets.

For the most part, the land and buildings asset class consists of commercial real estate, including parking areas. A smaller proportion is accounted for by residential real estate. Lease assets in the office furniture and equipment asset class are means of transport, such as aircraft, ships, and motor vehicles. Medical technology devices as well as IT and office equipment are also leased out. In addition, production machinery, together with photovoltaic installations and solar thermal systems, account for a significant proportion of this asset class. Software is the most significant item under intangible assets.

Finance leases

Within the DZ BANK Group, the VR Smart Finanz and DVB subgroups are active as lessors. The companies in the VR Smart Finanz subgroup predominantly enter into leases with customers for production machinery, photovoltaic installations, and solar thermal systems. Medical technology devices, vehicles, and software are leased in addition to office equipment. The entities in the DVB subgroup mainly enter into leases for ships. Some of the leases include purchase, extension, or termination options; they have terms of 1 to 21 years for office furniture and equipment, and 2 to 7 years for intangible assets.

In addition to the actual underlying assets financed by the leases, further items of collateral such as guarantees, buy-back agreements, and residual value guarantees are contractually agreed to reduce the risk. Lease assets are also monitored, for example by means of on-site inspections.

€ million	Dec. 31, 2019
Gross investment	**1,641**
Up to 1 year	576
More than 1 year and up to 2 years	420
More than 2 years and up to 3 years	295
More than 3 years and up to 4 years	177
More than 4 years and up to 5 years	91
More than 5 years	82
less unearned finance income	**-94**
Net investment	1,547
less present value of unguaranteed residual values	**-9**
Present value of minimum lease payment receivables	**1,538**

COMPARATIVE INFORMATION IN ACCORDANCE WITH IAS 17

€ million	Dec. 31, 2018
Gross investment	**2,164**
Up to 1 year	711
More than 1 year and up to 5 years	1,330
More than 5 years	123
less unearned finance income	**-144**
Net investment	2,020
less present value of unguaranteed residual values	**-42**
Present value of minimum lease payment receivables	**1,978**
Up to 1 year	642
More than 1 year and up to 5 years	1,225
More than 5 years	111

The change in the present value of the minimum lease payment receivables was largely attributable to expiring finance leases and partial repayments at the request of customers.

In the financial year, selling losses amounted to €1 million. The finance income on the net investment in the lease is reported separately under interest income, as disclosed in note 34.

Operating leases

Leases are in place for commercial and residential real estate, including parking areas. The leases normally include extension options. A small number of leases are also entered into for office furniture and equipment.

The following table shows a breakdown of the carrying amounts by class of underlying assets in the leases, comprising investment property and items of property, plant and equipment, as at the reporting date:

€ million	Dec. 31, 2019
Land and buildings	3,104
Office furniture and equipment	25
Total	**3,129**

Income from operating leases amounted to €273 million in the financial year, the bulk of which comprised rental income from investment property held by the insurance companies.

As at the reporting date, the breakdown of the total amount of minimum lease payments expected to be received from operating leases in the future was as follows:

€ million	Dec. 31, 2019
Total future minimum lease payments under non-cancelable leases	**1,001**
Up to 1 year	173
More than 1 year and up to 2 years	135
More than 2 years and up to 3 years	118
More than 3 years and up to 4 years	108
More than 4 years and up to 5 years	96
More than 5 years	371

COMPARATIVE INFORMATION IN ACCORDANCE WITH IAS 17

€ million	Dec. 31, 2018
Total future minimum lease payments under non-cancelable leases	**842**
Up to 1 year	177
More than 1 year and up to 5 years	371
More than 5 years	294

DZ BANK Group as lessee

The underlying assets in leases in which the DZ BANK Group is the lessee can be subdivided into the following classes: land and buildings, and office furniture and equipment.

Leases involving the land and buildings asset class in which the DZ BANK Group is the lessee relate to the leasing of offices and business premises (including parking areas) for the group's own business operations. Some of these leases include extension and termination options. The lease terms are up to 20 years. There are also a small number of leases for office furniture and equipment. These include leases for motor vehicles and workplace equipment. The lease terms are up to 5 years.

Rights to use underlying assets in leases are included under property, plant and equipment, investment property, and right-of-use assets, and under other assets. The following table shows the changes in the carrying amounts of the right-of-use assets, broken down by class of underlying asset:

€ million	Land and buildings	Office furniture and equipment
Carrying amounts as at Jan. 1, 2019	336	32
Additions	42	9
Revaluation	3	-
Depreciation	-70	-14
Impairment losses	-2	-
Disposals	-2	-
Carrying amounts as at Dec. 31, 2019	**307**	**27**

Lease liabilities of €342 million were recognized under other liabilities and other liabilities of insurance companies.

The interest expense on lease liabilities is disclosed in note 34.

The following table shows a breakdown of the contractual maturities for lease liabilities:

€ million	Dec. 31, 2019
Up to 1 year	74
More than 1 year and up to 3 years	115
More than 3 years and up to 5 years	76
More than 5 years	96

The total cash outflows for lease liabilities in 2019 amounted to €119 million.

The following income and expenses have been recognized in the income statement for rights to use underlying assets in leases:

€ million	2019
Expenses relating to short-term leases	11
Expenses relating to leases of low-value assets	16
Expenses relating to variable lease payments not included in the lease liability	5
Income from subleasing right-of-use-assets	9

The expenses relating to short-term leases relate primarily to leases for motor vehicles and other mobile assets, such as bicycles for employees, as well as real estate with lease terms between 2 and 12 months. Expenses relating to leases of low-value assets mainly relate to the class office furniture and equipment.

As at the reporting date, there were lease commitments of €1 million for short-term leases that are not included in the portfolio of short-term leases to which the disclosed expense from short-term leases relates.

The lease commitments could give rise to potential future cash outflows as a result of variable lease payments, extension or termination options, or residual value guarantees. These potential cash outflows have not been included in the measurement of the lease liability because, under current assessments, it is not possible to determine with a sufficient degree of reliability whether, and to what extent, the variable components will materialize or will be used. Within the DZ BANK Group, there are variable lease payments of this nature in connection with utilities related to real estate leases. The entities in the DZ BANK Group estimate that variable lease payments, extension options, and termination rights contractually provided for in leases could give rise to future cash outflows of €342 million.

As at the reporting date, there were also future commitments amounting to €270 million arising from leases that had been signed by the entities in the DZ BANK Group but that had not yet commenced. Most of these leases are real estate leases for offices and ATM sites, for example.

COMPARATIVE INFORMATION IN ACCORDANCE WITH IAS 17 – OPERATING LEASES

€ million	Dec. 31, 2018
Total future minimum lease payments under non-cancelable leases	**943**
Up to 1 year	160
More than 1 year and up to 5 years	484
More than 5 years	299

In the previous year, the total future minimum payments expected to be received under non-cancelable subleases as at the reporting date amounted to €17 million.

Minimum lease payments of €149 million and contingent rents of €22 million had been recognized as expenses in 2018.

Operating leases in the DZ BANK Group in 2018 were leases for properties and business premises, some of which contained extension options or had their lease payments linked to a price index. There were also leases for office furniture and equipment in which some of the lease payments were dependent on the quantity of hardware used and the number of licenses provided.

>> 93 Disclosures on revenue from contracts with customers

Effects in the income statement

Disclosures on revenue from contracts with customers, broken down by operating segment

2019

€ million	BSH	R+V	TeamBank	
Income type				
Fee and commission income from securities business	-	-	-	
Fee and commission income from asset management	-	-	-	
Fee and commission income from payments processing including card processing	-	-	-	
Fee and commission income from lending business and trust activities	-	-	4	
Fee and commission income from financial guarantee contracts and loan commitments	-	-	-	
Fee and commission income from international business	-	-	-	
Fee and commission income from building society operations	34	-	-	
Other fee and commission income	60	-	136	
Fee and commission income in gains and losses on investments held by insurance companies and other insurance company gains and losses	-	64	-	
Other income in gains and losses on investments held by insurance companies and other insurance company gains and losses	-	67	-	
Other operating income	-	-	12	
Total	**94**	**131**	**152**	
Main geographical markets				
Germany	84	131	152	
Rest of Europe	10	-	-	
Rest of World	-	-	-	
Total	**94**	**131**	**152**	
Type of revenue recognition				
At a point in time	94	22	152	
Over a period of time	-	109	-	
Total	**94**	**131**	**152**	

	UMH	DZ BANK – CICB	DZ HYP	DZ PRIVAT-BANK	VR Smart Finanz	DVB	Other/ Consolidation	Total
	2,614	350	-	166	-	-	-79	3,051
	15	-	-	241	-	-	-5	251
	-	230	-	1	-	1	55	287
	-	67	7	-	-	45	26	149
	-	52	7	-	-	2	-3	58
	-	10	-	-	-	-	-	10
	-	-	-	-	-	-	-	34
	-	60	1	21	27	5	-118	192
	-	-	-	-	-	-	-	64
	-	-	-	-	-	-	-	67
	6	-	-	-	-	-	14	32
	2,635	**769**	**15**	**429**	**27**	**53**	**-110**	**4,195**
	2,054	769	15	134	27	6	-122	3,250
	581	-	-	293	-	32	12	928
	-	-	-	2	-	15	-	17
	2,635	**769**	**15**	**429**	**27**	**53**	**-110**	**4,195**
	429	277	11	175	27	7	-230	964
	2,206	492	4	254	-	46	120	3,231
	2,635	**769**	**15**	**429**	**27**	**53**	**-110**	**4,195**

2018

€ million	BSH	R+V	TeamBank	
Income type				
Fee and commission income from securities business	-	-	-	
Fee and commission income from asset management	-	-	-	
Fee and commission income from payments processing including card processing	-	-	-	
Fee and commission income from lending business and trust activities	-	-	3	
Fee and commission income from financial guarantee contracts and loan commitments	-	-	-	
Fee and commission income from international business	-	-	-	
Fee and commission income from building society operations	31	-	-	
Other fee and commission income	55	-	139	
Fee and commission income in gains and losses on investments held by insurance companies and other insurance company gains and losses	-	57	-	
Other income in gains and losses on investments held by insurance companies and other insurance company gains and losses	-	56	-	
Other operating income	-	-	10	
Total	**86**	**113**	**152**	
Main geographical markets				
Germany	76	113	152	
Rest of Europe	10	-	-	
Rest of World	-	-	-	
Total	**86**	**113**	**152**	
Type of revenue recognition				
At a point in time	86	6	152	
Over a period of time	-	107	-	
Total	**86**	**113**	**152**	

	UMH	DZ BANK – CICB	DZ HYP	DZ PRIVAT-BANK	VR Smart Finanz	DVB	Other/ Consolidation	Total
	2,432	317	-	195	-	-	-151	2,793
	16	-	-	223	-	-	-17	222
	-	216	-	2	-	1	50	269
	-	68	4	-	-	65	22	162
	-	45	7	-	-	3	-3	52
	-	11	-	-	-	-	-	11
	-	-	-	-	-	-	-	31
	-	57	-	11	37	28	-118	209
	-	-	-	-	-	-	-	57
	-	-	-	-	-	-	-	56
	4	-			-	-	11	25
	2,452	**714**	**11**	**431**	**37**	**97**	**-206**	**3,887**
	1,843	714	11	129	37	35	-144	2,966
	609	-	-	300	-	45	-62	902
	-	-	-	2	-	17	-	19
	2,452	**714**	**11**	**431**	**37**	**97**	**-206**	**3,887**
	344	257	8	73	37	31	-179	815
	2,108	457	3	358	-	66	-27	3,072
	2,452	**714**	**11**	**431**	**37**	**97**	**-206**	**3,887**

In the financial year, the DZ BANK Group recognized revenue from contracts with customers in an amount of €24 million that had been included in contract liabilities at the beginning of the year (2018: €3 million).

Effects on the balance sheet

Receivables, contract assets, and contract liabilities

Receivables from contracts with customers in which the recognized income is not subject to calculation using the effective interest method are accounted for in application of the rules in IFRS 15. Contract assets and contract liabilities are also recognized as a result of circumstances in which the fulfilment of the counter-performance is conditional on something other than the passage of time.

As at the reporting date, contract liabilities amounted to €19 million (December 31, 2018: €38 million). These arose from the service business.

Changes in receivables, contract assets, and contract liabilities from contracts with customers

€ million	Loans and advances to banks	Loans and advances to customers	Other receivables (other assets)	Contract liabilities
Balance as at Jan. 1, 2018	5	75	139	23
Additions	41	433	2,074	18
Derecognitions	-41	-399	-2,071	-3
Other	-	-	-3	-
Balance as at Dec. 31, 2018	5	109	139	38
Additions	42	438	2,253	5
Derecognitions	-43	-410	-2,224	-24
Balance as at Dec. 31, 2019	**4**	**137**	**168**	**19**

'Other' is used to report other changes, such as currency translation effects and effects from changes in the scope of consolidation.

Other disclosures on revenue from contracts with customers

Performance obligations

Performance obligations are satisfied predominantly over a period of time. Within any year, performance obligations over time are billed mainly on a monthly or quarterly basis. Performance obligations related to a point in time are satisfied when the service in question has been performed. The related fees are normally due after the service has been provided. In the property development business, the performance obligation is satisfied gradually with the completion of the individual stages of construction. The consideration does not vary for the most part.

If advance payments are received, this leads to the recognition of contract liabilities, which are then reversed again over the maturity of the contract.

>> 94 Letters of comfort

Except in the event of political risk, DZ BANK has undertaken to ensure, in proportion to its shareholding for the consolidated entity DZ PRIVATBANK, and in total for DZ HYP, that these companies are able to meet their contractual obligations. These entities are identified in the list of DZ BANK Group's shareholdings (note 104) as being covered by a letter of comfort. DZ BANK has also issued subordinated letters of comfort in respect of DZ BANK Capital Funding LLC I, DZ BANK Capital Funding LLC II, and DZ BANK Capital Funding LLC III, all based in Wilmington. In addition, DZ BANK has issued 5 subordinated letters of comfort in respect of DZ BANK Perpetual Funding (Jersey) Limited, St. Helier, Jersey, each relating to different classes of preferred shares.

>> 95 Employees

Average number of employees by employee group:

	2019	2018
Female employees	**14,033**	**13,973**
Full-time employees	8,588	8,614
Part-time employees	5,445	5,359
Male employees	**16,792**	**16,759**
Full-time employees	15,707	15,758
Part-time employees	1,085	1,001
Total	**30,825**	**30,732**

>> 96 Auditor fees

The total fees charged for 2019 by the independent auditors of the consolidated financial statements, Ernst & Young GmbH Wirtschaftsprüfungsgesellschaft, Stuttgart, broken down by type of service are as follows:

€ million	2019	2018
Auditing services	12.2	14.5
Other attestation services	1.0	1.1
Tax consultancy services	0.2	-
Other services	1.9	2.2
Total	**15.3**	**17.8**

The fees for auditing services comprise expenses relating to the audit of the consolidated financial statements and group management report of DZ BANK as well as the audits of the annual financial statements and management reports of DZ BANK and consolidated subsidiaries carried out by the auditors of the consolidated financial statements. The fees for auditing services also comprise expenses relating to the review by the auditor of the condensed interim consolidated financial statements and interim group management report. The fees for other attestation services comprise the fees charged for the audit in accordance with section 89 of the German Securities Trading Act (WpHG) and services for which the auditors' professional seal must or can be applied. The fees for other services resulted from the auditing of funds of UMH and from consulting services.

>> 97 Remuneration for the Board of Managing Directors and Supervisory Board of DZ BANK

In 2019, overall remuneration for DZ BANK's Board of Managing Directors from the group in accordance with IAS 24.17 amounted to €12.9 million (2018: €13.0 million). This total is broken down into short-term employee benefits of €8.4 million (2018: €8.5 million), post-employment benefits of €2.9 million (2018: €3.0 million), and share-based payments of €1.6 million (2018: €1.5 million). The remuneration for the Board of Managing Directors in 2019 and 2018 included the total bonus awarded to the Board of Managing Directors for the year in question. Supervisory Board remuneration amounted to €1.1 million (2018: €1.0 million) and consisted of payments due in the short term.

The remuneration for the Board of Managing Directors included contributions of €0.3 million (2018: €0.3 million) to defined contribution pension plans. DZ BANK has defined benefit obligations for the members of the Board of Managing Directors amounting to €35.6 million (December 31, 2018: €37.8 million).

In 2019, the total remuneration for the Board of Managing Directors of DZ BANK for the performance of their duties in DZ BANK and its subsidiaries pursuant to section 314 (1) no. 6a HGB was €10.2 million (2018: €10.3 million), while the total remuneration for the Supervisory Board for the performance of these duties amounted to €1.1 million (2018: €1.0 million).

The total remuneration paid to former members of the Board of Managing Directors or their surviving dependants pursuant to section 314 (1) no. 6b HGB amounted to €10.2 million in 2019 (2018: €10.4 million). DZ BANK has defined benefit obligations for former members of the Board of Managing Directors or their surviving dependants amounting to €181.4 million (2018: €165.6 million).

>> 98 Share-based payment transactions

The entities in the DZ BANK Group have entered into share-based payment agreements with the members of the Board of Managing Directors and with certain other salaried employees.

DZ BANK has entered into agreements governing variable remuneration paid over several years with the members of the Board of Managing Directors, heads of division, and a group of selected salaried employees (risk takers). The amount of variable remuneration depends on the achievement of agreed targets. In the case of members of the Board of Managing Directors and heads of division, 80 percent of the total variable remuneration is deferred over a period of up to 6 years from when the bonus is determined. For risk takers below the level of head of division with variable remuneration of more than €130,000, 80 percent of the total variable remuneration is deferred over a period of up to 4 years from when the bonus is determined. For risk takers below the level of head of division with variable remuneration of more than €50,000 and up to €130,000, 70 percent of the total variable remuneration is deferred over a period of up to 4 years from when the bonus is determined. Amounts are paid out after taking into account deferral or retention periods. The deferred portion of the variable remuneration may be reduced or even fully withdrawn if there is an adverse change in the value of DZ BANK shares or if there are negative contributions to profits from DZ BANK, individual divisions, or individual activities. A rise in the value of DZ BANK shares does not lead to an increase in the deferred remuneration. The value of the shares is determined each year by means of an independent business valuation. The deferred portion of the variable remuneration for members of the Board of Managing Directors is reduced by 50 percent if the share price falls by between 7.5 percent and 12.5 percent. If the share price drops by more than 12.5 percent, the deferred portion of the variable remuneration is canceled. In the case of heads of division and risk takers below the level of head of division, the deferred portion of the variable remuneration is reduced by 25 percent if the share price falls by between 15 percent and 20 percent. If the share price drops by between 20 percent and 25 percent, the deferred portion of the variable remuneration is reduced by 50 percent. If the share price drops by more than 25 percent, the deferred portion of the variable remuneration is canceled in full. If the change in the share price does not reach the specified threshold values, the deferred portion of the variable remuneration is not reduced as a result of the change in the share price. Based on a value per DZ BANK share of €9.10 as at December 31, 2015, a value per share of €9.15 as at December 31, 2016, a value per share of €8.65 as at December 31, 2017 (adjusted share value following the merger), a value per share of €8.65 as at December 31, 2018, and a value per share of €8.35 as at December 31, 2019, it can currently be assumed that the deferred remuneration will be paid in full. No options have been granted for these groups of employees. Share-based payments are granted in the year after they have been earned.

The following summary shows the change in unpaid share-based payment components at DZ BANK:

€ million	Board of Managing Directors	Risk takers
Unpaid share-based payments as at Jan. 1, 2018	3.5	20.3
Remuneration granted	1.9	8.2
Payment of remuneration granted in 2017	-0.8	-5.3
Payment of remuneration granted in previous years	-1.4	-2.7
Unpaid share-based payments as at Dec. 31, 2018	3.2	20.5
Remuneration granted	1.5	6.1
Payment of remuneration granted in 2018	-0.5	-3.5
Payment of remuneration granted in previous years	-1.3	-4.6
Unpaid share-based payments as at Dec. 31, 2019	**2.9**	**18.5**

DZ PRIVATBANK has entered into an agreement on variable remuneration components with the members of its Board of Managing Directors. The amount of the variable remuneration is based on a contractually specified reference bonus. The variable remuneration may vary between 0 and 150 percent of the reference bonus, depending on the level of target attainment. Quantitative and qualitative targets derived from the corporate strategy in the form of group, bank, area of board responsibility, and individual targets are used to determine the bonus level. The measurement period for the targets covers the previous 3 years. The reference bonus will be set after the annual financial statements have been formally adopted by the Supervisory Board, at the latest. The amount determined annually in this way will be paid out over 6 years. The initial payout amount of 20 percent of the reference bonus will be paid out immediately after the bonus amount has been set. A further 20 percent is subject to a retention period of one year. The remaining 60 percent will be spread out over a period of 5 years. To this end, the retained bonus will be subdivided into 5 equal portions. All deferred payouts are linked to the long-term change in the enterprise value of DZ PRIVATBANK S.A. The enterprise value is determined each year by means of an independent business valuation. If the enterprise value falls, then the retained bonus components are reduced according to specified bands. For up to 2 years after the end of the retention period, a bonus payout can be reclaimed if the member of the Board of Managing Directors has played a part in conduct that has led to substantial losses or material regulatory sanctions for the institution, or has been responsible for a serious breach of relevant external or internal rules regarding suitability and conduct. If, at the time a negative contribution to profits is identified for an assessment period, a beneficiary still has an outstanding entitlement to receive payments of retained bonus components, these entitlements can be canceled.

The following summary shows the change in unpaid share-based payment components at DZ PRIVATBANK:

€ million	Board of Managing Directors
Unpaid share-based payments as at Jan. 1, 2018	2.8
Remuneration granted	0.5
Payment of remuneration granted in 2017	-0.1
Payment of remuneration granted in previous years	-0.5
Unpaid share-based payments as at Dec. 31, 2018	2.7
Remuneration granted	0.4
Payment of remuneration granted in 2018	-0.1
Payment of remuneration granted in previous years	-0.4
Reduction of share-based payments	-0.9
Unpaid share-based payments as at Dec. 31, 2019	**1.7**

R+V has entered into agreements governing variable remuneration paid over several years with the members of its Board of Managing Directors and a group of selected salaried employees (key function-holders and risk takers). The amount of variable remuneration depends on the achievement of agreed targets. A proportion of 60 percent of the variable remuneration for members of the Board of Managing Directors, and 40 percent of that for the selected salaried employees, depends on the change in value of the shares in R+V Versicherungs AG. In these arrangements, the share value equates to the fair market value (section 11 (2) of the German Valuation Act (BewG)) of the unlisted shares in R+V Versicherung AG as at December 31 of the year in question. The portion of the bonus subject to payout restrictions will be paid out after 3 years without any reduction if the share value equates to more than 85 percent of the value at the end of the baseline year. If the share value is between 75 percent and 85 percent of this figure, the bonus portion subject to payout restrictions is reduced by half. If the share value falls below 75 percent, payment of the part of the bonus subject to payout restrictions is canceled in full.

The following table shows the changes in unpaid remuneration components at R+V:

€ million	Board of Managing Directors	Risk takers
Unpaid share-based payments as at Jan. 1, 2018	0.6	0.1
Remuneration granted	0.7	0.1
Unpaid share-based payments as at Dec. 31, 2018	1.3	0.2
Remuneration granted	0.8	0.1
Unpaid share-based payments as at Dec. 31, 2019	**2.1**	**0.3**

At DVB, the variable salary payments to the Board of Managing Directors and risk takers up to 2017 included a bonus, which was determined by the Supervisory Board each year on the basis of agreements on targets. It was paid in installments over the 4 years after the financial year to which it related.

Each payment was subject to certain conditions (e.g. employment contract not having been terminated) and penalty arrangements (e.g. compliance with internal policies). A further condition applicable to all 4 bonus installments was that 50 percent of each tranche was subject to an additional one-year holding period and was therefore not paid immediately. During this holding period, the value of the retained tranche was replaced by a share-based payment instrument linked to the performance of DVB. Share-based payment instruments were discontinued in 2018.

The following summary shows the change in unpaid share-based payment components at DVB:

€ million	Risk takers
Unpaid share-based payments as at Jan. 1, 2018	1.5
Remuneration granted	-
Payment of remuneration granted in 2017	-0.5
Payment of remuneration granted in previous years	-0.9
Reduction of share-based payments	-0.1
Unpaid share-based payments as at Dec. 31, 2018	**-**

In 2019, the agreements described above gave rise to expenses for share-based payment transactions in the DZ BANK Group of €9.5 million (2018: €9.6 million). As at December 31, 2019, the provisions recognized for share-based payment transactions in the DZ BANK Group amounted to €41.6 million (December 31, 2018: €43.8 million).

>> 99 Related party disclosures

DZ BANK enters into transactions with related parties (persons or entities) as part of its ordinary business activities. All of this business is transacted on an arm's length basis. Most of these transactions involve typical banking products and financial services.

Transactions with related parties (entities)

€ million	Dec. 31, 2019	Dec. 31, 2018
Loans and advances to banks	**34**	**141**
to joint ventures	34	141
Loans and advances to customers	**126**	**155**
to subsidiaries	41	74
joint ventures	12	21
associates	73	60
Financial assets held for trading	**-**	**4**
of subsidiaries	-	4
Investments	**5**	**5**
of joint ventures	5	5
Investments held by insurance companies	**98**	**98**
of subsidiaries	98	98
Other assets	**43**	**34**
of subsidiaries	27	20
pension plans for the benefit of employees	16	14
Deposits from banks	**166**	**97**
owed to joint ventures	166	97
Deposits from customers	**232**	**219**
owed to subsidiaries	230	213
associates	2	6
Other liabilities	**18**	**19**
of subsidiaries	10	12
joint ventures	3	2
pension plans for the benefit of employees	5	5
Subordinated capital	**22**	**21**
of pension plans for the benefit of employees	22	21

€ million	Dec. 31, 2019	Dec. 31, 2018
Financial guarantee contracts	**6**	**11**
for subsidiaries	6	11
Loan commitments	**322**	**333**
to subsidiaries	54	76
joint ventures	266	256
associates	2	1

Income of €8 million (2018: €10 million) in the total reported net interest income, income of €22 million (2018: €9 million) in the total reported net fee and commission income, and expenses of €35 million (2018: expenses of €13 million) in the total reported net income from insurance business were attributable to transactions with related parties (entities).

Transactions with related parties (persons)

Related parties (persons) are key management personnel who are directly or indirectly responsible for the planning, management, and supervision of the activities of DZ BANK, as well as their close family members.

For the purposes of IAS 24, the DZ BANK Group considers the members of the Board of Managing Directors and the members of the Supervisory Board to be key management personnel. As at December 31, 2019, the DZ BANK Group's loans and loan commitments to related parties (persons) amounted to €0.8 million (December 31, 2018: €1.0 million).

Like unrelated parties, key management personnel and their close family members also have the option of obtaining further financial services from the DZ BANK Group, for example in the form of insurance contracts, home savings contracts, and leases. Where they made use of this option, the transactions were carried out on an arm's-length basis.

>> 100 Events after the balance sheet date

On February 18, 2020, further parts of the aviation finance business in the DVB subgroup were transferred in substance to MUFG Bank, Ltd., Tokyo, as planned. As a consequence, the bulk of the assets of €331 million that had been reported within a disposal group not qualifying as a discontinued operation as at December 31, 2019 were derecognized.

>> 101 Board of Managing Directors

Uwe Fröhlich
(Co-Chief Executive Officer)
Responsibilities: Cooperative Banks/Verbund; Communications & Marketing; Research and Economics; Strategy & Group Development; Structured Finance

Dr. Cornelius Riese
(Co-Chief Executive Officer)
Responsibilities: Group Audit; Legal; Strategy & Group Development

Uwe Berghaus
Responsibilities: Corporate Banking Baden-Württemberg; Corporate Banking Bavaria; Corporate Banking North and East; Corporate Banking West/Central; Investment Promotion; Central Corporate Banking

Dr. Christian Brauckmann
Responsibilities: IT; Services & Organisation

Ulrike Brouzi
Responsibilities: Bank Finance; Compliance; Group Finance; Group Financial Services

Wolfgang Köhler
Responsibilities: Capital Markets Trading; Capital Markets Institutional Clients; Capital Markets Retail Clients; Group Treasury

Michael Speth
Responsibilities: Group Risk Controlling; Credit; Credit Services

Thomas Ullrich
Responsibilities: Group Human Resources; Operations; Payments & Accounts; Transaction Management

>> 102 Supervisory Board

Henning Deneke-Jöhrens
(Chairman of the Supervisory Board)
Chief Executive Officer
Volksbank eG Hildesheim-Lehrte-Pattensen

Ulrich Birkenstock
(Deputy Chairman of the Supervisory Board)
Employee
R+V Allgemeine Versicherung AG

Martin Eul
(Deputy Chairman of the Supervisory Board)
Chief Executive Officer
Dortmunder Volksbank eG

Heiner Beckmann
Senior manager
R+V Allgemeine Versicherung AG

Hermann Buerstedde
Employee
Union Asset Management Holding AG

Uwe Goldstein
Bank director (ret.)

Timm Häberle
Chief Executive Officer
VR-Bank Neckar-Enz eG

Dr. Peter Hanker
Spokesman of the Board of Managing Directors
Volksbank Mittelhessen eG

Andrea Hartmann
Employee
Bausparkasse Schwäbisch Hall AG

Pilar Herrero Lerma
Employee
DZ BANK AG
Deutsche Zentral-Genossenschaftsbank

Dr. Dierk Hirschel
Head of the Economic Policy Division
ver.di Bundesverwaltung

Marija Kolak
President
Bundesverband der Deutschen Volksbanken
und Raiffeisenbanken e.V. (BVR)

Renate Mack
Employee
DZ BANK AG
Deutsche Zentral-Genossenschaftsbank

Rainer Mangels
Employee
R+V Rechtsschutz-
Schadenregulierungs-GmbH

Stephan Schack
Chief Executive Officer
Volksbank Raiffeisenbank eG, Itzehoe

Gregor Scheller
Chief Executive Officer
Volksbank Forchheim eG

Uwe Spitzbarth
Departmental coordinator
ver.di Bundesverwaltung

Sigrid Stenzel
Regional Group Director
ver.di Bayern

Ingo Stockhausen
Chief Executive Officer
Volksbank Oberberg eG

Dr. Wolfgang Thomasberger
Chief Executive Officer
VR Bank Rhein-Neckar eG

>> 103 Supervisory mandates held by members of the Board of Managing Directors and employees

Within DZ BANK

As at December 31, 2019, members of the Board of Managing Directors and employees also held mandates on the statutory supervisory bodies of major companies. These and other notable mandates are listed below. Companies included in the consolidation are indicated with an asterisk (*).

Members of the Board of Managing Directors

Uwe Fröhlich (Co-Chief Executive Officer)	DZ HYP AG, Hamburg and Münster (*) Chairman of the Supervisory Board
	DZ PRIVATBANK S.A., Strassen (*) Chairman of the Supervisory Board
	VR Smart Finanz AG, Eschborn (*) Chairman of the Supervisory Board
Dr. Cornelius Riese (Co-Chief Executive Officer)	Bausparkasse Schwäbisch Hall AG, Schwäbisch Hall (*) Chairman of the Supervisory Board
	R+V Versicherung AG, Wiesbaden (*) Chairman of the Supervisory Board
	TeamBank AG Nürnberg, Nuremberg (*) Chairman of the Supervisory Board
	Union Asset Management Holding AG, Frankfurt am Main (*) Chairman of the Supervisory Board
Uwe Berghaus	DZ HYP AG, Hamburg and Münster (*) Member of the Supervisory Board
	EDEKABANK AG, Hamburg Member of the Supervisory Board

Dr. Christian Brauckmann	Deutsche WertpapierService Bank AG, Frankfurt am Main Member of the Supervisory Board
	DZ PRIVATBANK S.A., Strassen (*) Deputy Chairman of the Supervisory Board
	Fiducia & GAD IT AG, Frankfurt am Main Member of the Supervisory Board
Ulrike Brouzi	Bausparkasse Schwäbisch Hall AG, Schwäbisch Hall (*) Member of the Supervisory Board
	R+V Allgemeine Versicherung AG, Wiesbaden (*) Member of the Supervisory Board
	R+V Lebensversicherung AG, Wiesbaden (*) Member of the Supervisory Board
	Salzgitter AG, Salzgitter Member of the Supervisory Board
	Union Asset Management Holding AG, Frankfurt am Main (*) Member of the Supervisory Board
Wolfgang Köhler	DVB Bank SE, Frankfurt am Main (*) Chairman of the Supervisory Board
	R+V Lebensversicherung AG, Wiesbaden (*) Member of the Supervisory Board
Michael Speth	BAG Bankaktiengesellschaft, Hamm Member of the Supervisory Board
	DVB Bank SE, Frankfurt am Main (*) Deputy Chairman of the Supervisory Board
	DZ HYP AG, Hamburg and Münster (*) Member of the Supervisory Board
	R+V Versicherung AG, Wiesbaden (*) Member of the Supervisory Board
	VR Smart Finanz AG, Eschborn (*) Deputy Chairman of the Supervisory Board

Thomas Ullrich	Deutsche WertpapierService Bank AG, Frankfurt am Main Deputy Chairman of the Supervisory Board
	TeamBank AG Nürnberg, Nuremberg (*) Deputy Chairman of the Supervisory Board
	VR Payment GmbH, Frankfurt am Main (*) Chairman of the Supervisory Board

DZ BANK employees

Rolf Büscher	DVB Bank SE, Frankfurt am Main (*) Member of the Supervisory Board
	ReiseBank AG, Frankfurt am Main (*) Member of the Supervisory Board
Winfried Münch	AKA Ausfuhrkredit-Gesellschaft mbH, Frankfurt am Main Member of the Supervisory Board
Dr. Peter Neu	Deutsche WertpapierService Bank AG, Frankfurt am Main Member of the Supervisory Board
Claudio Ramsperger	Cassa Centrale Banca – Credito Cooperativo Italiano S.p.A., Trento Member of the Board of Directors
Gregor Roth	ReiseBank AG, Frankfurt am Main (*) Chairman of the Supervisory Board
	VR Payment GmbH, Frankfurt am Main (*) Member of the Supervisory Board
Peter Tenbohlen	Deutsche WertpapierService Bank AG, Frankfurt am Main Member of the Supervisory Board
Dr. Ulrich Walter	Deutsche WertpapierService Bank AG, Frankfurt am Main Member of the Supervisory Board
Dagmar Werner	Banco Cooperativo Español S.A., Madrid Member of the Board of Directors

In the DZ BANK Group

As at December 31, 2019, members of the Boards of Managing Directors and employees also held mandates on the statutory supervisory bodies of the following major companies in Germany. Companies included in the consolidation are indicated with an asterisk (*).

Reinhard Klein Chief Executive Officer Bausparkasse Schwäbisch Hall AG	Schwäbisch Hall Kreditservice GmbH, Schwäbisch Hall (*) Member of the Supervisory Board
Peter Magel Member of the Board of Managing Directors Bausparkasse Schwäbisch Hall AG	Schwäbisch Hall Kreditservice GmbH, Schwäbisch Hall (*) Member of the Supervisory Board
Claudia Klug General Executive Manager Bausparkasse Schwäbisch Hall AG	Schwäbisch Hall Facility Management GmbH, Schwäbisch Hall Chairwoman of the Supervisory Board
Dr. Norbert Rollinger Chief Executive Officer R+V Versicherung AG	Condor Lebensversicherungs-AG, Hamburg (*) Chairman of the Supervisory Board KRAVAG-ALLGEMEINE Versicherungs-AG, Hamburg (*) Chairman of the Supervisory Board KRAVAG-LOGISTIC Versicherungs-AG, Hamburg (*) Chairman of the Supervisory Board Raiffeisendruckerei GmbH, Neuwied Member of the Supervisory Board R+V Allgemeine Versicherung AG, Wiesbaden (*) Chairman of the Supervisory Board R+V Krankenversicherung AG, Wiesbaden (*) Chairman of the Supervisory Board R+V Lebensversicherung AG, Wiesbaden (*) Chairman of the Supervisory Board R+V Pensionsfonds AG, Wiesbaden (*) Chairman of the Supervisory Board R+V Service Center GmbH, Wiesbaden Chairman of the Supervisory Board

SECURITAS HOLDING GmbH, Berlin
Member of the Supervisory Board

Union Asset Management Holding AG, Frankfurt am Main (*)
Member of the Supervisory Board

Claudia Andersch
Member of the Board of Managing Directors
R+V Versicherung AG

CHEMIE Pensionsfonds AG, Munich (*)
Member of the Supervisory Board

Condor Lebensversicherungs-AG, Hamburg (*)
Member of the Supervisory Board

R+V Pensionsfonds AG, Wiesbaden (*)
Deputy Chairwoman of the Supervisory Board

R+V Pensionskasse AG, Wiesbaden (*)
Chairwoman of the Supervisory Board

Jens Hasselbächer
Member of the Board of Managing Directors
R+V Versicherung AG

R+V Direktversicherung AG, Wiesbaden (*)
Deputy Chairman of the Supervisory Board

R+V Krankenversicherung AG, Wiesbaden (*)
Deputy Chairman of the Supervisory Board

Dr. Christoph Lamby
Member of the Board of Managing Directors
R+V Versicherung AG

Condor Allgemeine Versicherungs-AG, Hamburg (*)
Chairman of the Supervisory Board

Extremus Versicherungs-AG, Cologne
Member of the Supervisory Board

KRAVAG-ALLGEMEINE Versicherungs-AG, Hamburg (*)
Member of the Supervisory Board

KRAVAG-LOGISTIC Versicherungs-AG, Hamburg (*)
Member of the Supervisory Board

R+V Pensionskasse AG, Wiesbaden (*)
Member of the Supervisory Board

Tillmann Lukosch Member of the Board of Managing Directors R+V Versicherung AG	Condor Allgemeine Versicherungs-AG, Hamburg (*) Member of the Supervisory Board KRAVAG-ALLGEMEINE Versicherungs-AG, Hamburg (*) Member of the Supervisory Board KRAVAG-LOGISTIC Versicherungs-AG, Hamburg (*) Member of the Supervisory Board R+V Direktversicherung AG, Wiesbaden (*) Member of the Supervisory Board
Dr. Edgar Martin Member of the Board of Managing Directors R+V Versicherung AG	GDV Dienstleistungs-GmbH, Hamburg Member of the Supervisory Board R+V Direktversicherung AG, Wiesbaden (*) Chairman of the Supervisory Board Sprint Sanierung GmbH, Cologne (*) Chairman of the Supervisory Board
Julia Merkel Member of the Board of Managing Directors R+V Versicherung AG	KRAVAG-ALLGEMEINE Versicherungs-AG, Hamburg (*) Member of the Supervisory Board R+V Pensionskasse AG, Wiesbaden (*) Member of the Supervisory Board Südzucker AG, Mannheim Member of the Supervisory Board

Marc René Michallet Member of the Board of Managing Directors R+V Versicherung AG	CHEMIE Pensionsfonds AG, Munich (*) Member of the Supervisory Board Condor Allgemeine Versicherungs-AG, Hamburg (*) Deputy Chairman of the Supervisory Board Condor Lebensversicherungs-AG, Hamburg (*) Deputy Chairman of the Supervisory Board GWG Gesellschaft für Wohnungs- und Gewerbebau Baden-Württemberg AG, Stuttgart (*) Chairman of the Supervisory Board KRAVAG-ALLGEMEINE Versicherungs-AG, Hamburg (*) Member of the Supervisory Board KRAVAG-LOGISTIC Versicherungs-AG, Hamburg (*) Member of the Supervisory Board R+V Pensionsfonds AG, Wiesbaden (*) Member of the Supervisory Board
Christian Polenz Deputy Chief Executive Officer TeamBank AG Nürnberg	SCHUFA Holding AG, Wiesbaden Deputy Chairman of the Supervisory Board
Hans Joachim Reinke Chief Executive Officer Union Asset Management Holding AG	Union Investment Institutional GmbH, Frankfurt am Main (*) Deputy Chairman of the Supervisory Board Union Investment Privatfonds GmbH, Frankfurt am Main (*) Chairman of the Supervisory Board Union Investment Real Estate GmbH, Hamburg (*) Deputy Chairman of the Supervisory Board Union Investment Service Bank AG, Frankfurt am Main (*) Chairman of the Supervisory Board
Alexander Schindler Member of the Board of Managing Directors Union Asset Management Holding AG	Quoniam Asset Management GmbH, Frankfurt am Main (*) Chairman of the Supervisory Board Union Investment Institutional GmbH, Frankfurt am Main (*) Chairman of the Supervisory Board

Jens Wilhelm Member of the Board of Managing Directors Union Asset Management Holding AG	Union Investment Privatfonds GmbH, Frankfurt am Main (*) Deputy Chairman of the Supervisory Board Union Investment Real Estate GmbH, Hamburg (*) Chairman of the Supervisory Board Union Investment Service Bank AG, Hamburg (*) Deputy Chairman of the Supervisory Board
Sonja Albers Employee Union Asset Management Holding AG	Union Investment Service Bank AG, Frankfurt am Main (*) Member of the Supervisory Board
André Haagmann Member of the Board of Managing Directors Union Investment Institutional GmbH	Quoniam Asset Management GmbH, Frankfurt am Main (*) Deputy Chairman of the Supervisory Board
Jörn Stobbe Member of the Board of Managing Directors Union Investment Institutional Property GmbH and Union Investment Real Estate GmbH	1. FC Köln GmbH & Co. KGaA, Cologne Chairman of the Supervisory Board
Dr. Reinhard Kutscher Chief Executive Officer Union Investment Real Estate GmbH	DZ HYP AG, Hamburg and Münster (*) Member of the Supervisory Board (until December 31, 2019)

>> 104 List of shareholdings

SUBSIDIARIES

Name	Location	Shareholding	Voting rights, if different	Equity in € '000	Profit/loss in € '000
AER Holding N.V. 1)	Willemstad, Curaçao	100.00		20	0
AGIMA Aktiengesellschaft für Immobilien-Anlage 5)	Frankfurt am Main	100.00		84,025	0
APZ Auto-Pflege-Zentrum GmbH 1)	Darmstadt	100.00		7,135	1,312
APZ Beteiligungs GmbH 1)	Darmstadt	81.70		6,137	-1,734
APZ CarMotion GmbH 1)	Fischamend, Austria	100.00		10	-25
Aquila Aircraft Leasing Ltd. 1)	Dublin, Ireland	0.00		-19	161
Assimoco S.p.A. 1)	Milan, Italy	66.88		247,313	23,203
Assimoco Vita S.p.A. 1)	Milan, Italy	82.14		169,603	24,307
attrax S.A. 1)	Luxembourg, Luxembourg	100.00		50,040	24,412
Aufbau und Handelsgesellschaft mbH 1)	Stuttgart	94.90		525	0
AXICA Kongress- und Tagungszentrum Pariser Platz 3 GmbH 5)	Berlin	100.00		26	0
Bathgate Trading Opco LLC 1)	Majuro, Marshall Islands	0.00		1	0
BAUFINEX GmbH 1)	Schwäbisch Hall	70.00		3,617	-1,383
Bausparkasse Schwäbisch Hall Aktiengesellschaft - Bausparkasse der Volksbanken und Raiffeisenbanken - 5)	Schwäbisch Hall	96.94		1,812,302	0
Berwick Shipping LLC 1)	Majuro, Marshall Islands	0.00		-106	-1
Beteiligungsgesellschaft Westend 1 mbH & Co. KG 1)	Frankfurt am Main	94.90		17,485	685
Braveheart Shipping Holdco LLC 1)	Majuro, Marshall Islands	0.00		0	0
Braveheart Shipping Opco LLC 1)	Majuro, Marshall Islands	0.00		-251	-131
BWG Baugesellschaft Württembergischer Genossenschaften mbH 1)	Stuttgart	94.78		9,965	0
Canadian Iron Ore Railcar Leasing LP 1)	Hamilton, Canada	0.00		-5,388	-2,566
carexpert Kfz-Sachverständigen GmbH 1)	Walluf	60.00		4,471	313
CHEMIE Pensionsfonds AG 1)	Wiesbaden	100.00		28,318	2,000
Chiefs Aircraft Holding (Malta) Limited 1)	Floriana, Malta	0.00		4,592	2,745
CI CONDOR Immobilien GmbH 1)	Hamburg	100.00		20,100	0
CIORL Partner Ltd. 1)	Toronto, Canada	0.00		-5,388	-2,566
compertis Beratungsgesellschaft für betriebliches Vorsorgemanagement mbH 1)	Wiesbaden	100.00		4,132	378
COMPLINA GmbH 1)	Wiesbaden	100.00		115	14
Condor Allgemeine Versicherungs-Aktiengesellschaft 1) 5)	Hamburg	100.00		41,762	0
Condor Dienstleistungs GmbH 1)	Hamburg	100.00		356	66
Condor Lebensversicherungs-Aktiengesellschaft 1)	Hamburg	94.98		51,742	0
Container Investment Fund I LLC 1)	Majuro, Marshall Islands	0.00		-19,095	285
Cruise Ship InvestCo LLC 1)	Majuro, Marshall Islands	0.00		0	0
DCAL Aircraft Malta Ltd. 1)	Floriana, Malta	0.00		14,598	11,811
DEGECASTELL GmbH 1)	Eschborn	100.00		25	-40
DEGEIMPULS Grundstücksverwaltungsgesellschaft Objekt Hattingen mbH 1)	Eschborn	100.00		23	-1
DEGEKONZEPT Grundstücksverwaltungsgesellschaft mbH 1)	Eschborn	100.00		76	14
Deucalion Capital I (UK) Ltd. 1)	London, UK	0.00		727	2,797
Deucalion Capital II (MALTA) Limited 1)	Valletta, Malta	0.00		-22	597
Deucalion Capital II (UK) Ltd. 1)	London, UK	0.00		143	0
Deucalion Capital II Limited 1)	George Town, Cayman Islands	0.00		-1,136	3,924
Deucalion Capital VI Limited 1)	George Town, Cayman Islands	0.00		-322	-10
Deucalion Capital VIII Limited 1)	George Town, Cayman Islands	0.00		10,198	-1,836
Deucalion Engine Leasing (Ireland) Ltd. 1)	Dublin, Ireland	0.00		1,055	20
Deucalion Ltd. 1)	George Town, Cayman Islands	0.00		46,858	24,498
DEVIF-Fonds Nr. 150 Deutsche Gesellschaft für Investmentfonds 1)	Frankfurt am Main	0.00		n/a	n/a
DEVIF-Fonds Nr. 2 Deutsche Gesellschaft für Investmentfonds 1)	Frankfurt am Main	0.00		n/a	n/a
DEVIF-Fonds Nr. 250 Deutsche Gesellschaft für Investmentfonds 1)	Frankfurt am Main	0.00		n/a	n/a
DEVIF-Fonds Nr. 500 Deutsche Gesellschaft für Investmentfonds 1)	Frankfurt am Main	0.00		n/a	n/a
DEVIF-Fonds Nr. 528 Deutsche Gesellschaft für Investmentfonds 1)	Frankfurt am Main	0.00		n/a	n/a
DEVIF-Fonds Nr. 60 Deutsche Gesellschaft für Investmentfonds 1)	Frankfurt am Main	0.00		n/a	n/a
DG Participacoes Ltda. 1)	São Paulo, Brazil	100.00		0	0
Dilax Beteiligungs Verwaltungsgesellschaft mbH 1)	Berlin	100.00		25	0
Dilax Beteiligungsgesellschaft mbH & Co. KG 1)	Berlin	92.39		0	0
Dilax France SAS 1)	Valence, France	100.00		407	86
Dilax Intelcom AG 1)	Ermatingen, Switzerland	100.00		435	69
Dilax Intelcom GmbH 1)	Berlin	72.01		0	-3,119
Dilax Intelcom Iberica S.L.U. 1)	Madrid, Spain	100.00		203	78
Dilax Management Investment Reserve GmbH 1)	Berlin	100.00		233	1
Dilax Management Investment Verwaltungsgesellschaft mbH 1)	Berlin	100.00		21	1
Dilax Management Investmentgesellschaft mbH & Co. KG 1)	Berlin	99.50		200	-3
Dilax Systems Inc. 1)	Saint Lambert, Canada	100.00		502	163
Dilax Systems UK Ltd. 1)	London, UK	100.00		0	-95
DILAX Systems US Inc 1)	City of Wilmington, County of New Castle, 19801, USA	100.00		4	4
Drem Shipping LLC 1)	Majuro, Marshall Islands	0.00		0	14

SUBSIDIARIES

Name	Location	Shareholding	Voting rights, if different	Equity in € '000	Profit/loss in € '000
DUNAVAGON s.r.o. 1)	Dunajská Streda, Slovakia	100.00	0.00	0	-2,013
DV01 Szarazfoldi Jarmukolcsonzo rt 1)	Áporka, Hungary	100.00		-97	0
DVB Bank America N.V. 1)	Willemstad, Curaçao	100.00		140,020	26,655
DVB Bank SE 5)	Frankfurt am Main	100.00		688,919	0
DVB Capital Markets LLC 1)	New York, USA	100.00		994	-1,521
DVB Group Merchant Bank (Asia) Ltd. 1)	Singapore, Singapore	100.00		338,088	18,490
DVB Transport Finance Limited 1)	London, UK	100.00		48,755	96
DVG Deutsche Vermögensverwaltungs-Gesellschaft mit beschränkter Haftung 5)	Frankfurt am Main	100.00		82	0
DZ BANK Capital Funding LLC I 2) 4)	Wilmington, USA	100.00		300,896	6,556
DZ BANK Capital Funding LLC II 2) 4)	Wilmington, USA	100.00		500,666	6,335
DZ BANK Capital Funding LLC III 2) 4)	Wilmington, USA	100.00		350,283	4,069
DZ BANK Capital Funding Trust I	Wilmington, USA	0.00	100.00	300,001	6,573
DZ BANK Capital Funding Trust II	Wilmington, USA	0.00	100.00	500,001	6,385
DZ BANK Capital Funding Trust III	Wilmington, USA	0.00	100.00	350,001	4,088
DZ BANK Perpetual Funding (Jersey) Limited 4)	St. Helier, Jersey	0.00	100.00	260,300	1,217
DZ BANK Perpetual Funding Issuer (Jersey) Limited	St. Helier, Jersey	0.00		0	0
DZ BANK Sao Paulo Representacao Ltda. 2)	São Paulo, Brazil	100.00		395	46
DZ Beteiligungsgesellschaft mbH Nr. 11 5)	Frankfurt am Main	100.00		6,620	0
DZ Beteiligungsgesellschaft mbH Nr. 14 5)	Frankfurt am Main	100.00		51	0
DZ Beteiligungsgesellschaft mbH Nr. 18 5)	Frankfurt am Main	100.00		64,726	0
DZ Beteiligungsgesellschaft mbH Nr. 21 5)	Frankfurt am Main	100.00		25	0
DZ Beteiligungsgesellschaft mbH Nr. 22	Frankfurt am Main	100.00		20	-1
DZ Beteiligungsgesellschaft mbH Nr. 23 5)	Frankfurt am Main	100.00		25	0
DZ Beteiligungsgesellschaft mbH Nr. 24	Frankfurt am Main	100.00		19	-1
DZ CompliancePartner GmbH	Neu-Isenburg	100.00		1,836	771
DZ FINANCIAL MARKETS LLC	New York, USA	100.00		4,271	272
DZ Gesellschaft für Grundstücke und Beteiligungen mbH 5)	Frankfurt am Main	100.00		1,461	0
DZ HYP AG 3) 5)	Hamburg/Münster	96.39		1,762,331	0
DZ Immobilien + Treuhand GmbH 5)	Münster	94.50		4,055	0
DZ Polska Spólka Akcyjna w likwidacji	Warsaw, Poland	100.00		68,890	-1,195
DZ PRIVATBANK (Schweiz) AG 1)	Zurich, Switzerland	100.00		163,290	755
DZ PRIVATBANK S.A. 3)	Strassen, Luxembourg	91.46		640,651	11,382
DZ Versicherungsvermittlung Gesellschaft mbH 5)	Frankfurt am Main	100.00		51	0
DZ Vierte Beteiligungsgesellschaft mbH 5)	Frankfurt am Main	100.00		254,687	0
e@syCredit Marketing und Vertriebs GmbH 1)	Nuremberg	100.00		25	0
Englische Strasse 5 GmbH 1)	Wiesbaden	90.00		16,937	477
Evolit Consulting GmbH 1)	Vienna, Austria	100.00		n/a	n/a
FKS-NAVIGIUM GmbH 1)	Eschborn	100.00		-759	-118
FPAC (Malta) Limited 1)	Floriana, Malta	100.00		3,681	3,681
fragWILHELM GmbH 1)	Wiesbaden	100.00		184	-323
Fundamenta Erteklanc Ingatlanközvetitö es Szolgaltato Kft. 1)	Budapest, Hungary	100.00		6,370	-2,190
Fundamenta-Lakáskassza Lakás-takarékpénztár Zrt. 1)	Budapest, Hungary	51.25		161,395	22,158
Fundamenta-Lakáskassza Pénzügyi Közvetitö Kft. 1)	Budapest, Hungary	100.00		2,483	-239
GAF Active Life 1 Renditebeteiligungs-GmbH & Co. KG 1)	Nidderau	96.56		68,573	0
GAF Active Life 2 Renditebeteiligungs-GmbH & Co. KG 1)	Nidderau	95.03		65,672	0
GENO Broker GmbH 5)	Frankfurt am Main	100.00		10,000	0
GENO-Beteiligungsgesellschaft mbH	Düsseldorf	100.00		1,144	-4
Genossenschaftlicher Informations Service GIS GmbH	Frankfurt am Main	100.00		4,376	88
German Small Asset Invest 1)	Hamburg	0.00		n/a	n/a
Glen Campbell Opco LLC 1)	Majuro, Marshall Islands	0.00		-197	-4
Glencoe Shipping Holdco LLC 1)	Majuro, Marshall Islands	0.00		-15	0
GMS Management und Service GmbH 1)	Nidderau	100.00		82	32
Günther Kältetechnik GmbH 1)	Plüderhausen	60.00		n/a	n/a
GWG 1. Wohn GmbH & Co. KG 1)	Stuttgart	100.00		2,000	630
GWG 2. Wohn GmbH & Co. KG 1)	Stuttgart	100.00		3,000	870
GWG 3. Wohn GmbH & Co. KG 1)	Stuttgart	100.00		7,000	1,555
GWG 4. Wohn GmbH & Co. KG 1)	Stuttgart	100.00		9,000	1,229
GWG Beteiligungsgesellschaft mbH 1)	Stuttgart	100.00		29	1
GWG Gesellschaft für Wohnungs- und Gewerbebau Baden-Württemberg AG 1)	Stuttgart	91.57		338,951	25,415
GWG Hausbau GmbH 1)	Stuttgart	94.48		2,750	0
GWG ImmoInvest GmbH 1)	Stuttgart	94.90		9,518	1,282
GWG Wohnpark Sendling GmbH 1)	Stuttgart	94.00		4,028	375
GZ-Immobilien-Management GmbH & Co. Objekt KG	Frankfurt am Main	100.00		12	731
Hibiscus Aircraft Leasing Limited 1)	Floriana, Malta	0.00		-41	-25
Hollandse Scheepshypotheekbank N.V. 1)	Rotterdam, Netherlands	100.00		707	0
Hudson Services LLC 1)	Majuro, Marshall Islands	0.00		-106	708
HumanProtect Consulting GmbH 1)	Cologne	100.00		308	91
Immobilien-Gesellschaft 'DG Bank-Turm, Frankfurt am Main, Westend' mbH &	Frankfurt am Main	95.97		187,431	17,238

SUBSIDIARIES

Name	Location	Shareholding	Voting rights, if different	Equity in € '000	Profit/loss in € '000
Co. KG des genossenschaftlichen Verbundes 2)					
Immobilien-Verwaltungsgesellschaft 'DG BANK-Turm, Frankfurt am Main, Westend' mbH	Frankfurt am Main	100.00		62	27
IMPETUS Bietergesellschaft mbH 5)	Düsseldorf	100.00		54,063	0
Intermodal Investment Fund IX LLC 1)	Majuro, Marshall Islands	100.00		-13,921	733
IPConcept (Luxemburg) S.A. 1)	Strassen, Luxembourg	100.00		18,580	9,000
IPConcept (Schweiz) AG 1)	Zurich, Switzerland	100.00		6,345	293
Iron Maple Rail Ltd. 1)	Vancouver, Canada	100.00		-989	1,946
ITF International Transport Finance Suisse AG 1)	Zurich, Switzerland	100.00		-40,355	-4,764
Ivanhoe Shipping Opco LLC 1)	Majuro, Marshall Islands	0.00		0	-271
IZD-Beteiligung S.à.r.l. 1)	Luxembourg, Luxembourg	99.50		50	-107
K2 Aircraft Malta Ltd 1)	Floriana, Malta	100.00		12	8
Kalsubai Shipping and Offshore Private Ltd. 1)	Mumbai, India	0.00		0	14,624
Kälte Eckert GmbH 1)	Markgröningen	70.00		6,958	-68
KBIH Beteiligungsgesellschaft für Industrie und Handel mbH	Frankfurt am Main	100.00		31,008	9,080
KRAVAG Umweltschutz und Sicherheitstechnik GmbH 1)	Hamburg	100.00		302	33
KRAVAG-ALLGEMEINE Versicherungs-Aktiengesellschaft 1)	Hamburg	100.00		132,612	13,251
KRAVAG-LOGISTIC Versicherungs-Aktiengesellschaft 1)	Hamburg	51.00		238,189	19,083
KTP Beteiligungs GmbH & Co. KG 1)	Frankfurt am Main	100.00		25,769	1,033
KTP Verwaltungs GmbH 1)	Frankfurt am Main	100.00		22	-2
KV MSN 27602 Aircraft Ltd. 1)	Dublin, Ireland	0.00		-16	-6
Lantana Aircraft Leasing Limited 1)	Floriana, Malta	0.00		-15,762	10,115
Leith Shipping LLC 1)	Majuro, Marshall Islands	0.00		0	-226
Linton Shipping LLC 1)	Majuro, Marshall Islands	0.00		0	86
Maple Leaf Shipping Holdco LLC 1)	Majuro, Marshall Islands	0.00		-61	2
MD Aviation Capital Pte. Ltd. 1)	Singapore, Singapore	100.00		-4,087	299
MDAC 1 Pte Ltd. 1)	Singapore, Singapore	100.00		1,526	41
MDAC 11 Pte Ltd. 1)	Singapore, Singapore	100.00		-2,419	111
MDAC 2 Pte Ltd. 1)	Singapore, Singapore	100.00		-109	487
MDAC 3 Pte Ltd. 1)	Singapore, Singapore	100.00		-9,728	-4,789
MDAC 4 Pte Ltd. 1)	Singapore, Singapore	100.00		-2,430	20
MDAC 5 Pte. Ltd. 1)	Singapore, Singapore	100.00		-1,871	257
MDAC 6 Pte Ltd. 1)	Singapore, Singapore	100.00		-196	2,950
MDAC 8 Pte Ltd. 1)	Singapore, Singapore	100.00		-106	16
MDAC 9 Pte Ltd. 1)	Singapore, Singapore	100.00		-782	124
MDAC Malta Ltd. 1)	Floriana, Malta	0.00		0	0
MI-Fonds 384 Metzler Investment GmbH 1)	Frankfurt am Main	0.00		n/a	n/a
MI-Fonds 388 Metzler Investment GmbH 1)	Frankfurt am Main	0.00		n/a	n/a
MI-Fonds 391 Metzler Investment GmbH 1)	Frankfurt am Main	0.00		n/a	n/a
MI-Fonds 392 Metzler Investment GmbH 1)	Frankfurt am Main	0.00		n/a	n/a
MI-Fonds F 57 Metzler Investment GmbH 1)	Frankfurt am Main	0.00		n/a	n/a
MI-Fonds F 59 Metzler Investment GmbH 1)	Frankfurt am Main	0.00		n/a	n/a
MI-Fonds F44 Metzler Investmtent GmbH 1)	Frankfurt am Main	0.00		n/a	n/a
MI-Fonds F45 Metzler Investmtent GmbH 1)	Frankfurt am Main	0.00		n/a	n/a
MI-Fonds F46 Metzler Investmtent GmbH 1)	Frankfurt am Main	0.00		n/a	n/a
MI-Fonds F47 Metzler Investmtent GmbH 1)	Frankfurt am Main	0.00		n/a	n/a
MI-Fonds J01 Metzler Investment GmbH 1)	Frankfurt am Main	0.00		n/a	n/a
MI-Fonds J03 Metzler Investment GmbH 1)	Frankfurt am Main	0.00		n/a	n/a
Mount Diamir LLC 1)	Majuro, Marshall Islands	0.00		0	0
Mount Pleasant Shipping Pte. Ltd. 1)	Singapore, Singapore	100.00		0	-3,602
Mount Rinjani Shipping Pte. Ltd.	Singapore, Singapore	100.00		-10,182	2,066
Mount Ulriken LLC 1)	Majuro, Marshall Islands	100.00		-4,229	-887
MSN1164 Freighter Ltd. 1)	Dublin, Ireland	0.00		-225	524
MSU Management-, Service- und Unternehmensberatung GmbH 1)	Landau in der Pfalz	74.00		806	131
NFC Labuan Shipleasing I Ltd. 1)	Labuan, Malaysia	100.00		0	-8,024
NFC Shipping Fund C LLC 1)	Majuro, Marshall Islands	0.00		8,521	-427
NTK Immobilien GmbH 1)	Hamburg	100.00		26	1
NTK Immobilien GmbH & Co. Management KG 2)	Hamburg	100.00		643	-599
Ocean Giant LLC 1)	Majuro, Marshall Islands	0.00		-108	-2
Okoye Beteiligungsverwaltungs GmbH 1)	Vienna, Austria	80.00		n/a	n/a
Pascon GmbH 1)	Wiesbaden	100.00		33	2
PCAM Issuance II SA Issue RV AVL 001 1)	Luxembourg, Luxembourg	0.00		n/a	n/a
PDZ Personaldienste & Zeitarbeit GmbH 5)	Darmstadt	100.00		60	0
Pension Consult-Beratungsgesellschaft für Altersvorsorge mbH 1)	Munich	100.00		1,607	96
Philip Trading Opco LLC 1)	Majuro, Marshall Islands	0.00		-85	1
Phoenix Beteiligungsgesellschaft mbH 5)	Düsseldorf	100.00		108,349	0
Quoniam Asset Management GmbH 1)	Frankfurt am Main	93.07	100.00	36,892	22,154
R+V Allgemeine Versicherung Aktiengesellschaft 1) 5)	Wiesbaden	95.00		774,177	0
R+V Deutschland Real (RDR) 1)	Hamburg	0.00		n/a	n/a

SUBSIDIARIES

Name	Location	Shareholding	Voting rights, if different	Equity in € '000	Profit/loss in € '000
R+V Dienstleistungs GmbH 1)	Wiesbaden	100.00		643	10
R+V Direktversicherung AG 1) 5)	Wiesbaden	100.00		13,320	0
R+V Erste Anlage GmbH i.L. 1)	Wiesbaden	100.00		1,045	-9
R+V INTERNATIONAL BUSINESS SERVICES Ltd., Dublin 1)	Dublin, Ireland	100.00		1,347	115
R+V KOMPOSIT Holding GmbH 1) 5)	Wiesbaden	100.00		1,820,012	0
R+V Krankenversicherung AG 1)	Wiesbaden	100.00		104,985	16,000
R+V Kureck Immobilien GmbH i.L. 1)	Wiesbaden	100.00		35	-6
R+V Lebensversicherung Aktiengesellschaft 1)	Wiesbaden	100.00		744,981	0
R+V Luxembourg Lebensversicherung S.A. 1)	Strassen, Luxembourg	100.00		378,144	48,130
R+V Mannheim P2 GmbH 1)	Wiesbaden	94.00		59,239	1,931
R+V Pensionsfonds AG 1)	Wiesbaden	100.00		29,353	1,900
R+V Pensionskasse AG 1)	Wiesbaden	100.00		103,233	500
R+V Personen Holding GmbH 1)	Wiesbaden	100.00		1,189,583	74,761
R+V Rechtsschutz-Schadenregulierungs-GmbH 1)	Wiesbaden	100.00		360	83
R+V Service Center GmbH 1) 5)	Wiesbaden	100.00		2,869	0
R+V Service Holding GmbH 1) 5)	Wiesbaden	100.00		183,115	0
R+V Treuhand GmbH 1)	Wiesbaden	100.00		52	10
R+V Versicherung AG 5)	Wiesbaden	92.12		2,149,774	0
Range Holding GmbH 1)	Vienna, Austria	100.00		n/a	n/a
RC II S.a.r.l. 1)	Luxembourg, Luxembourg	90.00		8,762	-292
ReiseBank Aktiengesellschaft 1)	Frankfurt am Main	100.00		19,267	0
RUV Agenturberatungs GmbH 1)	Wiesbaden	100.00		486	218
RV AIP S.a.r.l 1)	Luxembourg, Luxembourg	100.00		n/a	n/a
RV AIP S.C.S. SICAV-SIF - RV TF 2 Infra Debt 1)	Luxembourg, Luxembourg	100.00		n/a	n/a
RV AIP S.C.S. SICAV-SIF 1) 1)	Luxembourg, Luxembourg	99.00		n/a	n/a
RV AIP S.C.S. SICAV-SIF - RV TF Acquisition Financing 1)	Luxembourg, Luxembourg	98.67		n/a	n/a
S2 Shipping and Offshore Ptd Ltd. 1)	Singapore, Singapore	100.00		-21,254	5,696
Scheepvaartmaatschappij Ewout B.V. 1)	Schiphol, Netherlands	100.00		377	377
Schwäbisch Hall Facility Management GmbH 1)	Schwäbisch Hall	51.00		9,146	152
Schwäbisch Hall Kreditservice GmbH 1) 5)	Schwäbisch Hall	100.00		27,775	0
Schwäbisch Hall Wohnen GmbH Gesellschaft für wohnwirtschaftliche Dienstleistungen 1)	Schwäbisch Hall	100.00		612	1
SECURON Versicherungsmakler GmbH 1)	Hannover	100.00		637	138
Shamrock Trading Opco LLC 1)	Majuro, Marshall Islands	0.00		-20	0
Shipping and Intermodal Investment Management Fund I LLC 1)	Majuro, Marshall Islands	0.00		-1,846	-39,440
Shipping and Intermodal Investment Management Fund II LLC 1)	Majuro, Marshall Islands	0.00		4,258	-12,394
SHT Schwäbisch Hall Training GmbH 1)	Schwäbisch Hall	100.00		5,040	35
SIIM Marlin Holdings LLC 1)	Majuro, Marshall Islands	72.04		-4,636	1,995
SINALOA Aircraft Leasing Limited 1)	Floriana, Malta	0.00		-11	-23
Sprint Sanierung GmbH 1)	Cologne	100.00		29,973	-3,449
SRF I Ltd. 1)	Floriana, Malta	0.00		-99	2,578
SRF III Ltd. 1)	Floriana, Malta	0.00		-657	-6,656
Stani Trading Opco LLC 1)	Majuro, Marshall Islands	0.00		-208	-4
Stephenson Capital Limited 1)	George Town, Cayman Islands	0.00		-17,500	-12,577
TeamBank AG Nürnberg 2) 5)	Nuremberg	92.44		539,699	0
Terra Maris I LLC 1)	Majuro, Marshall Islands	100.00		-7,126	3,663
Tiger Aircraft Leasing (UK) Limited 1)	London, UK	0.00		0	0
Twenty Holding Private Limited 1)	Singapore, Singapore	0.00		-505	-5
UI Infrastruktur Management SARL 1)	Luxembourg, Luxembourg	100.00		n/a	n/a
UI Management S.a.r.l. 1)	Luxembourg, Luxembourg	100.00		13	1
UI Vario: 2 issued by Union Investment Luxembourg S.A. 1)	Luxembourg, Luxembourg	0.00		n/a	n/a
UII Issy 3 Moulins SARL 1)	Paris, France	100.00		7	-2
UII PSD KN ImmoInvest GP GmbH 1)	Hamburg	100.00		54	23
UII SCE Management GP GmbH 1)	Hamburg	100.00		26	1
UII Verwaltungsgesellschaft mbH 1)	Hamburg	100.00		22	-1
UIN Union Investment Institutional Fonds Nr. 560 1)	Frankfurt am Main	0.00		n/a	n/a
UIN Union Investment Institutional Fonds Nr. 578 1)	Frankfurt am Main	0.00		n/a	n/a
UIN Union Investment Institutional Fonds Nr. 635 1)	Frankfurt am Main	0.00		n/a	n/a
UIN Union Investment Institutional Fonds Nr. 669 1)	Frankfurt am Main	0.00		n/a	n/a
UIN Union Investment Institutional Fonds Nr. 715 1)	Frankfurt am Main	0.00		n/a	n/a
UIN Union Investment Institutional Fonds Nr. 716 1)	Frankfurt am Main	0.00		n/a	n/a
UIN Union Investment Institutional Fonds Nr. 772 1)	Frankfurt am Main	0.00		n/a	n/a
UIN Union Investment Institutional Fonds Nr. 817 1)	Frankfurt am Main	0.00		2,222,753	-477
UIN Union Investment Institutional Fonds Nr. 825 1)	Frankfurt am Main	0.00		n/a	n/a
UIN Union Investment Institutional Fonds Nr. 833 1)	Frankfurt am Main	0.00		n/a	n/a
UIN Union Investment Institutional Fonds Nr. 834 1)	Frankfurt am Main	0.00		n/a	n/a
UIN Union Investment Institutional Fonds Nr. 839 1)	Frankfurt am Main	0.00		n/a	n/a
UIN Union Investment Institutional Fonds Nr. 913 1)	Frankfurt am Main	0.00		n/a	n/a

SUBSIDIARIES

Name	Location	Shareholding	Voting rights, if different	Equity in € '000	Profit/loss in € '000
UIR FRANCE 1 S.a.r.l. 1)	Paris, France	100.00		8	-7
UIR FRANCE 2 S.a.r.l. 1)	Paris, France	100.00		13	-8
UIR Verwaltungsgesellschaft mbH 1)	Hamburg	100.00		98	6
UMB Unternehmens-Managementberatungs GmbH 1)	Wiesbaden	100.00		3,753	852
UniMultiAsset: Chance I 1)	Frankfurt am Main	0.00		n/a	n/a
UniMultiAsset: Chance II 1)	Frankfurt am Main	0.00		n/a	n/a
UniMultiAsset: Chance III 1)	Frankfurt am Main	0.00		n/a	n/a
UniMultiAsset: Exclusiv 1)	Frankfurt am Main	0.00		n/a	n/a
Union Asset Management Holding AG 2)	Frankfurt am Main	96.57		1,124,702	430,236
Union Investment Austria GmbH 1)	Vienna, Austria	100.00		17,550	2,042
Union Investment Financial Services S.A. 1)	Luxembourg, Luxembourg	100.00		20,298	945
Union Investment Institutional GmbH 1) 6)	Frankfurt am Main	100.00		93,970	0
Union Investment Institutional Property GmbH 1) 6)	Hamburg	90.00		23,950	6,141
Union Investment Luxembourg S.A. 1)	Luxembourg, Luxembourg	100.00		195,207	25,267
Union Investment Privatfonds GmbH 1) 6)	Frankfurt am Main	100.00		460,942	0
Union Investment Real Estate Asia Pacific Pte. Ltd. 1)	Singapore, Singapore	100.00		879	-174
Union Investment Real Estate Austria AG 1)	Vienna, Austria	94.50		8,093	1,936
Union Investment Real Estate France S.A.S. 1)	Paris, France	100.00		3,802	1,417
Union Investment Real Estate GmbH 2) 6)	Hamburg	94.50		164,984	55,506
Union Investment Service Bank AG 1) 6)	Frankfurt am Main	100.00		63,115	0
Union IT-Services GmbH 1) 6)	Frankfurt am Main	100.00		4,701	1,669
Union Service-Gesellschaft mbH 1) 6)	Frankfurt am Main	100.00		8,807	1,974
Unterstützungskasse der Condor Versicherungsgesellschaften GmbH 1)	Hamburg	66.67		26	0
URA Verwaltung GmbH 1)	Vienna, Austria	100.00		37	5
VAUTID (SHANGHAI) Wear Resistant Material Trading Co. Ltd. 1)	Shanghai, China	100.00		1,301	368
VAUTID Austria GmbH 1)	Marchtrenk, Austria	100.00		897	170
VAUTID GmbH 1)	Ostfildern	82.51		4,491	-898
VAUTID INDIA PRIVATE LIMITED 1)	Mumbai, India	100.00		-415	-180
VAUTID LATAM S.A. 1)	Quito, Ecuador	74.00		386	48
VAUTID MIDDLE EAST F.Z.E 1)	Ajman Free Zone, United Arab Emirates	100.00		45	-42
VB A330 Leasing Ltd 1)	George Town, Cayman Islands	100.00		-1,796	-1,796
VisualVest GmbH 1) 6)	Frankfurt am Main	100.00		14,525	0
VR Consultingpartner GmbH 1)	Frankfurt am Main	100.00		1,235	-259
VR Equity Gesellschaft für regionale Entwicklung in Bayern mbH 1)	Frankfurt am Main	100.00		2,109	-54
VR Equitypartner Beteiligungskapital GmbH & Co. KG UBG 2)	Frankfurt am Main	100.00		44,501	1,754
VR Equitypartner GmbH 5)	Frankfurt am Main	100.00		69,070	0
VR Equitypartner Management GmbH 1)	Frankfurt am Main	100.00		359	-5
VR FACTOREM GmbH 1) 5)	Eschborn	100.00		39,385	0
VR GbR 2)	Frankfurt am Main	100.00		173,020	28,052
VR HYP GmbH 1)	Hamburg	100.00		25	-1
VR Kreditservice GmbH 1) 5)	Hamburg	100.00		25	0
VR Mittelstandskapital Unternehmensbeteiligungs GmbH 2)	Düsseldorf	100.00		9,679	244
VR Payment GmbH	Frankfurt am Main	90.00		55,671	4,415
VR Real Estate GmbH 1)	Hamburg	100.00		25	-1
VR Smart Finanz AG (VR-LEASING Aktiengesellschaft until July 10, 2019) 5)	Eschborn	100.00		211,070	0
VR Smart Finanz Bank GmbH (VR DISKONTBANK GmbH until July 11, 2019) 1) 5)	Eschborn	100.00		200,147	0
VR Smart Guide GmbH 1)	Eschborn	100.00		847	340
VR WERT Gesellschaft für Immobilienbewertung mbH 1) 5)	Hamburg	100.00		50	0
VR-Leasing Beteiligungs GmbH 1)	Eschborn	100.00		98,620	531
VR-LEASING Hauptverwaltung GmbH & Co. KG 1) 6)	Eschborn	94.80	76.00	5,000	3,339
Waverley Shipping Opco LLC 1)	Majuro, Marshall Islands	0.00		15	-251
WBS Wohnwirtschaftliche Baubetreuungs- und Servicegesellschaft mbH 1)	Stuttgart	94.90		19,199	-48

JOINT VENTURES

Name	Location	Shareholding	Voting rights, if different	Equity in € '000	Profit/loss in € '000
38321 & 38329 Aircraft Leasing (Cayman) Ltd. 1)	Grand Cayman, Cayman Islands	50.00	0.00	10,325	2,485
AerCap Partners I Ltd. 1)	Shannon, Ireland	50.00		0	0
AerCap Partners II Ltd. 1)	Shannon, Ireland	50.00		0	0
BAU + HAUS Management GmbH 1)	Wiesbaden	50.00		10,007	848
BEA Union Investment Management Limited 1)	Hong Kong, Hong Kong	49.00		60,315	12,764
Cella Intermodal Investment Fund LLC 1)	Majuro, Marshall Islands	50.00		n/a	n/a
D8 Product Tankers I LLC 1)	Majuro, Marshall Islands	50.00		7,593	-299
D8 Product Tankers Investments LLC 1)	Majuro, Marshall Islands	50.00		0	0
Deutsche WertpapierService Bank AG	Frankfurt am Main	50.00		211,436	15,656
DZ BANK Galerie im Städel Kunstverwaltungsgesellschaft mbH	Frankfurt am Main	50.00		13	-2
GMS Holding GmbH 1)	Paderborn	58.89	45.00	15,448	2,455
Intermodal Investment Fund IV LLC 1)	Majuro, Marshall Islands	50.00		13,361	2,845
Intermodal Investment Fund VIII LLC 1)	Majuro, Marshall Islands	50.00	0.00	6,032	599
IZD-Holding S.à.r.l. 1)	Luxembourg, Luxembourg	50.30	50.00	9	-61
MS Oceana Schifffahrtsgesellschaft mbH & Co. KG 1)	Hamburg	50.00		7,041	-595
MS Octavia Schifffahrtsgesellschaft mbH & Co. KG 1)	Hamburg	50.00		5,695	-1,063
Norafin Verwaltungs GmbH 1)	Mildenau	44.72		24,090	460
Prvá stavebná sporitel'na, a.s. 1)	Bratislava, Slovakia	32.50		258,255	14,890
R+V Kureck Immobilien GmbH Grundstücksverwaltung Braunschweig 1)	Wiesbaden	50.00		7,534	278
TrustBills GmbH	Hamburg	25.00		-1,125	-2,572
Versicherungs-Vermittlungsgesellschaft des Sächsischen Landesbauernverbandes mbH 1)	Dresden	50.00		252	51
Versicherungs-Vermittlungsgesellschaft mbH des Bauernverbandes Mecklenburg-Vorpommern e.V. (VVB) 1)	Neubrandenburg	50.00		195	15
Versicherungs-Vermittlungsgesellschaft mbH des Landesbauernverbandes Brandenburg (VVB) 1)	Teltow	50.00		33	4
Versicherungs-Vermittlungsgesellschaft mbH des Landesbauernverbandes Sachsen-Anhalt e.V. (VVB) 1)	Magdeburg	50.00		63	4
Zhong De Zuh Fang Chu Xu Yin Hang (Sino-German-Bausparkasse) Ltd. 1)	Tianjin, China	24.90		377,286	5,680

ASSOCIATES

Name	Location	Shareholding	Voting rights, if different	Equity in € '000	Profit/loss in € '000
adorsys GmbH & Co. KG 1)	Nuremberg	25.89		1,698	2,861
adorsys Verwaltungs GmbH 1)	Nuremberg	25.90		27	-1
Artemis Gas 1 Shipping Inc. 1)	Piraeus, Greece	20.00		67,735	836
Bankenkonsortium der Zenit GmbH, GbR	Düsseldorf	33.30		0	0
bbv-service Versicherungsmakler GmbH 1)	Munich	25.20		2,079	357
Bergina AS 1)	Grimstad, Norway	40.00		n/a	n/a
Bookwire Holding GmbH 1)	Frankfurt am Main	49.00		n/a	n/a
Danae Gas Shipping Inc 1)	Majuro, Marshall Islands	5.00		n/a	n/a
Dr. Förster Holding GmbH 1)	Neu-Isenburg	20.06		-12,858	-1,280
Dr. Neuberger Holding GmbH 1)	Wiesbaden	40.00		8,146	-980
European Convenience Food GmbH 1)	Garrel	44.29		4,728	-3,103
GBS Beteiligungsgesellschaft mbH 1)	Bayreuth	42.33		5,037	1,865
GGB-Beratungsgruppe GmbH	Stuttgart	23.13		-1,123	-1,858
GHM Holding GmbH 1)	Erolzheim	40.00		17,182	-18
GHM MPP Reserve GmbH 1)	Regenstauf	50.00		349	-4
GHM MPP Verwaltungs GmbH 1)	Remscheid	50.00		18	-2
Global Asic GmbH 1)	Dresden	30.80		1,083	-35
Global Offshore Services B.V. 1)	Amsterdam, Netherlands	32.13		0	0
Goldeck Zetti Beteiligungsgesellschaft mbH 1)	Leipzig	39.23		32,777	1,443
Gram Car Carriers Holdings Pte. Ltd. 1)	Singapore, Singapore	5.88		0	0
Groneweg Verwaltungsgesellschaft mbH 1)	Greven	48.00		23,073	702
Hör Technologie GmbH 1)	Weiden i.d.OPf.	62.78	49.99	23,502	-1,029
Hudson Chemical Tankers Ltd 1)	Middlesex, UK	25.00		n/a	n/a
Informatik Consulting Systems Holding GmbH 1)	Stuttgart	49.83	49.43	n/a	n/a
Kapitalbeteiligungsgesellschaft für die mittelständische Wirtschaft in Nordrhein-Westfalen mbH - KBG -	Neuss	23.60		4,028	783
KCM Bulkers International Limited 1)	Tortola, Virgin Islands	49.00		n/a	n/a
KCM Bulkers Ltd. 1)	Tortola, Virgin Islands	49.00		0	0
KOTANI JV CO. BV 1)	Amsterdam, Netherlands	48.35		78,007	-6,683
KTP Holding GmbH 1)	Bous	37.36		40,741	3,879
Mandarin Containers Limited 1)	Tortola, Virgin Islands	17.01		64,288	1,903
MON A300 Leasing Ltd. 1)	George Town, Cayman Islands	20.00		74	1,592
Mount Faber KS i.L. 1)	Oslo, Norway	0.00		0	0
MSEA Aframax Holdings LLC 1)	Majuro, Marshall Islands	48.00		25,731	-871
MSEA Marlin Holdings LLC 1)	Majuro, Marshall Islands	32.19		n/a	n/a
MSN 1272&1278 Aircraft Leasing 1)	Grand Cayman, Cayman Islands	20.00		n/a	n/a
n3k Informatik GmbH 1)	Heilbronn	58.33	49.99	10,812	1,092
Ostertag DeTeWe Group GmbH 1)	Walddorfhäslach	58.52	49.90	13	-104
PI-SM GmbH 1)	Ehringshausen	40.80		24,217	369
Sanitärgruppe Stiller GmbH 1)	Cologne	45.00		38,991	49,308
SCL GmbH 1)	Butzbach	49.00		5,707	1,942
Signet Wohnmöbel II GmbH (Erwerbergesellschaft 2019 GmbH until January 14, 2020) 1)	Osnabrück	49.80		n/a	n/a
SRF Railcar Leasing Limited 1)	Cashel, Ireland	49.00		27,711	1,403
TAP Ltd. 1)	Hamilton, Bermuda	38.05		n/a	n/a
Touax Rail Finance 3 Ltd. 1)	Bracetown, Ireland	28.92		24,586	2,829
Treuhand- und Finanzierungsgesellschaft für Wohnungs- und Bauwirtschaft mit beschränkter Haftung. Treufinanz	Düsseldorf	33.14		1,701	-278
TREVA Entertainment GmbH i. L. 1)	Hamburg	32.70		1,269	-529
United MedTec Holding GmbH 1)	Bückeburg	41.01		1,408	213
Votronic Elektronik-Systeme GmbH 1)	Lauterbach	49.80		n/a	n/a
Weisshaar Holding GmbH 1)	Deisslingen	84.94	49.92	3,668	-582
Wessel-Werk Beteiligungsverwaltung GmbH i.L. 1)	Karlsruhe	45.00		-2,088	-1,527
ZBI Partnerschafts-Holding GmbH 1)	Erlangen	49.90		10,913	19,788
ZT Finance GmbH 1)	Weilheim	26.67		-21	-20

SHAREHOLDINGS OF 20% OR MORE

Name	Location	Shareholding	Voting rights, if different	Equity in € '000	Profit/loss in € '000
AMP Capital Infrastructure Debt Fund IV (EUR), L.P. 1)	Luxembourg, Luxembourg	39.84		n/a	n/a
Assiconf S.r.l. 1)	Turin, Italy	20.00		80	6
ASSICRA Servizi Assisurativi Banche di Credito Cooperativo Abruzzo e Molise S.r.l. 1)	Pescara, Italy	25.00		376	28
BCC RISPARMIO & PREVIDENZA S.G.R.P.A. 1)	Milan, Italy	25.00		43,825	18,081
BRASIL FLOWERS S.A. 1)	Barbacena, Brazil	45.00		n/a	n/a
Burghofspiele GmbH 1)	Eltville	20.00		0	-21
Bürgschaftsbank Brandenburg GmbH	Potsdam	25.31		29,836	748
Bürgschaftsbank Mecklenburg-Vorpommern GmbH	Schwerin	30.38		16,637	75
Bürgschaftsbank Sachsen-Anhalt GmbH	Magdeburg	29.73		15,999	387
Bürgschaftsbank Thüringen GmbH	Erfurt	22.13		26,582	636
Cheyne Real Estate Credit (CRECH) Fund IV Loans SCS SICAV-SIF 1)	Luxembourg, Luxembourg	20.83		n/a	n/a
CMMT Partners L.P. 1)	Camden, USA	26.90		n/a	n/a
Corpus Sireo Health Care III SICAV-FIS 1)	Luxembourg, Luxembourg	33.33		54,751	2,388
Corpus Sireo Health Care IV SICAV-FIS 1)	Luxembourg, Luxembourg	46.51		26,209	115
Credit Suisse Global Infrastructure SCA SICAR 1)	Luxembourg, Luxembourg	30.09		288,803	57,350
DEGEPROMO Grundstücksverwaltungsgesellschaft mbH & Co. Immobilien-Vermietungs KG 1) 6)	Eschborn	95.00	33.34	n/a	n/a
DZ BANK Mikrofinanzfonds eG 2)	Frankfurt am Main	30.90	0.00	259	2
Finatem II GmbH & Co. KG 1)	Frankfurt am Main	20.20		20,149	9,537
FREUNDE DER EINTRACHT FRANKFURT Aktiengesellschaft 1)	Frankfurt am Main	32.05		6,099	1,446
GENOPACE GmbH 1) 6)	Berlin	27.49		200	0
Global Infrastructure Partners III-C2, L.P. 1)	New York, USA	27.97		n/a	n/a
Golding Mezzanine SICAV IV 1)	Munsbach, Luxembourg	49.98		4,042	365
GTIS Brazil II S-Feeder LP 1)	Edinburgh, UK	100.00		20,603	-9,591
Hermann-Löns-Grundstücks- und Entwicklungs GbR 1)	Münster	50.00		301	250
Kreditgarantiegemeinschaft in Baden-Württemberg Verwaltungs-GmbH	Stuttgart	20.00		1,023	0
Macquarie Asia Infrastructure Fund 2 SCSp 1)	Luxembourg, Luxembourg	50.48		n/a	n/a
Macquarie Asia Infrastructure Fund EU Feeder L.P 1)	London, UK	100.00		n/a	n/a
MB Asia Real Estate Feeder (Scot.) L.P. 1)	Edinburgh, UK	34.80		7,333	-1,667
Medico 12 GmbH & Co. KG 1)	Frankfurt am Main	99.98		826	-57
Nuveen Immobilien GmbH 1)	Frankfurt am Main	50.00		132	10
Nuveen Immobilien GmbH & Co. GB I KG 1)	Frankfurt am Main	73.91	73.21	2,015	-373
paydirekt GmbH	Frankfurt am Main	33.33		20,702	4,424
PT. VAUTID WEAR TECHNOLOGY INDONESIA 1)	Tangerang (Banten), Indonesia	50.00		103,005	-8,227
RV-CVIII Holdings, LLC 1)	Camden, USA	100.00		72,164	2,779
Schroder Italien Fonds GmbH & Co. KG 1)	Frankfurt am Main	23.08	19.74	728	-34
Schroder Property Services B.V. S.à.r.l. 1)	Amsterdam, Netherlands	30.00		316	61
Technology DZ Venture Capital Fund I GmbH & Co. KG i.L. 1)	Munich	34.33		5,543	-46
TF H III Technologiefonds Hessen Gesellschaft mit beschränkter Haftung	Wiesbaden	25.00		5,174	-843
TF H Technologie-Finanzierungsfonds Hessen Gesellschaft mit beschränkter Haftung (TF H GmbH) i.L.	Wiesbaden	33.33		543	-27
Tishman Speyer Brazil Feeder (Scots/D), L.P. 1)	Edinburgh, UK	100.00		21,803	-266
Tishman Speyer European Real Estate Venture VIII Parallel SCSp 1)	Luxembourg, Luxembourg	55.88	0.00	n/a	n/a
Tishman Speyer European Strategic Office Fund Feeder, L.P. 1)	London, UK	97.18		7,064	723
TXS GmbH 1)	Hamburg	24.50		200	344
VAUTID & HUIFENG (WUHU) Wear Resistant Material Co. Ltd. 1)	Wuhu, China	50.00		701	68
VAUTID Arabia Coating & Treatment of Metals LLC 1)	Ras Al Khaimah, United Arab Emirates	24.50	0.00	200	-38
Vautid North America, Inc. 1)	Carnegie, USA	100.00	0.00	-309	9
VBI Beteiligungs GmbH 1)	Vienna, Austria	24.50		584	-39
VR-LEASING OPHIR GmbH & Co. Immobilien KG 1)	Eschborn	94.80	16.33	n/a	n/a
VR-NetWorld GmbH 2)	Bonn	43.48		5,849	276
ZhangJiaGang Vautid Yao Yu Wear Resistance Material Co., Ltd. 1)	Yangshe Town, China	50.00		231	79

MORE THAN 5% OF VOTING RIGHTS (LARGE CORPORATIONS)

Name	Location	Shareholding	Voting rights, if different	Equity in € '000	Profit/loss in € '000
Banco Cooperativo Español S.A.	Madrid, Spain	12.02		505,949	63,983
EDEKABANK Aktiengesellschaft	Hamburg	8.35		159,365	6,065
EURO Kartensysteme GmbH	Frankfurt am Main	19.60		12,036	202
PANELLINIA BANK SOCIETE ANONYME (under special liquidation)	Athens, Greece	8.42	5.28	50,143	-12,637
Protektor Lebensversicherungs-AG 1)	Berlin	5.27		15,332	320
Raiffeisendruckerei GmbH 1)	Neuwied	7.88		35,418	899
SCHUFA Holding AG 1)	Wiesbaden	17.94		101,550	34,599

SHAREHOLDINGS OF LESS THAN 20%

Name	Location	Shareholding	Voting rights, if different	Equity in € '000	Profit/loss in € '000
Macquarie European Infrastructure Fund 6 SCSp 1)	Luxembourg, Luxembourg	4.15		n/a	n/a
Hotel Wagramerstrasse 8 Errichtungs- und BetriebsgmbH & Co KG 1)	Vienna, Austria	0.00		21,933	2,523
ABE Clearing S.A.S a Capital Variable	Paris, France	1.92		27,916	3,194
AERS Consortio AG 1)	Stuttgart	16.50		125	-19
Airport Garden Services and Business Center S.A. 1)	Brussels-Zaventem, Belgium	0.00		273	185
AKA Ausfuhrkredit-Gesellschaft mit beschränkter Haftung	Frankfurt am Main	0.00		246,672	12,040
Akademie Badischer Volksbanken und Raiffeisenbanken GmbH 1)	Karlsruhe	0.00		n/a	0
Anlegerentschädigung von Wertpapierfirmen GmbH 1)	Vienna, Austria	0.00	1.61	n/a	n/a
Architrave GmbH 1)	Berlin	12.04		n/a	n/a
ARDIAN Infrastructure Fund V B S.C.S., SICAV-RAIF 1)	Luxembourg, Luxembourg	13.58		n/a	n/a
Assicoop-Assicurazioni Cooperative S.r.l. 1)	Catania, Italy	0.00		n/a	n/a
assistance partner GmbH & Co. KG 1)	Munich	5.01		1,246	0
Bank Polskiej Spoldzielczosci Spolka Akcyjna	Warsaw, Poland	1.00		188,411	5,512
Baro Beteiligungs-GmbH & Co. KG 1)	Münster	5.10		82,501	4,749
BayBG Bayerische Beteiligungsgesellschaft mbH	Munich	9.38		237,213	4,370
Bayerische Raiffeisen- Beteiligungs-Aktiengesellschaft 2)	Beilngries	1.85		852,750	36,575
Berliner Volksbank eG 1)	Berlin	0.00	0.00	1,029,942	19,628
Beteiligungs-Aktiengesellschaft der bayerischen Volksbanken 1)	Pöcking	1.14		232,968	7,919
BFL Gesellschaft des Bürofachhandels mbH & Co. KG i.L. 1)	Eschborn	0.00	0.00	2,225	37,613
BGG Bayerische Garantiegesellschaft mit beschränkter Haftung für mittelständische Beteiligungen	Munich	13.15		53,351	1,962
Blackrock Renewable Income Europe Fund 1)	London, UK	7.69		n/a	n/a
Blackstone Real Estate Partners Europe III L.P. 1)	New York, USA	1.62		70	644,548
Blackstone Real Estate Partners International I.E. L.P. 1)	New York, USA	9.77		-26,468	-11,031
BLHV Versicherungs-Service GmbH 1)	Freiburg	9.00		n/a	n/a
BTG Beteiligungsgesellschaft Hamburg mbH	Hamburg	10.00		4,646	324
Bürgschaftsbank Bremen GmbH	Bremen	4.86		7,895	494
Bürgschaftsbank Hessen GmbH	Wiesbaden	15.87		20,839	850
Bürgschaftsbank Nordrhein-Westfalen GmbH Kreditgarantiegemeinschaft	Neuss	15.75		36,759	1,320
Bürgschaftsbank Rheinland-Pfalz GmbH	Mainz	14.31		16,826	221
Bürgschaftsbank Sachsen GmbH	Dresden	14.66	16.59	43,596	1,581
Bürgschaftsbank Schleswig-Holstein GmbH	Kiel	11.79		41,174	992
BürgschaftsGemeinschaft Hamburg GmbH	Hamburg	6.36		26,278	1,034
Caprese S.A. 1)	Brussels-Zaventem, Belgium	0.00		7,788	-595
Cash Logistik Security AG 1)	Düsseldorf	4.10		1,057	1,266
Cassa Centrale Banca - Credito Cooperativo del Nord Est Società per Azioni	Trento, Italy	3.69		1,087,039	31,017
Celt S. A. 1)	Kraków, Poland	4.44	0.00	n/a	n/a
Centrast S. A. 1)	Warsaw, Poland	0.00		n/a	n/a
CLS Group Holdings AG	Lucerne, Switzerland	0.00		442,364	-21,769
Coop System S.p.A. 1)	Rome, Italy	1.97		n/a	n/a
Copenhagen Infrastructure III K/S 1)	Copenhagen K, Denmark	5.77		n/a	n/a
Cruz Martins & Wahl Lda. 1)	Lousado, Portugal	10.00		7,854	544
Curzon Capital Partners III LP 1)	London, UK	11.99		n/a	n/a
Curzon Capital Partners IV LP 1)	London, UK	10.73		0	0
DEPFA BeteiligungsHolding II Gesellschaft mit beschränkter Haftung i.L. 1)	Düsseldorf	10.00		228	-11
DEPFA Beteiligungsholding III Gesellschaft mit beschränkter Haftung i.L. 1)	Düsseldorf	0.00		307	-11
Deutsche Bauernsiedlung - Deutsche Gesellschaft für Landentwicklung (DGL) mbH 1)	Frankfurt am Main	16.26		7,464	-185
Deutsche Börse Commodities GmbH	Frankfurt am Main	16.20	14.48	7,369	4,601
Deutscher Genossenschafts-Verlag eG 2)	Wiesbaden	1.54	1.58	67,233	1,197
DG ANLAGE Holland-Fonds 'Nieuwegein, 's-Hertogenbosch' GmbH & Co. KG (DGI 48) i.L.	Frankfurt am Main	0.00		0	9,169
DG IMMOBILIEN MANAGEMENT Gesellschaft mbH	Frankfurt am Main	5.01		16,180	10,774
DG Immobilien-Anlagegesellschaft Nr. 34 'Berlin, Darmstadt, Frankfurt' Schütze & Dr. Neumann KG i.L.	Frankfurt am Main	0.00		2,686	-54
DG Immobilien-Anlagegesellschaft Nr. 35 'Berlin, Frankfurt' Prüske & Dr. Neumann KG i.L.	Frankfurt am Main	0.00		3,039	-75
DG IMMOBILIEN-Objektgesellschaft 'Stuttgart, Industriestrasse' Kreft & Dr. Neumann KG (DGI 49) i.L.	Frankfurt am Main	0.00		0	0
DI Rathaus-Center Pankow Nr.35 KG 1)	Düren	3.86		n/a	n/a
Domus Beteiligungsgesellschaft der Privaten Bausparkassen mbH Berlin 1)	Berlin	14.13		11	-2
EDD AG i.L. 2)	Düsseldorf	9.99		22,491	-5,301
EIG Energy Fund XVI (Scotland) L.P. 1)	Edinburgh, UK	14.02		183,963	-2,587
EIG Energy Fund XVII (Scotland) L.P. 1)	Edinburgh, UK	15.61		n/a	n/a
Euro Capital S.A.S. 1)	Metz, France	6.67		23,020	1,663
European Property Investors Special Opportunities, L.P. 1)	London, UK	6.35		23,003	0
European Property Investors, L. P. 1)	London, UK	6.50		5,349	-80
EXTREMUS Versicherungs-Aktiengesellschaft 1)	Cologne	5.00		64,058	118
Fiducia & GAD IT AG 2)	Frankfurt am Main	0.00		440,232	1,584

SHAREHOLDINGS OF LESS THAN 20%

Name	Location	Shareholding	Voting rights, if different	Equity in € '000	Profit/loss in € '000
FIDUCIA Mailing Services eG 2)	Karlsruhe	0.00		80	0
Flugplatz Schwäbisch Hall GmbH 1)	Schwäbisch Hall	2.00		49	0
GAD Beteiligungs GmbH & Co. KG 2)	Münster	2.27		117,992	2,991
GBK Holding Gmbh & Co. KG 1)	Kassel	0.00		469,411	12,486
GDV Dienstleistungs-GmbH 1)	Hamburg	2.82		27,430	901
German Equity Partners IV GmbH & Co. KG 1)	Frankfurt am Main	4.36		132,960	32,578
GLADBACHER BANK Aktiengesellschaft von 1922	Mönchengladbach	17.53		39,878	1,498
Global Energy & Power Infrastructure Fund III E, SCSp 1)	Luxembourg, Luxembourg	3.30		n/a	n/a
Global Infrastructure Partners IV-C2, L.P. 1)	Luxembourg, Luxembourg	17.17		n/a	n/a
GMS Mitarbeiter Beteiligungsgesellschaft UG & Co.KG 1)	Paderborn	4.00	0.00	986	-8
Golding Mezzanine SICAV III 1)	Munsbach, Luxembourg	1.30		73,460	7,553
Grand Hotel Heiligendamm GmbH & Co. KG Fundus Fonds Nr. 34 1)	Disternich	1.90		0	0
Gründerfonds Ruhr GmbH & Co. KG 1)	Essen	7.25		927	-897
HANDWERKSBAU NIEDERRHEIN AKTIENGESELLSCHAFT	Düsseldorf	10.15		25,383	2,227
heal.capital I GmbH & Co. KG 1)	Berlin	1.39		n/a	n/a
Hines European Value Fund SCSp 1)	Luxembourg, Luxembourg	13.87		n/a	n/a
Immigon portfolioabbau ag i.A.	Vienna, Austria	3.79		775,271	101,592
Immo Feest en Cultuurpaleis Oostende SA 1)	Brussels, Belgium	0.00		16,524	403
Interessengemeinschaft Frankfurter Kreditinstitute GmbH	Frankfurt am Main	7.01		25,453	9,771
IVS Immobilien GmbH 1)	Schiffweiler	6.00		26	0
K in Kortrijk S.A. 1)	Brussels, Belgium	0.00		92,110	-707
Karen Notebook S. A. 1)	Warsaw, Poland	2.17		n/a	n/a
KLAAS MESSTECHNIK GmbH 1)	Seelze-Harenberg	15.00		28	0
KLV BAKO Vermittlungs-GmbH	Karlsruhe	10.00		233	9
Konsortium der Absatzfinanzierungsinstitute plettac-assco GbR	Wuppertal	0.00	7.08	n/a	n/a
Kreditgarantiegemeinschaft der Freien Berufe Baden-Württemberg Verwaltungs GmbH	Stuttgart	4.76		153	0
Kreditgarantiegemeinschaft der Industrie, des Verkehrsgewerbes und des Gastgewerbes Baden-Württemberg Verwaltungs-GmbH	Stuttgart	15.28		1,300	0
Kreditgarantiegemeinschaft des bayerischen Gartenbaues GmbH	Munich	9.07		649	0
Kredit-Garantiegemeinschaft des bayerischen Handwerks Gesellschaft mit beschränkter Haftung	Munich	12.00		4,846	0
Kreditgarantiegemeinschaft des Gartenbaues Baden-Württemberg Verwaltungs-GmbH	Stuttgart	12.00		138	0
Kreditgarantiegemeinschaft des Handels Baden-Württemberg Verwaltungs-GmbH	Stuttgart	10.05		1,022	0
Kreditgarantiegemeinschaft des Handwerks Baden-Württemberg Verwaltungs-GmbH	Stuttgart	10.05		1,001	0
Kreditgarantiegemeinschaft des Hotel- und Gaststättengewerbes in Bayern GmbH	Munich	9.66		4,359	0
Kreditgarantiegemeinschaft für den Handel in Bayern GmbH	Munich	7.19		6,317	0
Kunststiftung Baden-Württemberg GmbH 1)	Stuttgart	0.00		2,899	-17
Les Grands Pres S.A. 1)	Brussels-Zaventem, Belgium	0.00	0.00	51,717	4,262
Lucrezia GmbH & Co. KG 1)	Berlin	0.00		n/a	n/a
Macquarie European Infrastructure Fund 4 L.P. 1)	St. Peter Port, Guernsey	5.70		1,392,438	7,874
MBG H Mittelständische Beteiligungsgesellschaft Hessen GmbH	Wiesbaden	16.26		11,343	452
MBG Mittelständische Beteiligungsgesellschaft Baden-Württemberg Gesellschaft mit beschränkter Haftung	Stuttgart	9.94		76,993	4,504
MBG Mittelständische Beteiligungsgesellschaft Rheinland-Pfalz mbH	Mainz	9.80	11.11	15,328	445
MBG Mittelständische Beteiligungsgesellschaft Schleswig-Holstein mbH	Kiel	14.59	15.22	41,293	2,272
Mittelständische Beteiligungsgesellschaft Berlin-Brandenburg mbH	Potsdam	8.89		21,836	1,774
Mittelständische Beteiligungsgesellschaft Mecklenburg-Vorpommern mbH	Schwerin	16.00		15,950	1,521
Mittelständische Beteiligungsgesellschaft Niedersachsen (MBG) mbH	Hannover	19.92		14,309	671
Mittelständische Beteiligungsgesellschaft Sachsen mbH	Dresden	9.38		47,602	908
Mittelständische Beteiligungsgesellschaft Sachsen-Anhalt (MBG) mbH	Magdeburg	19.84		24,033	729
Mittelständische Beteiligungsgesellschaft Thüringen mbH	Erfurt	10.28		25,914	970
Münchener Hypothekenbank eG 2)	Munich	1.22		1,388,092	48,699
Munster S.A. 1)	Luxembourg, Luxembourg	0.00		2,099	-68
Niedersächsische Bürgschaftsbank (NBB) GmbH	Hannover	17.68		28,283	1,886
Norddeutsche Genossenschaftliche Beteiligungs-Aktiengesellschaft 1)	Hannover	0.00		1,374,605	47,534
Opción Jamantab S. A. DE C. V. 1)	Mexico City, Mexico	0.00		10,231	-129
Partners Group Global Mezzanine 2007 S.C.A., SICAR 1)	Luxembourg, Luxembourg	2.24		57,911	-3,536
Prosa Beteiligungs GmbH & Co. KG 1)	Frankfurt am Main	15.63		587	-408
Prosolis GmbH The Solution House i.L. 1)	Fulda	6.00		n/a	n/a
Raiffeisen Waren-Zentrale Rhein-Main eG	Cologne	2.03		32,415	1,862
Raiffeisen-Kassel A-Beteiligungs GmbH & Co. KG	Kassel	8.22		40,415	295
Raiffeisen-Kassel B-Beteiligungs GmbH & Co. KG	Kassel	8.22		40,415	295
Royale 120 New Building S.A. 1)	Brussels-Zaventem, Belgium	0.00		43,743	931
Royale 120 S.A. 1)	Brussels-Zaventem, Belgium	0.00		893	40
RREEF Pan-European Infrastructure Feeder GmbH & Co. KG 1)	Eschborn	17.70		348,880	-116

SHAREHOLDINGS OF LESS THAN 20%

Name	Location	Shareholding	Voting rights, if different	Equity in € '000	Profit/loss in € '000
Rund Vier GmbH & Co. KG 1)	Vienna, Austria	0.00		46,872	3,564
S.W.I.F.T. Society for Worldwide International Financial Telecommunication 2)	La Hulpe, Belgium	0.00		417,465	23,960
Saarländische Wagnisfinanzierungsgesellschaft mbH	Saarbrücken	2.59		7,776	2,356
SALEG Sachsen-Anhaltinische Landesentwicklungs GmbH 1)	Magdeburg	1.15		14,287	574
Sana Kliniken AG 1)	Munich	0.00		998,916	99,642
Schulze-Delitzsch-Haus, eingetragene Genossenschaft 1)	Bonn	0.00		548	7
Sechzehnte Gamma Trans Leasing Verwaltungs-GmbH & Co. Finanzierungs-Management KG i.L. 1)	Nidderau	16.51		n/a	n/a
SGB-Bank Spólka Akcyjna	Poznań, Poland	0.00		150,565	-34,620
SIGNA Development Selection AG 1)	Innsbruck, Austria	5.00		n/a	n/a
SIGNA Prime Selection AG 1)	Innsbruck, Austria	5.00		2,434,344	224,994
SIGNA Sports United GmbH 1)	Munich	11.59		n/a	n/a
Société de la Bourse de Luxembourg S.A. 1)	Luxembourg, Luxembourg	0.00		121,609	8,947
Süddeutsche Zuckerrübenverwertungs-Genossenschaft eG	Ochsenfurt	4.44	4.55	188,586	6,341
Target Partners Capital GmbH & Co. KG 1)	Munich	10.00	10.01	535	0
Technologiezentrum Schwäbisch Hall GmbH 1)	Schwäbisch Hall	4.17	5.56	569	62
Teko - Technisches Kontor für Versicherungen Gesellschaft mit beschränkter Haftung 1)	Düsseldorf	10.00	0.00	81	30
True Sale International GmbH	Frankfurt am Main	7.69		4,611	-163
Ufficio Centrale Italiano di Assistenza Assicurativa Automobilisti in Circolazione Internazionale -U.C.I. Societe consortie a R.L. 1)	Milan, Italy	0.00		n/a	n/a
UIR Belgique 1 S.A. 1)	Brussels, Belgium	0.00		548	-44
UIR Le Président 1 1)	Brussels-Zaventem, Belgium	0.00	0.00	3,880	-430
UIR MU III S.A. de C.V. 1)	Mexico City, Mexico	0.00		13,137	790
Visa Inc.	San Francisco, USA	0.00		30,286,783	9,174,385
VR-Bank Schwäbisch Hall eG 1)	Schwäbisch Hall	0.00		119,256	4,721
VR-IMMOBILIEN-LEASING GmbH 1)	Eschborn	6.00		n/a	n/a
WESTFLEISCH Finanz AG 1)	Münster	0.00		87,003	6,492
WRW Wohnungswirtschaftliche Treuhand Rheinland-Westfalen Gesellschaft mit beschränkter Haftung i.L.	Düsseldorf	2.73		n/a	n/a
ZG Raiffeisen eG	Karlsruhe	1.01	0.00	82,762	2,206

1) Held indirectly.
2) Including shares held indirectly.
3) A letter of comfort exists.
4) A subordinated letter of comfort exists.
5) Profit-and-loss transfer agreement with DZ BANK (direct or indirect).
6) Section 264 (3) HGB and section 264b HGB have been applied.
n/a = no figures available.

Responsibility statement

To the best of our knowledge, and in accordance with the applicable reporting principles, the consolidated financial statements give a true and fair view of the assets, liabilities, financial position and profit or loss of the group in accordance with German principles of proper accounting, and the group management report includes a fair review of the development and performance of the business and the position of the group, together with a description of the material opportunities and risks associated with the expected development of the group.

Frankfurt am Main, March 3, 2020

DZ BANK AG
Deutsche Zentral-Genossenschaftsbank

The Board of Managing Directors

Fröhlich	Dr. Riese	Berghaus	Dr. Brauckmann
Brouzi	Köhler	Speth	Ullrich

Independent auditor's report

To DZ BANK AG Deutsche Zentral-Genossenschaftsbank, Frankfurt am Main

Report on the audit of the consolidated financial statements and of the group management report

Opinons

We have audited the consolidated financial statements of DZ BANK AG Deutsche Zentral-Genossenschaftsbank, Frankfurt am Main, and its subsidiaries (the Group), which comprise the consolidated income statement and consolidated statement of comprehensive income for the financial year from 1 January 2019 to 31 December 2019, and the consolidated balance sheet as at 31 December 2019, consolidated statement of changes in equity and consolidated statement of cash flows for the financial year from 1 January 2019 to 31 December 2019, and notes to the consolidated financial statements, including a summary of significant accounting policies. In addition, we have audited the group management report of DZ BANK AG Deutsche Zentral-Genossenschaftsbank, Frankfurt am Main, for the financial year from 1 January 2019 to 31 December 2019.

In our opinion, on the basis of the knowledge obtained in the audit,

– the accompanying consolidated financial statements comply, in all material respects, with the IFRSs as adopted by the EU, and the additional requirements of German commercial law pursuant to Sec. 315e (1) HGB ["Handelsgesetzbuch": German Commercial Code] and, in compliance with these requirements, give a true and fair view of the assets, liabilities and financial position of the Group as at 31 December 2019 and of its financial performance for the financial year from 1 January 2019 to 31 December 2019, and
– the accompanying group management report as a whole provides an appropriate view of the Group's position. In all material respects, this group management report is consistent with the consolidated financial statements, complies with German legal requirements and appropriately presents the opportunities and risks of future development.

Pursuant to Sec. 322 (3) Sentence 1 HGB, we declare that our audit has not led to any reservations relating to the legal compliance of the consolidated financial statements and of the group management report.

Basis for the opinions

We conducted our audit of the consolidated financial statements and of the group management report in accordance with Sec. 317 HGB and the EU Audit Regulation (No 537/2014, referred to subsequently as "EU Audit Regulation") and in compliance with German Generally Accepted Standards for Financial Statement Audits promulgated by the Institut der Wirtschaftsprüfer [Institute of Public Auditors in Germany] (IDW). Our responsibilities under those requirements and principles are further described in the "Auditor's responsibilities for the audit of the consolidated financial statements and of the group management report" section of our auditor's report. We are independent of the group entities in accordance with the requirements of European law and German commercial and professional law, and we have fulfilled our other German professional responsibilities in accordance with these requirements. In addition, in accordance with Art. 10 (2) f) of the EU Audit Regulation, we declare that we have not provided non-audit services prohibited under Art. 5 (1) of the EU Audit Regulation. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinions on the consolidated financial statements and on the group management report.

Key audit matters in the audit of the consolidated financial statements

Key audit matters are those matters that, in our professional judgement, were of most significance in our audit of the consolidated financial statements for the financial year from 1 January 2019 to 31 December 2019. These matters were addressed in the context of our audit of the consolidated financial statements as a whole, and in forming our opinion thereon; we do not provide a separate opinion on these matters.

Below, we describe what we consider to be the key audit matters:

1. Calculation of specific allowances for the DVB Subgroup's Shipping and Offshore loan portfolios

Reasons why the matter was determined to be a key audit matter

Valuation of the loan portfolios and the resulting estimate of any necessary specific loan loss allowances constitutes a significant area of management judgement. The identification of impaired loans and determination of the lower fair value entail uncertainties and involve various assumptions and factors, in particular the financial situation of the counterparty, expectations of future cash flows, observable market prices and expectations of net sales prices.

During our audit, the calculation of specific allowances for the DVB Subgroup's Shipping and Offshore loan portfolios within the customer lending volume was a key audit matter because together the two portfolios make up a significant share of DZ BANK Group's total customer lending volume and the market conditions in these areas are persistently negative. In light of these uncertainties, judgements involved in determining assumptions for valuing the portfolios can have a significant effect.

Auditor's response

Our audit comprised an assessment of the design and operating effectiveness of the internal control system with regard to the key accounting-related lending processes. In doing so, we focused on the processes for calculating impairments, including the inputs used.

We also performed substantive procedures using a risk-based selection and an additional sample, thereby assessing the adequacy of the specific allowances. The risk-based selection includes, in particular, watchlist loans and loans in problem loan processing in the Shipping and Offshore loan portfolios.

We obtained an understanding of the significant assumptions used in the impairment process during the audit. This included reviewing the individual estimates of the expected future cash flows from customers, including the cash flows from the realisation of loan collateral. The effects of deferral agreements were taken into account in this respect. We used external appraisals by experts appointed by the Board of Managing Directors of the DVB Subgroup in our audit. We obtained an understanding of the assumptions used in these appraisals and appraised the adequacy of the valuation method used. We assessed the competence and objectivity of these experts as part of our audit.

In connection with the valuation of DVB's Shipping and Offshore portfolios, we liaised with the subgroup auditor, sending audit instructions to DVB's subgroup auditor about risk classification and the audit approach, especially in relation to the valuation of the Shipping and Offshore portfolios. In addition, we were informed of the current status of the audit in regular meetings and reviewed a selection of the subgroup auditor's working papers.

Our audit procedures did not lead to any reservations relating to the valuation of the Shipping and Offshore loan portfolios.

Reference to related disclosures

Information on the valuation of the loan portfolios (including DVB's Shipping and Offshore portfolios) are contained in notes 2, 5 and 85 of the notes to the consolidated financial statements and in the "Combined opportunity and risk report of DZ BANK and DZ BANK Group" chapter of the group management report.

2. Measurement of the provision for reported, and incurred but not reported non-life insurance claims in direct business and inward reinsurance business contained in the gross provision for claims outstanding

Reasons why the matter was determined to be a key audit matter

The gross provision for claims outstanding (including portions covered by reinsurance) comprises the provisions for reported, and incurred but not reported non-life insurance claims in direct business and inward reinsurance business (claims reserve); they are measured in accordance with IFRS 4.13 and Sec. 341g HGB.

The gross provision for reported direct non-life claims is measured on a case-by-case base and is based on a claims rate trend assumed by the Board of Managing Directors on the basis of current information about the claims rate trend and knowledge of the settlement of similar claims.

The gross provision for incurred but not reported claims from direct non-life business is measured on the basis of an actuarial method which uses assumptions about the expected number of claims yet to be reported and the expected indemnification amount. The calculation method is based on a historical observation period of 5 years or, in some classes of insurance, 15 years. Depending on the class and type of insurance, the provision for incurred but not reported claims in direct non-life insurance business is recalculated as the product of the expected number of claims and the expected average cost per claim for each year in which claims occur.

For inward reinsurance business, the gross provision is measured on the basis of the instructions from the prior insurer. If such instructions are not available or are not considered sufficient for recognition of a provision, the gross provision is estimated using actuarial methods. The estimates are primarily based on the instructions of the competent functional department on policy level, the related segment settlement patterns from the actuarial claims forecast, the respective terms of the insurance policy and on the previous year's estimates and the actual settlement (mis-estimation). Uncertainties arise in particular in assessing the occurrence and amount of major claims.

The gross provision for claims outstanding is a major liability item in the consolidated balance sheet. In light of the use of judgement and estimates, the measurement of the provisions for reported, and incurred but not reported non-life insurance claims in direct business and inward reinsurance business contained in the gross provision for claims outstanding was a key audit matter. There is a risk that the gross provisions for reported, and incurred but not reported claims in the aggregate and in the individual classes of insurance are not sufficient.

Auditor's response

During our audit we obtained an understanding of the process for processing claims and determining the gross provisions for reported, and incurred but not reported claims and the procedures, methods and controls used therein. We examined the gross provision for reported claims from direct non-life business by reference to the processing of individual claims to determine whether the process for processing and provisioning claims – from the reporting of claims to the accounting for claims in the consolidated financial statements – is appropriately designed so as to ensure complete and correct recognition. We tested the design and operating effectiveness of significant controls in this regard.

In addition, for a deliberately selected sample of direct non-life claims, we examined whether the provisions recognised for known claims are sufficient on the basis of the information and insights available as at the reporting date. Furthermore, with the aid of data analytics, we analysed the quality of data underlying this claims reserve by examining the sum and age structure of the individual claims. We also analysed the claims ratios and claims averages by referring to multiple-year comparisons in order to identify any anomalies in the measurement. In addition, we examined the data used in the calculation in the form of the claims register for completeness and analysed and examined the adequacy of the calculations for the underlying expected extrapolated future claims figures. In addition, we examined the procedure for determining estimates of expected indemnification amounts to identify whether judgement was used within a reasonable range to determine indemnification amounts.

To check the measurement of the gross provision for inward reinsurance business, we examined both the process of entering the invoices received from the prior insurers as well as the process for estimating the provision amounts and tested selected controls for ensuring complete and correct measurement in these processes. On the basis of a deliberately selected sample, we checked whether the invoices received corresponded with the values posted. We analysed the actuarial estimation techniques as to whether they give rise to measurement of the gross provision that is in accordance with the requirements of Sec. 341g HGB. Furthermore, we examined a deliberately selected sample of individual claims reserves. In addition, we analysed the mis-estimation (difference between the original invoices actually received in the following year and the estimated values recognised in the previous year) in order to assess the estimation quality.

Furthermore, to assess the measurement of the gross provision for reported, and incurred but not reported claims from direct non-life business and from inward reinsurance business, we performed our own claims forecasts on the basis of statistical methods and used our best estimate for each type of claim as a benchmark for assessing the measurement of the claims reserves as a whole.

We used our own actuaries in the course of our audit.

Our audit procedures did not give rise to any reservations concerning the measurement of the provision for reported, and incurred but not reported non-life insurance claims in direct business and inward reinsurance business contained in the gross provision for claims outstanding.

Reference to related disclosures

Information on the measurement of the gross provision for claims outstanding is provided in notes 2, 11 and 70 of the notes to the consolidated financial statements.

3. Measurement of the gross benefit reserve for German endowment and pension insurance policies

Reasons why the matter was determined to be a key audit matter

The measurement of the gross benefit reserve for German endowment and pension insurance policies takes into account the obligations to policyholders. The gross benefit reserve is determined in accordance with IFRS 4.13 in conjunction with Sec. 341f HGB and Sec. 25 RechVersV ["Verordnung über die Rechnungslegung von Versicherungsunternehmen": German Insurance Accounting Directive] in accordance with regulatory requirements and contains a range of assumptions about biometrics (including mortality or longevity and occupational incapacity), contract settlement (cancellation and lump-sum payment rates), and on costs and interest rates for actuarial obligations. These calculation assumptions are derived from the premium calculation assumptions for the various scales on the one hand, and on current calculation assumptions on the other. In addition, entity-specific assumptions made on the basis of past experience and allowing for current legal and economic developments, e.g., cancellation and lump-sum payment probabilities or biometric assumptions, are used in the analysis.

In accordance with Sec. 341e (1) HGB, technical reserves are required to be recognised also to the extent deemed necessary according to prudent business judgement to ensure that obligations under insurance policies may be fulfilled at all times.

In particular, the interest rate obligations entered into in respect of insured persons must be considered in accordance with Sec. 341f (2) HGB in conjunction with Sec. 5 (3) and (4) DeckRV ["Deckungsrückstellungsverordnung": German Benefit Reserve Ordinance] in recognising the gross benefit reserve if the current or expected income from the assets is not sufficient to meet these obligations. This leads to recognition of a supplementary change-in-discount-rate provision, as part of the gross benefit reserve, which comprises the supplementary change-in-discount-rate reserve (new policies) and an addition to the discount rate reserves (existing policies).

In determining the supplementary change-in-discount-rate provision, options are exercised that are set forth in the letter from BaFin ["Bundesanstalt für Finanzdienstleistungsaufsicht": German Federal Financial Supervisory Authority] dated 5 October 2016 and entitled "Guidance on the calculation of the supplementary change-in-discount-rate reserve for new policies and the allocation to the discount rate reserves for existing policies. In this connection, cancellation and lump-sum payment probabilities are used which are determined using judgement. These are affected in particular by assumptions about the behaviour of policyholders.

The gross benefit reserve for German endowment and pension insurance policies makes up a significant portion of the "benefit reserve" stated on the liabilities side of the consolidated balance sheet. In light of the estimation processes and the related use of judgement and given the amount, there is a risk that measurement of the gross benefit reserve does not meet the requirements of IFRS 4.13 in conjunction with Sec. 341f HGB and Sec. 25 RechVersV. For that reason we determined this to be a key audit matter.

Auditor's response

During our audit we walked through the process for determining the gross benefit reserve for German endowment and pension insurance policies (including the supplementary change-in-discount-rate provision) and assessed and tested the design and operating effectiveness of selected controls in this process. The tested controls cover, among other things, the completeness and correctness of the portfolio.

In addition, we performed analytical and substantive procedures. For example, we developed our own expectation by extrapolating the gross benefit reserve on the basis of the profit allocations of recent years and the current development of the portfolio and compared this expectation with the reported values. In addition, we recalculated the gross benefit reserve and the supplementary change-in-discount-rate provision for deliberately selected subportfolios or policies. In addition, we performed ratio and time series analyses in order to analyse the development of the gross benefit reserve overall and for subportfolios or components thereof over time.

Our audit also included the derivation and adequacy of the underlying calculation assumptions. In order to audit the adequacy of the calculation assumptions used to calculate the gross benefit reserve, especially in respect of the options used for the calculation of the supplementary change-in-discount-rate reserve, we critically appraised the derivation of the calculation assumptions on the basis of the historical and current portfolio development, profit allocation and the Board of Managing Directors' future expectation of policyholder behaviour. When assessing the adequacy of the calculation assumptions used, we referred in particular to the recommendations and publications of DAV e.V. and BaFin.

In addition, we examined whether an addition to the discount rate reserve in the relevant portfolio was in accordance with the approved business plans and notifications pursuant to Sec. 143 VAG ["Versicherungsaufsichtsgesetz": German Insurance Supervision Act] and in compliance with the other regulatory requirements. We assessed changes in the valuation inputs by referring to the historical actuarial data of recent years. Furthermore, we analysed the development of the addition to the discount rate reserve – also on the level of subportfolios – by comparing data from multiple years.

In addition, we critically reviewed the explanatory report of the responsible actuary of the various group entities and the results of the annual forecasts in accordance with the requirements of BaFin to determine whether all risks with regard to the adequacy of the calculation assumptions and the ability to fulfill insurance policies at all times were considered in measuring the benefit reserve.

We used our own actuaries in the course of our audit.

Our procedures did not lead to any reservations relating to the measurement of the gross benefit reserve for German endowment and pension insurance policies.

Reference to related disclosures

Information on the recognition and measurement of the gross benefit reserve for German endowment and pension insurance policies is provided in notes 2, 11 and 70 of the notes to the consolidated financial statements.

4. Measurement of home savings provisions

Reasons why the matter was determined to be a key audit matter

Home savings provisions primarily comprise provisions for loyalty bonuses and interest bonuses granted under certain scales by the group company Bausparkasse Schwäbisch Hall AG, Schwäbisch Hall (BSH). The amount of the provisions to be recognised is determined on the basis of the results of the collective simulation (building society forecast). The determination of the underlying probabilities (e.g., for claiming of a loyalty bonus) is based on assumptions relating to the savers' future behaviour on the basis of historical data and the forecast capital market rate; these assumptions have a significant effect on the measurement of the provisions. BSH tests the plausibility of the amount of the provisions thus determined by reference to a supplementary expiry simulation. The forecast quality of the collective simulation model is tested annually during the validation process, by, among other things, backtesting.

In light of the complexity of the simulation models and the necessary use of assumptions and estimates subject to uncertainty with a significant effect on the amount of the provisions, the measurement of home savings provisions was a key audit matter.

Auditor's response

We assessed the design and operating effectiveness of the internal control system with regard to the process for determining the amount of the provisions for loyalty bonuses and interest bonuses granted under certain scales.

We checked the methodology and the clerical accuracy of the calculations of the amount of the provisions on the basis of the results of the collective simulation. In so doing, we examined the model used to determine whether the significant estimation inputs are included in the model and whether the model chosen with the related model assumptions appropriately determines the provision amounts within the scope of estimation accuracies customary in the industry for mathematically similar models.

In order to validate the estimation inputs, we analysed the current calculations by reference to historical data and the periods used and their weighting in the model by comparing the results of the current validation report with the inputs estimated in previous years, allowing for the historical forecast accuracy.

For the review of the building society simulation model, we used specialists in the audit team who have particular expertise in the area of building society mathematics.

Our procedures did not lead to any reservations relating to the measurement of the home savings provisions.

Reference to related disclosures

Information on the measurement of home savings provisions is provided in notes 2, 26 and 69 of the notes to the consolidated financial statements.

Other information

The Supervisory Board is responsible for the report of the Supervisory Board. In all other respects, the executive directors are responsible for the other information. The other information comprises the responsibility statement pursuant to Sec. 289 (1) Sentence 5 HGB, the group non-financial report and other parts of the annual report of which we received a version before issuing this auditor's report, including the letter to shareholders and the report of the Supervisory Board.

Our opinions on the consolidated financial statements and on the group management report do not cover the other information, and consequently we do not express an opinion or any other form of assurance conclusion thereon.

In connection with our audit, our responsibility is to read the other information and, in so doing, to consider whether the other information

- is materially inconsistent with the consolidated financial statements, with the group management report or our knowledge obtained in the audit, or
- otherwise appears to be materially misstated.

If, based on the work we have performed, we conclude that there is a material misstatement of this other information, we are required to report that fact. We have nothing to report in this regard.

Responsibilities of the executive directors and the Supervisory Board for the consolidated financial statements and the group management report

The executive directors are responsible for the preparation of the consolidated financial statements that comply, in all material respects, with IFRSs as adopted by the EU and the additional requirements of German commercial law pursuant to Sec. 315e (1) HGB, and that the consolidated financial statements, in compliance with these requirements, give a true and fair view of the assets, liabilities, financial position, and financial performance of the Group. In addition, the executive directors are responsible for such internal control as they have determined necessary to enable the preparation of consolidated financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the consolidated financial statements, the executive directors are responsible for assessing the Group's ability to continue as a going concern. They also have the responsibility for disclosing, as applicable, matters related to going concern. In addition, they are responsible for financial reporting based on the going concern basis of accounting unless there is an intention to liquidate the Group or to cease operations, or there is no realistic alternative but to do so.

Furthermore, the executive directors are responsible for the preparation of the group management report that, as a whole, provides an appropriate view of the Group's position and is, in all material respects, consistent with the consolidated financial statements, complies with German legal requirements, and appropriately presents the opportunities and risks of future development. In addition, the executive directors are responsible for such arrangements and measures (systems) as they have considered necessary to enable the preparation of a group management report that is in accordance with the applicable German legal requirements, and to be able to provide sufficient appropriate evidence for the assertions in the group management report.

The Supervisory Board is responsible for overseeing the Group's financial reporting process for the preparation of the consolidated financial statements and of the group management report.

Auditor's responsibilities for the audit of the consolidated financial statements and of the group management report

Our objectives are to obtain reasonable assurance about whether the consolidated financial statements as a whole are free from material misstatement, whether due to fraud or error, and whether the group management report as a whole provides an appropriate view of the Group's position and, in all material respects, is consistent with the consolidated financial statements and the knowledge obtained in the audit, complies with the German legal requirements and appropriately presents the opportunities and risks of future development, as well as to issue an auditor's report that includes our opinions on the consolidated financial statements and on the group management report.

Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with Sec. 317 HGB and the EU Audit Regulation and in compliance with German Generally Accepted Standards for Financial Statement Audits promulgated by the Institut der Wirtschaftsprüfer (IDW) will always detect a material misstatement. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these consolidated financial statements and this group management report.

We exercise professional judgement and maintain professional scepticism throughout the audit. We also:

- Identify and assess the risks of material misstatement of the consolidated financial statements and of the group management report, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinions. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.
- Obtain an understanding of internal control relevant to the audit of the consolidated financial statements and of arrangements and measures (systems) relevant to the audit of the group management report in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of these systems.
- Evaluate the appropriateness of accounting policies used by the executive directors and the reasonableness of estimates made by the executive directors and related disclosures.
- Conclude on the appropriateness of the executive directors' use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Group's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in the auditor's report to the related disclosures in the consolidated financial statements and in the group management report or, if such disclosures are inadequate, to modify our respective opinions. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the Group to cease to be able to continue as a going concern.
- Evaluate the overall presentation, structure and content of the consolidated financial statements, including the disclosures, and whether the consolidated financial statements present the underlying transactions and events in a manner that the consolidated financial statements give a true and fair view of the assets, liabilities, financial position and financial performance of the Group in compliance with IFRSs as adopted by the EU and the additional requirements of German commercial law pursuant to Sec. 315e (1) HGB.
- Obtain sufficient appropriate audit evidence regarding the financial information of the entities or business activities within the Group to express opinions on the consolidated financial statements and on the group management report. We are responsible for the direction, supervision and performance of the group audit. We remain solely responsible for our audit opinions.
- Evaluate the consistency of the group management report with the consolidated financial statements, its conformity with [German] law, and the view of the Group's position it provides.
- Perform audit procedures on the prospective information presented by the executive directors in the group management report. On the basis of sufficient appropriate audit evidence we evaluate, in particular, the significant assumptions used by the executive directors as a basis for the prospective information, and evaluate the proper derivation of the prospective information from these assumptions. We do not express a separate opinion on the prospective information and on the assumptions used as a basis. There is a substantial unavoidable risk that future events will differ materially from the prospective information.

We communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

We also provide those charged with governance with a statement that we have complied with the relevant independence requirements, and communicate with them all relationships and other matters that may reasonably be thought to bear on our independence and where applicable, the related safeguards.

From the matters communicated with those charged with governance, we determine those matters that were of most significance in the audit of the consolidated financial statements of the current period and are therefore the key audit matters. We describe these matters in our auditor's report unless law or regulation precludes public disclosure about the matter.

Other legal and regulatory requirements

Further information pursuant to Art. 10 of the EU Audit Regulation

We were elected as auditor by the Annual General Meeting on 29 May 2019. We were engaged by the Supervisory Board on 31 May 2019. We have been the auditor of DZ BANK AG Deutsche Zentral-Genossenschaftsbank, Frankfurt am Main, without interruption since financial year 2002.

We declare that the opinions expressed in this auditor's report are consistent with the additional report to the Audit Committee pursuant to Art. 11 of the EU Audit Regulation (long-form audit report).

In addition to the financial statement audit, we have provided to the Institution or entities controlled by it the following services that are not disclosed in the annual financial statements or in the management report: reviews of interim financial statements, voluntary audits of the annual financial statements of controlled entities, project-based reviews and audit of reporting requirements and rules of conduct pursuant to Sec. 89 (1) WpHG ["Wertpapierhandelsgesetz": German Securities Trading Act], including the audit of custody operations and the depositary function pursuant to Sec. 68 (7) KAGB ["Kapitalanlagegesetzbuch": German Investment Code], issuance of comfort letters, certificates pursuant to Sec. 5 InvStG ["Investmentsteuergesetz": German Investment Tax Act], agreed-upon procedures pursuant to ISRS 4400, reviews pursuant to ISRE 2410 and IDW AuS 900, assurance engagements relating to the internal control system at service organisations pursuant to IDW AsS 951 and ISAE 3402, audits of single financial statements or elements thereof in accordance with IDW AuS 490, other assurance engagements pursuant to ISAE 3000, assurance engagements relating to compliance management systems pursuant to IDW AsS 980. In addition, permitted non-audit services in the form of tax and other advisory services for DZ BANK and its controlled entities (organisational or professional support for quantitative and qualitative data requests from supervisory authorities and in connection with regulatory reports, provision of information in connection with current and planned legislative amendments and events for employees of DZ BANK Group, support services in connection with the digitalisation of product processes, preparation of certificates for foreign tax purposes, support with regard to new or amended tax reporting or documentation requirements, review of tax returns and tax brochures, tax due diligence services).

German Public Auditor responsible for the engagement

The German Public Auditor responsible for the engagement is Christian Mai.

Eschborn/Frankfurt am Main, 6 March 2020

Ernst & Young GmbH
Wirtschaftsprüfungsgesellschaft

Eckl	Mai
Wirtschaftsprüferin	Wirtschaftsprüfer

Report of the Supervisory Board

Henning Deneke-Jöhrens, Chairman of the Supervisory Board of DZ BANK AG

In 2019, the Supervisory Board carried out the tasks assigned to it by law, the Articles of Association, and rules of procedure. As part of this remit, the Supervisory Board advised the Board of Managing Directors and monitored its management activities. In particular, the Supervisory Board focused on the capital situation of DZ BANK and its strategy as the network-oriented central institution and holding company of a financial services group. It also studied current regulatory challenges arising from the EU's ongoing legislative process, such as implementation of the EU banking package. The Supervisory Board thoroughly examined the risk position of the bank and the group as well as the development of systems and procedures used to manage the main risks in the Bank sector and Insurance sector. The Supervisory Board was always involved in decisions of fundamental importance. The Board of Managing Directors provided the Supervisory Board with regular, timely, and comprehensive reports on all matters relevant to the company, in particular the strategy, planning, business performance, risk situation, risk management, remuneration systems, regulatory requirements, technology, organizational matters, and compliance.

The difficulties faced by the German banking industry continued to grow in 2019, particularly regarding interest rates: At the start of the year, yields on ten-year Bunds were still around 0.20 percent, but had fallen to an all-time low of minus 0.72 percent by the end of August. The political risks – including the escalated US/Chinese trade dispute and fears about a disorderly Brexit – led to heightened demand for safe-haven assets at times and put the brake on the global economy. This affected the German economy too, although it has managed to avoid a recession so far. Weaker growth and low inflationary pressure prompted most central banks to ease the monetary policy reins still further. When signs of a partial agreement in the US/Chinese trade dispute emerged in the fourth quarter, yields on ten-year Bunds improved to minus 0.18 percent. The stock markets – measured by the DAX – climbed by 25.5 percent in 2019. Although political risks caused prices to drop in May and August, the DAX enjoyed a very successful trading year overall thanks to expansionary monetary policy.

The macroeconomic climate and the political climate will remain key determinants for the business model of the DZ BANK Group going forward. The main challenges at the moment are, in particular, the low level of interest rates, the economic downturn, and uncertainty surrounding (economic) policy and trade going forward. There are also challenges in the market, as can be seen not only from the fierce level of competition but also a fundamental shift in competitive structures and sources of income as a result of the entry of new competitors in the market and regulatory requirements. Other market challenges include customers' growing preference for digital and omnichannel solutions (e.g. platforms and ecosystems) and pressure on companies to increase their appeal as an employer. The evolving challenges faced by DZ BANK – both in its role as the central institution and corporate bank and as the holding company – require it to update its strategy as the leading financial services provider for the cooperative financial network. In 2019, the Supervisory Board therefore again focused on the refinement of the strategy under the 'Verbund First 4.0' banner and, as in previous years, discussed its ongoing implementation at length during a special strategy meeting. The emphasis of the program lies in three areas: a more intensive market offering (network orientation, customer focus, and a digital experience), optimized control and production processes (effective and focused), and the evolution of the workforce and corporate culture. Implementation of the first strategic steps under 'Verbund First 4.0' played a part in the DZ BANK Group's particularly good operating performance in 2019. The Supervisory Board is unanimously supporting the 'Verbund First 4.0' strategic program.

Meetings of the Supervisory Board

The Supervisory Board held five meetings in 2019. Its members attended the meetings of the Supervisory Board and its committees regularly.

At its meetings in the reporting year, the Supervisory Board received and discussed reports from the Board of Managing Directors on current business performance, the capital situation, and other matters pertaining to DZ BANK and the DZ BANK Group. It examined the single-entity financial statements and management report of DZ BANK as well as the consolidated financial statements and group management report for the year ended December 31, 2018 and approved them in line with the Audit Committee's resolution recommendation. The Supervisory Board also discussed the report on profitability in 2018 and, in accordance with the Audit Committee's recommendations, approved the report of the Supervisory Board to the Annual General Meeting as well as the agenda for the Annual General Meeting on May 29, 2019. Other deliberations of the Supervisory Board focused on the requirement for the DZ BANK Group to report on non-financial issues (corporate social responsibility (CSR) reporting requirement). Furthermore, it held discussions with representatives from the supervisory authorities on the risk audit by the SSM, the supervisory priorities for 2019, the outcome of DZ BANK's SREP review in 2018, and the expectations, strategies, and activities of the supervisory authorities in relation to DZ BANK. The Supervisory Board also monitored the action taken in response to the findings of the supervisory authorities' on-site audits.

Under items scheduled for regular discussion, the Supervisory Board examined the strategic and operational planning at DZ BANK and in the DZ BANK Group in the third and fourth quarters of 2019. This included discussing the recovery planning, which is required by law. The Supervisory Board also adopted various resolutions in connection with transactions requiring its consent, such as long-term equity investments and loans. In this context, there were also discussions on the risk situation, changes to the structure of DVB Bank, changes at DZ PRIVATBANK, the challenges for Bausparkasse Schwäbisch Hall and DZ HYP posed by low interest rates, and the transformation of VR Smart Finanz into a digital provider of finance for the self-employed and small businesses. Moreover, the Supervisory Board studied the JST's feedback on the outcome of the 2019 SREP, the change in S&P's credit rating outlook for DZ BANK and the cooperative financial network, the successful placement of an AT1 bond, and the ECB's decision on September 12, 2019 regarding tiered interest rates. Finally, the Supervisory Board regularly received and discussed reports on the work of the committees from their Chairs.

At its meeting in May, the Supervisory Board deliberated on the completion of the process to select DZ BANK's future auditor. The discussion centered on the Audit Committee's closing report and its decision. The Audit Committee presented its findings to the Supervisory Board, which resulted in a decision in favor of PricewaterhouseCoopers GmbH, Wirtschaftsprüfungsgesellschaft, Frankfurt am Main (PwC) and KPMG Aktiengesellschaft, Wirtschaftsprüfungsgesellschaft, Berlin (KPMG). The Audit Committee's preference was for PwC. The Supervisory Board agreed with this decision and resolved that it would propose PwC as the auditor at DZ BANK's 2021 Annual General Meeting.

Meetings of the Supervisory Board committees

With two exceptions, each Supervisory Board committee also met on a number of occasions in 2019. During this period, the Remuneration Control Committee held three meetings, the Audit Committee four meetings, and the Risk Committee five meetings. The Nominations Committee needed to meet only once in 2019, while the Mediation Committee did not need to meet at all.

In the year under review, the Nominations Committee focused on the annual reappraisal of the Board of Managing Directors and the Supervisory Board, proposing a related resolution to the Supervisory Board.

At its meetings in 2019, the Remuneration Control Committee focused on a wide range of remuneration issues and on contractual matters relating to the Board of Managing Directors. This included the variable remuneration for the members of the Board of Managing Directors, with the committee setting the level of such remuneration for 2018 and defining the company targets and individual targets for 2019. In this context, the committee discussed the remuneration system for the Board of Managing Directors – including examining whether it can be made less complex – and set the total sum of variable remuneration at DZ BANK AG and in the DZ BANK Group. Another subject addressed by the Remuneration Control Committee was the reappointment of the remuneration officer and the recruitment of a new head of the Compliance Office. The committee also discussed the structure of the remuneration systems for employees, the appropriateness of the remuneration systems, analysis of the risk takers for 2019, and the remuneration officer's remuneration control report. Finally, the Remuneration Control Committee conducted an appropriateness test and its regular salary review in respect of the remuneration of the Board of Managing Directors as at January 1, 2020. Where necessary, the Remuneration Control Committee proposed individual resolutions to the Supervisory Board on these matters.

In 2019, the Audit Committee studied the findings of the audit of the single-entity financial statements and management report of DZ BANK as well as the consolidated financial statements and group management report for the year ended December 31, 2018 by Ernst & Young GmbH Wirtschaftsprüfungsgesellschaft, Stuttgart (EY). It proposed a related resolution to the Supervisory Board. The committee also examined the auditor's reports on the half-year financial report of the DZ BANK Group and on the audit of the securities and investment services business in 2018/2019. Furthermore, the Audit Committee studied the planning for the audit of the 2019 single-entity and consolidated financial statements, discussed the auditor's areas of focus for 2019 and key findings from the current audit, and monitored the financial reporting process.

Furthermore, the committee discussed the appointment of the auditor of the single-entity financial statements and the auditor of the consolidated financial statements for 2019 as well as the auditor for the review of the group's half-year financial report and other interim financial statements. In this context, the Audit Committee proposed a resolution to the Supervisory Board on the quality and independence of the auditor and recommended to the Supervisory Board that EY again be engaged as auditor. The fee to be paid to EY was taken into account. The Audit Committee prepared the review of the non-financial statement for the Supervisory Board. This also involved studying the findings of the review of the non-financial statement conducted by the auditor EY at the request of the Supervisory Board.

Furthermore, the Audit Committee examined and discussed the business performance and capital/profitability situation in the DZ BANK Group. It also focused on supervisory audits carried out in the DZ BANK Group, the latest regulatory and fiscal developments, and the project portfolio.

Other matters addressed by the committee included internal audit reports for the periods ended December 31, 2018 and June 30, 2019, the annual compliance report for 2018, and the IT strategy of DZ BANK and the DZ BANK Group. In this context, the Audit Committee monitored the effectiveness of the internal control system, risk management system, and internal audit. It also examined the engagement of the auditor for non-audit services, including monitoring the upper limit on fees and checking the necessity of measures to maintain the auditor's independence. Neither of these points required further action to be taken. In addition, the committee carefully examined the outcome of the changes to the compliance function.

The project to prepare for the change of auditor, which was the responsibility of the Audit Committee, was completed last year. The committee believes both PwC and KPMG would be suitable as the future auditor, but expressed a preference for PwC. The Audit Committee ended this process by recording its findings in a resolution that it presented to the Supervisory Board; the Supervisory Board shared the committee's opinion. In anticipation of the proposed election of PwC as auditor, PwC has therefore been subject to tighter independence requirements since January 1, 2020 as part of the 'cooling-in period'. PwC has again confirmed its independence to the Supervisory Board.

The Risk Committee advised the Supervisory Board on current and future aggregate risk appetite and strategy in the DZ BANK Group. It also helped the Supervisory Board to monitor implementation of this strategy. In particular, this involved examining the recovery indicators, the reports on aggregate risk and credit risk, and the risk strategies as well as monitoring the effectiveness of the risk management system. The committee also focused on the review of the lending business, which had been brought forward, regulatory and organizational matters, and the shareholdings in connection with the audit of the annual financial statements for the year ended December 31, 2018, and the change in specific loan loss allowances in 2018. Moreover, the Risk Committee acknowledged and discussed the results of reverse and adverse stress tests in the DZ BANK Group. It also dealt with various matters relating to long-term equity investments and loans, where necessary adopting resolutions or issuing recommendation resolutions to the Supervisory Board. In addition, it discussed terms and conditions in the customer business, the methods for determining credit risk, the structural and country limits, and limit lists for banks and insurers. In line with its remit, it examined and monitored these limits. The Risk Committee reviewed DZ BANK's remuneration systems and recommended to the Supervisory Board that the requirements of section 7 of the German Regulation Governing Remuneration at Institutions (InstitutsVergV) be recognized as satisfied in terms of the current overall amount of variable remuneration. The Risk Committee also studied the report on updating the remit of the member of the Board of Managing Directors who has responsibility for risk. This update is aimed at refining how the group is managed.

Corporate governance

In line with the requirements of the German Banking Act, the Supervisory Board conducted an evaluation of the Board of Managing Directors and a self-evaluation in the first quarter of 2019. It found that the structure, size, composition, and performance of both the Board of Managing Directors and the Supervisory Board and the knowledge, skills, and experience of the individual members of the Board of Managing Directors and Supervisory Board and of the Board of Managing Directors and Supervisory Board as a whole fulfilled the requirements laid down by law and in the Articles of Association. The Supervisory Board therefore confirmed the individual suitability of the individual members of the Board of Managing Directors and Supervisory Board and the collective suitability of the Board of Managing Directors and Supervisory Board as a whole. In this context, it also signed off a profile of skills and expertise for the Board of Managing Directors and Supervisory Board.

In its view, the Supervisory Board had adequate financial and personnel resources at its disposal in 2019 to be able to support new members in becoming familiar with their role and to provide the training that is necessary to maintain members' required level of expertise. DZ BANK offered and offers to cover the costs for members of the Supervisory Board of training programs that are relevant to the activities of Supervisory Boards. This includes a modular program run by an external provider that is specifically tailored to Supervisory Board members and enables each Supervisory Board member to select modules to suit their individual requirements. Internal training courses on IT and IFRS accounting were also held for the Supervisory Board in 2019.

There were no indications of fundamental and far-reaching conflicts of interests affecting Supervisory Board members.

Cooperation with the auditor

To monitor the independence of the auditor, the Audit Committee confirmed the independence of the auditor and satisfied itself that the prohibition on engaging Ernst & Young GmbH Wirtschaftsprüfungsgesellschaft, Stuttgart (EY) to provide certain non-audit services has been complied with. It also satisfied itself that EY has implemented appropriate processes and measures relating to quality assurance – including in connection with the acceptance and continuation of engagements and in connection with independent quality assurance related to engagements – and that EY is regularly subject to external quality control in the form of a peer review.

The Board of Managing Directors of DZ BANK issued a non-financial statement for 2019. The Supervisory Board decided to submit the report for a voluntary external review by an auditor, for which it engaged DZ BANK's auditor. EY did not become aware of any facts that would lead it to believe that the combined non-financial statement of the DZ BANK Group for the period January 1 to December 31, 2019 had not been prepared, in all material respects, in accordance with the statutory requirements. On this basis and in accordance with the Audit Committee's recommendation, the Supervisory Board concluded, having conducted its own review, that the non-financial statement complies with the statutory requirements. At its meeting on March 26, 2020, the Supervisory Board therefore approved the 2019 non-financial statement prepared by DZ BANK.

The auditor EY confirmed that the single-entity financial statements – together with the bookkeeping system – and the management report of DZ BANK as well as the consolidated financial statements and the group management report submitted by the Board of Managing Directors for the year ended December 31, 2019 complied with the applicable legal provisions. EY issued an unqualified opinion for each of these sets of financial statements. The audit reports were submitted to the members of the Supervisory Board, who discussed them in detail at their meetings. In addition, the Chairman of the Supervisory Board and the Chairs of the Supervisory Board committees maintained a regular, intensive dialog with the auditor. This dialog also covered the new independent auditor's report pursuant to section 322 HGB (including the key audit matters). The Supervisory Board agrees with the findings of the audit.

Adoption of the financial statements

At their meetings, the Supervisory Board and its Audit Committee scrutinized the single-entity financial statements and management report of DZ BANK (including the Board of Managing Directors' proposal for the appropriation of profits) as well as the consolidated financial statements and group management report for the year ended December 31, 2019. The Chairman of the Audit Committee provided the Supervisory Board with detailed information about the committee's extensive deliberations on the single-entity financial statements and management report of DZ BANK as well as the consolidated financial statements and group management report. Representatives of the auditor attended the Supervisory Board meeting convened to adopt the financial statements as well as the preparatory meetings held by the Audit Committee and by the Risk Committee so that they could report in detail on the material findings of their audit. They were also available to answer questions from the members of the Supervisory Board. The Supervisory Board did not express any reservations following the concluding findings of its review. The Supervisory Board approved the single-entity financial statements of DZ BANK and the consolidated financial statements prepared by the Board of Managing Directors for the year ended December 31, 2019 at its meeting on March 26, 2020 in line with the Audit Committee's resolution recommendation. The financial statements have therefore been adopted. The Supervisory Board approved the Board of Managing Directors' proposal for the appropriation of profits.

Personnel changes on the Supervisory Board and Board of Managing Directors

Uwe Fröhlich was appointed to the Board of Managing Directors with effect from January 1, 2019, and he and Dr. Cornelius Riese became the Co-Chief Executive Officers. Under this dual arrangement, Mr. Fröhlich is primarily responsible for activities relating to the cooperative financial network and the corporate bank, while Dr. Riese is primarily responsible for DZ BANK's activities as the holding company. On the same date, Ulrike Brouzi also became the member of the Board of Managing Directors responsible for finance. There were no personnel changes on the Supervisory Board in 2019.

The Supervisory Board wishes to thank the Board of Managing Directors and all employees of the DZ BANK Group for their valuable contribution in 2019.

Frankfurt am Main, March 26, 2020

DZ BANK AG
Deutsche Zentral-Genossenschaftsbank,
Frankfurt am Main

Henning Deneke-Jöhrens
Chairman of the Supervisory Board

Non-financial statement

Non-financial statement

1 About this report

This non-financial statement combines the non-financial report of DZ BANK AG and the non-financial report of the DZ BANK Group. In accordance with section 315c in conjunction with section 289c of the German Commercial Code (HGB), the non-financial statement for 2019 is divided into five sections: environmental protection, treatment of employees, social responsibility, respect for human rights, and anti-corruption and bribery.

In the reporting year, a groupwide stakeholder survey on the topic of sustainability was conducted among internal and external interest groups. At a workshop for representatives of the DZ BANK Group, an analysis was conducted to identify the sustainability topic areas where the DZ BANK Group has the most significant impact on its environment, and to determine which sustainability-related aspects are also relevant for business. This non-financial statement discusses the matters that were identified as important for the understanding of business performance, operating performance, and the position of the DZ BANK Group, and the effects of its activity on the aspects required to be included in the report: environmental protection, social responsibility, and treatment of employees, respect for human rights, and anti-bribery and corruption.

Because none of the sustainability reporting frameworks use the definition of materiality contained in the German CSR Directive Implementation Act (CSR-RUG), the DZ BANK Group has opted not to use a framework for the preparation of the non-financial statement.

DZ BANK Group entities report on sustainability information that is outside the scope of the non-financial statement in their sustainability reports and on their websites. Since 2009, the DZ BANK Group has also published an annual progress report on the UN Global Compact.

This non-financial statement covers the following management units of the DZ BANK Group:

- BSH
- R+V
- UMH
- TeamBank
- DZ BANK – central institution and corporate bank (DZ BANK – CICB)
- DZ HYP
- DZ PRIVATBANK
- VR Smart Finanz
- DVB.

The 'DZ BANK Group fundamentals' chapter in the 2019 group management report contains information on the management units of the DZ BANK Group and their business models.

With regard to the application of the net method, there are no known material risks arising from the group's business activities, business relationships, products, or services that are very likely to have a serious negative impact on non-financial aspects.

2 Sustainability within the DZ BANK Group

The entities within the DZ BANK Group have been pooling their sustainability activities since 2010. The Group Corporate Responsibility Committee (Group CRC) was created in 2014. The Group CRC, which is coordinated by DZ BANK and whose members include the sustainability coordinators in the management units and at ReiseBank, is a platform for sharing specialist information throughout the group about the latest sustainability-related trends and activities.

The Group CRC focuses on working together on key areas, although management of the activities remains decentralized. The key areas are determined on the basis of the findings of the stakeholder survey. The requirements of sustainability rating agencies and current political and regulatory developments are also taken into account in the choice and prioritization of topics by the Group CRC.

In 2019, the Group CRC was given the status of a management committee (see the Management of the DZ BANK Group section in the 2019 group management report). The head of the Group CRC reports to the DZ BANK Co-Chief Executive Officer responsible for sustainability. He or she also reports annually and on an ad hoc basis to the Group Coordination Committee. In the reporting year, DZ BANK conducted the 'Advancing Sustainability' project. The project focused on three subject areas:

external requirements, opportunities and risks, and governance. An analysis was conducted to assess the requirements of stakeholders such as regulatory authorities, investors, owners, and rating agencies and to determine the status quo; recommendations for action were derived from the findings and adopted by the Board of Managing Directors in January 2020. The affected divisions have to implement various different measures. In addition, it has been decided that sustainability should be incorporated into the business strategy and the strategic planning process. DZ BANK intends to further expand its role as a coordinator within the DZ BANK Group in order to achieve even greater consistency and integration across the sustainability strategies and methods of the group entities.

The DZ BANK Group promotes sustainable economic and social development through various sustainability management activities. The entities of the DZ BANK Group have established various products, concepts, and processes that take account of environmental, social, and ethical criteria. Below, the report outlines the applicable principles and then describes the concepts and measures used for each aspect. Where a concept applies to several aspects, it will be explained upon first occurrence and then simply referred to subsequently.

3 Environmental protection

Various concepts are used within the DZ BANK Group to minimize the potential environmental impact of business activities and to limit possible risks such as reputational risk and credit risk. Examples include the 'Sustainable lending within the DZ BANK Group' policy and DZ BANK's sustainability checklist for lending. The DZ BANK Group also offers funding solutions and investment opportunities with an environmental or social benefit.

3.1 Sustainable lending

The credit risk strategy specifies that the entities in the Bank sector of the DZ BANK Group must treat their partners fairly and, as part of the sustainability strategy, not enter into any lending arrangement that could prejudice the reputation of the group. A sustainable lending policy developed on the basis of this strategy is applied in the majority of the management units involved in lending.

The policy contains rejection criteria for controversial asset types, business sectors, and business practices in order to exclude transactions that do not meet the minimum criteria in relation to environmental, social, and governance aspects or that are associated with a higher risk of reputational damage for the DZ BANK Group. Individual DZ BANK Group entities may apply additional rejection criteria. For example, DZ BANK stopped providing project funding for new coal-fired power plants in 2018.

DZ BANK systematically assesses loan applications (traditional lending business, project finance, and customer-specific trading limits) against relevant sustainability criteria as part of the credit check process. All factors relevant to the financing arrangement in question are assessed in relation to environmental and social risks using a sustainability checklist based on the 10 principles of the UN Global Compact and the Equator Principles, the latter forming a global project finance standard for evaluating environmental and social risks. Loans to cooperative banks and to entities in the DZ BANK Group are exempt from the checks, as are exposures that are being restructured. Further exemptions apply to certain product types in the joint credit business with the cooperative banks, to loans under blanket approval agreements, and to exposures that are below the rating threshold.

At DZ BANK, industry-related principles are used in addition to the sustainability checklist when reviewing loan applications from sensitive industries (forestry, commodities mining/extraction, dam construction, fishing, and maritime industries). These principles specify the details to be reviewed with reference to international industry-specific conventions, recognized standards, certification, and optimum production processes.

DZ BANK signed up to the Equator Principles in 2013. Since then, project finance with a total investment volume of more than US$ 10 million and project-specific corporate finance with an investment volume of more than US$ 100 million has been subject to an environmental and social impact assessment in accordance with these principles. Depending on their level of environmental and social sustainability, DZ BANK assigns funding projects to one of the following categories: A (potentially significant adverse environmental and social impact), B (potentially limited adverse social and environmental impact), or C (low or no environmental and social impact). This helps to ensure that environmental and social risks are managed in line with country-specific statutory requirements and that the standards of the World Bank (IFC Performance Standards) are adhered to as a minimum. In the year under review, 33 projects assessed in this way reached financial close, including 2 A-projects, 9 B-projects, and 22 C-projects.

3.2 Financing for renewable energies

The DZ BANK Group's range of products covering renewable energies extends from finance for energy-saving solutions in construction and renovation projects to support for small and medium-sized enterprises using wind power, biomass, or solar energy and finance for large-scale projects such as solar farms, as well as suitable insurance solutions. DZ BANK's lending in the area of renewable energies stood at around €5.4 billion as at December 31, 2019. It is used to fund the expansion of infrastructure and the development of new, more efficient technologies. As well as traditional bank loans funded from the bank's own liquidity and the arrangement of development loans, the provision of project finance is a major focus of activity in the renewable energies business.

VR Smart Finanz also supports investment projects in the area of renewable energies such as photovoltaic systems and mobile elements of biogas systems. R+V Versicherung's renewable energies center of excellence develops made-to-measure insurance solutions for operators of plants producing green electricity.

3.3 Sustainable investments

Union Investment is one of Germany's largest providers of socially responsible investments, with around €53.1 billion of assets under management in this category. It offers a broad spectrum of fund and client account solutions that are managed in compliance with sustainability requirements. All investment processes are based on its company-specific guidelines for responsible investment, which were updated in the reporting year. This, in turn, is based on leading German and international standards that are adhered to above and beyond the statutory and regulatory requirements. The following standards and principles are the most important: the UN Global Compact, the Oslo Convention prohibiting the use of cluster munitions and landlines, the Principles for Responsible Investment – an investor initiative in partnership with the UNEP Finance Initiative and the UN Global Compact –, the code of conduct of the Bundesverband Investment und Asset Management (BVI) [German Investment Funds Association], and the sustainability code of the real estate sector.

Union Investment also uses ESG aspects as an additional risk filter in its internal risk management. This focus here is on regulatory risks, reputational risks, event risks, litigation risks, and technology risks. ESG factors relating to companies, governments, and other securities issuers are analyzed as part of investment decisions. At sector level too, the importance of ESG factors for the sector concerned is incorporated into the analysis.

In the commercial real estate business, the sustainable investment check is used to analyze ESG factors both at the point of purchase of a new property and on an ongoing basis for the existing portfolio. ESG factors are also embedded in the property strategy for optimization purposes. The self-imposed obligation to structure business processes in accordance with the principles of the code of the Zentraler Immobilien Ausschuss (ZIA) [German Property Federation] is also met. When purchasing, leasing, or managing commercial properties, and when developing and renovating them, the objective is to maintain the value and the future viability of the property and to secure long-term economic performance. External service providers (property managers) are integrated into the internal processes. Sustainability aspects are taken into account in leasing, management, and development of the real estate portfolio, and in the selection of property managers. In 2019, checks similar to those in the securities business were introduced to assess whether tenants engage in unethical business practices or operate in controversial business fields. If pertinent information about a tenant is obtained, this may result in an existing lease not being extended or a new leasing arrangement or purchase not going ahead. A lease term extension, a new lease, or a purchase is admissible only if none of the (potential) tenants is subject to any of the applicable exclusions.

To optimize the existing portfolio, a decision was made in 2019 to introduce a comprehensive energy monitoring regime to reduce consumption and emissions. The gradual introduction of this monitoring and further measures implement core aspects of the 'Manage to Green' strategy aimed at ensuring that the target of making the commercial real estate portfolio climate-neutral by 2050 can be achieved. This also ensures compliance with regulatory requirements in the relevant investment countries, e.g. the 2050 Climate Action Plan of the German government.

As part of its engagement activities, Union Investment takes a proactive approach to its shareholdings on behalf of its clients. It specifically raises ecological, social, and corporate governance issues in discussions with investors and at annual general meetings, and in many cases is able to exercise influence on decision-making processes within companies. Union Investment publishes an annual engagement report.

DZ PRIVATBANK offers an ethical asset management service to its high-net-worth customers (monetary assets of more than €250,000) and private banking clients (monetary assets of more than €500,000). Coordinated social, environmental, and ethical filters define a broad investment universe of bonds and equities. Manufacturers of products such as anti-personnel mines or cluster munitions are strictly excluded from the investment universe.

3.4 Sustainable bonds

DZ BANK has been active in the sustainable bonds segment since 2013 and is one of the leading European underwriters for these assets. In 2019, the total volume of bond issues with green, social, and sustainable objectives that were supported by DZ BANK as the lead underwriter amounted to more than €10 billion (2018: around €7 billion). In the environmental field, the application of funds was focused on climate protection projects, while the focus in the social field was on residential construction and education projects. In addition, DZ BANK acted as an underwriter for innovative new issues such as the Blue Social Pfandbrief of Deutsche Kreditbank, which is used to finance municipal water supply and waste water disposal facilities in Germany. Since mid-2019, DZ BANK has also been engaged in structuring sustainable bonds and promissory notes.

DZ BANK actively contributed to the further development of the sustainable bond market in 2019 by participating in various projects such as the Climate Bonds Initiative, the Green and Sustainable Finance Cluster Germany, and the German government's Sustainable Finance-Beirat [Sustainable Finance Committee].

In October 2019, DZ BANK published an investor report on its first green bond, which was placed on the market in September 2018 with an issue volume of €250 million. The capital raised with this instrument is used to finance on-shore wind energy projects in Germany.

4 Treatment of employees

Skilled employees are an invaluable resource for the DZ BANK Group. The competition for highly capable professionals and managerial staff is increasing, so it is important for the DZ BANK Group entities to offer established employees attractive prospects and also to recruit well-qualified specialists and young people.

The Group HR Committee initiates and coordinates activities relating to overarching HR issues while at the same time exploiting potential synergies. The board members responsible for HR and the HR directors of the DZ BANK Group entities sit on this committee. A common remuneration strategy was adopted to take account of regulatory requirements. Further information on the Group HR Committee can be found in the Management of the DZ BANK Group section in the 2019 group management report.

The group employees' council is responsible for addressing matters that affect the whole group or several group entities and that cannot be handled by the internal employees' councils of the individual entities. Thus, the group employees' council is involved in initiatives such as the groupwide 'workplace of the future' project to ensure that the interests of employees are also properly represented at group level.

4.1 Employer branding

A key objective of the HR activities within the DZ BANK Group is to increase the group's attractiveness as an employer. A company-wide employer branding campaign was initiated in 2014. The objective of the campaign is to establish the DZ BANK Group as an employer in the marketplace, thereby attract suitable candidates, and retain existing employees over the long term, and thus safeguard the future viability of the DZ BANK Group. Following the success of the internal communications and information-sharing platform set up in 2014, a joint external careers website featuring vacancies across the group was launched two years later. Various public relations activities supported the launch of the employer brand in the external job market. The focus widened to internal communications channels, for example with articles about individual employees in features such as 'A day in the life of...'. In 2018, employer branding responsibilities were transferred from the entities to the relevant line functions, where they have become a firmly established element of HR policy.

The fourth group in the cross-mentoring program for heads of department started in the second half of 2018, with 15 mentor/mentee pairings from eight entities in the DZ BANK Group. The next group is scheduled to start in May 2020. The aim of the program is to use individual mentoring to develop the professional expertise of the participants and help them build their own network within the DZ BANK Group. This helps to strengthen the participants' identification with the entities, which in turn improves employee retention.

The project 'Information days: Experiencing the sense of belonging in the DZ BANK Group' was continued in the reporting year. Since the successful pilot run in 2016, two or three of these events have been held every year at different entities. The project is scheduled to be continued in 2020 with events in several entities.

These events promote an understanding of particular requirements in other entities, encourage a greater depth of professional dialog, and thereby produce employees capable of spreading the message among others. As well as expanding networks within the entities, the events support overarching succession and career planning and secure long-term employee loyalty.

The DZ BANK Group is developing its strategy as the leading financial services provider for the cooperative financial network under its forward-looking 'Verbund First 4.0' initiative. In its role as a central institution and corporate bank, DZ BANK is working on various fields of action as part of this initiative.

In the field of personnel and culture, it is pursuing five core objectives: 1. strengthening the collaboration and management culture, 2. recruiting and retaining staff successfully, 3. supporting employees and their performance, 4. deploying employees and resources effectively, and 5. communicating transparently and constructively. The first few measures in connection with these objectives were launched in 2019, for example the new communication concept 'coffee talk'. This format offers employees regular opportunities to engage in an active dialog across hierarchies with those responsible for the individual fields of action of the 'Verbund First 4.0' initiative. Among the next items on DZ BANK's HR agenda are the expansion of its feedback tools and the development of a structured talent management concept.

The entities of the DZ BANK Group regularly undergo the 'berufundfamilie' audit in order to promote a good work-life balance. The Hertie Foundation recognizes companies with family-friendly and life-stage-oriented HR policies. The auditberufundfamilie® quality seal has to be renewed every three years and is contingent on the auditing of specific measures. In 2019, the majority of entities were certified by auditberufundfamilie®. Flexible working hours and part-time working models, together with other measures aimed at improving work-life balance, form a permanent part of HR policy in each entity.

The DZ BANK Group entities offer health management services in order to boost their employees' performance. In 2019, staff could choose to participate in a variety of preventive health measures such as company sports groups or special courses focusing on preventive healthcare.

4.2 Professional development

The entities in the DZ BANK Group offer their staff a wide range of internal training and development opportunities. One of the topic areas in which DZ BANK expanded its offering in 2019 was 'innovation, digitalization, and agility'. From the start of 2020, it will also focus on innovative digital learning resources. Plans in this area include the launch of a new video-based learning platform ('Masterplan'). One of the objectives of this platform is to enable employees to improve their digital skills. A rollout of Masterplan to further DZ BANK Group entities is envisaged.

Back in 2011, the entities in the DZ BANK Group issued a letter of intent declaring their commitment to actively supporting the advancement of women in their careers. The initiative is supported by joint events such as the 'Success strategies for women in business' training.

5 Social responsibility

The future viability of the DZ BANK Group rests on its ability to satisfy its customers. That is why the DZ BANK Group entities actively seek dialog with their customers and other stakeholders in order to engage them in the group's business processes to everyone's advantage. This regular and intensive dialog helps the DZ BANK Group's owners and customers to build trust in the quality of the products and services on offer.

The most important customer group is the cooperative banks. As they are also the owners of DZ BANK, DZ BANK feels particular solidarity and a sense of partnership with them. DZ BANK facilitates communication and information sharing with the cooperative banks through various dialog events, including five regional Banking Advisory Councils and the autumn conferences.

The DZ BANK Group's Central Advisory Council is of particular strategic importance. It aims to ensure that the cooperative banks are involved in the DZ BANK Group's significant strategic decisions (to the extent permitted by the German Stock Corporation Act). The Central Advisory Council comprises around 35 members from the Boards of Managing Directors of cooperative banks plus other important representatives from within the cooperative financial network. It facilitates in-depth discussion and dialog on key strategic issues in the DZ BANK Group. It also addresses the design of new products and services and the way these are marketed to cooperative banks and their customers. The Central Advisory Council meets twice a year and is able to make recommendations to the various Boards of Managing Directors in the DZ BANK Group.

6 Respect for human rights

As a signatory to the UN Global Compact, the DZ BANK Group is committed to ten globally applicable principles covering the areas of human rights, labor standards, the environment, and anti-corruption. Together with the DZ BANK Group's code of conduct, these principles form a binding frame of reference for the practices of the DZ BANK Group entities. Human rights aspects are also taken into account in the business activities of the group entities, for example in the portfolio management of Union Investment and the procurement processes of the DZ BANK Group.

6.1 Code of conduct of the DZ BANK Group

The code of conduct provides the basis for the ethical, legally compliant, and socially responsible corporate culture within the DZ BANK Group. The DZ BANK Group's code of conduct provides its employees with principles and rules on how to behave properly and responsibly, particularly in their dealings with customers, business partners, and other members of staff. The entities of the DZ BANK Group do not tolerate any discrimination against employees or third parties on the basis of age, gender, ethnic background, nationality, religion, political views, worldview, race, disability, or sexual identity.

6.2 Sustainability agreement with suppliers

When selecting suppliers and service providers, respect for and protection of human rights are important to the DZ BANK Group. In 2017, the DZ BANK Group developed guidelines entitled 'Sustainability in Procurement'. The procurement processes incorporate social and ecological standards that cover aspects relating to human rights and working practices. DZ BANK, Bausparkasse Schwäbisch Hall, R+V Versicherung, Union Investment, and VR Smart Finanz use a sustainability agreement requiring their suppliers to comply with the DZ BANK Group's minimum standards, the principles of the United Nations Global Compact, and the fundamental conventions of the International Labour Organization. A breach of this agreement may ultimately result in a supplier being suspended.

6.3 Guidelines for responsible investment

The statements on sustainable lending and sustainable asset management in the DZ BANK Group set out in the section on environmental protection are also of importance for the aspect of 'respect for human rights'. Social and ethical factors are taken into account, alongside environmental aspects, in both sustainable lending and sustainable asset management.

Union Investment has systematically integrated the issue of human rights violations into the portfolio management assessment guidelines by implementing the principles of the UN Global Compact. Relevant information is available to all fund managers in Union Investment's proprietary research and portfolio management system SIRIS (short for 'sustainable investment research information system'). Human rights aspects are also proactively raised with companies as part of the engagement process.

R+V Versicherung follows clear ethical guidelines in its investments. It does not invest in companies that manufacture mines and anti-personnel mines, atomic, biological, and chemical weapons (ABC weapons), depleted uranium munitions, or cluster munitions. Financial products for agricultural commodities are also excluded. Since 2018, the insurance company no longer invests in companies that generate 30 percent or more of their revenue from the mining or use of coal. The rejection criteria apply to all asset classes (equities, interest-bearing securities such as bonds and

Pfandbriefe, loans, and real estate) over which R+V's investors have a direct influence.

Bausparkasse Schwäbisch Hall has defined rejection criteria for the investment of its own funds. Bonds from defined sectors (such as certain armaments or pornography) or from companies with ethically dubious business practices (child labor and forced labor, human rights violations, controversial environmental practices) are excluded. Since 2015, BSH has also excluded bonds from companies that earn more than 25 percent of their total consolidated revenue from coal-fired power plants (brown and hard coal) or uranium mining.

7 Anti-corruption and bribery

Ensuring compliance is essential to responsible corporate governance. An effective compliance management system ensures that business practices are legitimate and serves to protect against reputational risks and financial loss. This includes combating corruption and bribery, preventing money laundering, the financing of terrorism, market manipulation, and insider trading, and ensuring compliance with financial sanctions.

7.1 Compliance function

The main tasks of the compliance function are to identify, manage, and mitigate compliance risk in order to protect customers, DZ BANK, the other entities in the DZ BANK Group, and their employees against breaches of legal provisions and requirements. The compliance function is also responsible for monitoring compliance with the legal provisions and requirements, keeping senior management and the departments informed of changes to the legal situation, and advising them on implementing new provisions and requirements. The compliance framework of the DZ BANK Group centers on the compliance policy, which sets out the requirements for the establishment/organization of the compliance functions and details of their duties. The framework is supplemented by compliance standards, which specify how to implement these requirements at an operational level.

The Head of Compliance at DZ BANK reports at least once a year on the activities and key findings of the compliance function in relation to DZ BANK, including its international branches and its subordinated group entities. The tasks of the Compliance division are based on the requirements of the German Banking Act (MaRisk, money laundering and other criminal offenses), the German Securities Trading Act (MaComp), MAR, MAD, the German Anti-Money Laundering Act (GwG), and the corresponding legislation at European level.

DZ BANK has established a control process to identify, implement, and comply with material new and amended statutory and regulatory provisions based on consistent standards. At the end of 2019, this process was digitalized and rolled out across the entire bank. Digitalization ensures that statutory requirements are implemented with an even higher degree of efficiency and process security.

7.2 Money laundering and fraud prevention

By signing up to the UN Global Compact, the DZ BANK Group has undertaken to respect and comply with the ten principles of corporate responsibility. Principle 10 commits companies to work against corruption in all its forms, including extortion, bribery, and passive corruption. The DZ BANK Group's code of conduct is based on the principles of the UN Global Compact. It also addresses undesirable business practices and makes reference to various fraud prevention tools.

To prevent white-collar crime and protect the group's reputation and assets, procedures have been introduced to allow employees to report potentially illegal or damaging practices. The entities of the DZ BANK Group have set up a whistleblowing system that enables employees to report possible criminal acts internally, without having to disclose their own identity.

All DZ BANK Group entities have policies in place for dealing with gifts. Gifts should generally be given for altruistic motives – for example to express thanks – or to celebrate events such as birthdays or service anniversaries. However, such well-intended gestures could be misinterpreted and could lead to improper influence over the recipient of the gift. The line between a well-intended gesture and an attempt at bribery is blurred. The DZ BANK guidelines for dealing with gifts and invitations contain binding provisions designed to rule out conflicts of interest and crimes, with the aim of protecting employees, customers, and DZ BANK itself.

The entities of the DZ BANK Group provide regular training for their employees on compliance, prevention of money laundering and terrorist financing, fraud prevention, the General Data Protection Regulation, information security, and prevention of market manipulation. The training is intended to ensure ethical business conduct by informing and educating employees.

At DZ BANK, web-based training tools are mandatory for all employees and also include a test at the end. Employees must complete these programs soon after joining the organization. The modules are tailored to the business activities and the special needs of DZ BANK and are repeated by all employees at all locations in Germany on a two-yearly cycle. Employees who have not completed the training within the specified timeframe receive an automated reminder from the training tool, giving them 15 days to complete the program in question. The internal reminder system consists of a total of three warning levels, each of which also sends a notification to the employee's immediate line manager. To prevent white-collar crime and to protect the assets and reputation of the organization, a new web-based training tool on financial sanctions and embargoes was developed in 2019 and made mandatory for employees.

The DZ BANK Group entities also provide anti-money laundering and fraud-prevention training to their employees. Depending on the size of the entity, classroom-based training may also be provided in addition to the online training programs.

Independent Auditor's Limited Assurance Report

The assurance engagement performed by Ernst & Young (EY) relates exclusively to the German version of the DZ Bank Non-financial Report 2019. The following text is a translation of the original German Independent Assurance Report.

To DZ Bank AG, Frankfurt am Main

We have performed a limited assurance engagement on the non-financial report of DZ Bank AG according to §§ 340a in conjunction with 289b HGB ("Handelsgesetzbuch": German Commercial Code), which is combined with the non-financial report of the group according to §§ 340i in conjunction with 315b HGB and the section "DZ BANK Group fundamentals" in the Group Management Report being incorporated by reference, for the reporting period from 1 January 2019 to 31 December 2019 (hereafter non-financial report). Our engagement did not include any disclosures for prior years.

A. Management's responsibility

The legal representatives of the Company are responsible for the preparation of the non-financial report in accordance with §§ 340a in conjunction with 289c to 289e HGB and §§ 340i in conjunction with 315c HGB.

This responsibility includes the selection and application of appropriate methods to prepare the non-financial report as well as making assumptions and estimates related to individual disclosures, which are reasonable in the circumstances. Furthermore, the legal representatives are responsible for such internal controls that they have considered necessary to enable the preparation of a non-financial report that is free from material misstatement, whether due to fraud or error.

B. Auditor's declaration relating to independence and quality control

We are independent from the Company in accordance with the provisions under German commercial law and professional requirements, and we have fulfilled our other professional responsibilities in accordance with these requirements.

Our audit firm applies the national statutory regulations and professional pronouncements for quality control, in particular the by-laws regulating the rights and duties of Wirtschaftsprüfer and vereidigte Buchprüfer in the exercise of their profession [Berufssatzung für Wirtschaftsprüfer und vereidigte Buchprüfer] as well as the IDW Standard on Quality Control 1: Requirements for Quality Control in audit firms [IDW Qualitätssicherungsstandard 1: Anforderungen an die Qualitätssicherung in der Wirtschaftsprüferpraxis (IDW QS 1)].

C. Auditor's responsibility

Our responsibility is to express a limited assurance conclusion on the non-financial report based on the assurance engagement we have performed.

We conducted our assurance engagement in accordance with the International Standard on Assurance Engagements (ISAE) 3000 (Revised): Assurance Engagements other than Audits or Reviews of Historical Financial Information, issued by the International Auditing and Assurance Standards Board (IAASB). This Standard requires that we plan and perform the assurance engagement to obtain limited assurance about whether the non-financial report of the Company has been prepared, in all material respects, in accordance with §§ 340a in conjunction with 289c to 289e HGB and §§ 340i in conjunction with 315c HGB. In a limited assurance engagement the assurance procedures are less in extent than for a reasonable assurance engagement and therefore a substantially lower level of assurance is obtained. The assurance procedures selected depend on the auditor's professional judgment.

Within the scope of our assurance engagement, which has been conducted between December 2019 and February 2020, we performed amongst others the following assurance and other procedures:

- Inquiries of employees and inspection of relevant documentation regarding the selection of topics for the non-financial report, the risk assessment and the concepts of DZ Bank AG and of DZ Bank Group for the topics that have been identified as material,
- Inquiries of employees responsible for data capture and consolidation as well as the preparation of the non-financial report, to evaluate the reporting processes, the data capture and compilation methods as well as internal controls to the extent relevant for the assurance of the non-financial report,
- Identification of likely risks of material misstatement in the non-financial report,
- Inspection of relevant documentation of the systems and processes for compiling, aggregating and validation of data in the relevant areas e.g. compliance and employees in the reporting period and testing such documentation on a sample basis,
- Analytical evaluation of disclosures in the non-financial report,
- Inquiries and inspection of documents on a sample basis relating to the collection and reporting of selected data and
- Evaluation of the presentation of disclosures in the non-financial report.

D. Assurance conclusion

Based on our assurance procedures performed and assurance evidence obtained, nothing has come to our attention that causes us to believe that the non-financial report of DZ Bank AG for the period from 1 January 2019 to 31 December 2019 has not been prepared, in all material respects, in accordance with §§ 340a in conjunction with 289c to 289e HGB and §§ 340i in conjunction with 315c HGB.

E. Intended use of the assurance report

We issue this report on the basis of the engagement agreed with DZ Bank AG. The assurance engagement has been performed for the purposes of the Company and the report is solely intended to inform the Company as to the results of the assurance engagement and must not be used for purposes other than those intended. The report is not intended to provide third parties with support in making (financial) decisions.

F. Engagement terms and liability

The "General Engagement Terms for Wirtschaftsprüfer and Wirtschaftsprüfungsgesellschaften [German Public Auditors and Public Audit Firms]" dated 1 January 2017 are applicable to this engagement and also govern our relations with third parties in the context of this engagement (www.de.ey.com/general-engagement-terms). In addition, please refer to the liability provisions contained there in no. 9 and to the exclusion of liability towards third parties. We assume no responsibility, liability or other obligations towards third parties unless we have concluded a written agreement to the contrary with the respective third party or liability cannot effectively be precluded.

We make express reference to the fact that we do not update the assurance report to reflect events or circumstances arising after it was issued unless required to do so by law. It is the sole responsibility of anyone taking note of the result of our assurance engagement summarized in this assurance report to decide whether and in what way this result is useful or suitable for their purposes and to supplement, verify or update it by means of their own review procedures.

München, 6 March 2020

Ernst & Young GmbH
Wirtschaftsprüfungsgesellschaft

Nicole Richter Wirtschaftsprüferin (German Public Auditor)	Hans-Georg Welz Wirtschaftsprüfer (German Public Auditor)

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This annual report is available in
electronic form on our website at
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