Volksbanken Raiffeisenbanken
cooperative financial network

2017
Annual Financial Statements and Management Report of DZ BANK AG

DZ BANK
Bank on Germany

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Note

DZ BANK AG Deutsche Zentral-Genossenschafts-bank, Frankfurt am Main, (DZ BANK) implements the transparency requirements as specified in section 289 of the German Commercial Code (HGB) with the publication of this management report. In addition, the report satisfies German accounting standard no. 20 (Group Management Report), which relates to management reports that apply at group level.

All figures are rounded to the nearest whole number. This may result in very small discrepancies in the calculation of totals and percentages.

I DZ BANK AG fundamentals

1 Business model

DZ BANK AG Deutsche Zentral-Genossenschaftsbank, Frankfurt am Main, (DZ BANK) focuses closely on the local cooperative banks, which are its customers and owners. The DZ BANK Group makes a significant contribution to helping the cooperative banks strengthen their market position by providing them with competitive products and services on a decentralized basis for incorporation into their end-customer business.

The focus on network-based business is always given priority, especially in times when resources are in short supply. In its role as a corporate bank, DZ BANK offers complementary services using existing products, platforms, and support activities. These services are constantly reviewed both from a strategic perspective (for example, so that there is no direct competition with the cooperative banks) and from an economic perspective (for example, so that the returns are appropriate and the risk acceptable).

2 Strategic focus as a network-oriented central institution and financial services group

Strengthening the market position of the cooperative banks is a key factor for the success of the Volksbanken Raiffeisenbanken cooperative financial network. DZ BANK supports the pursuit of this objective within the framework of its network-focused corporate strategy based on the principles of subsidiarity, decentralization, and regional market responsibility. It is guided by its overarching mission as a network-oriented central institution and financial services group, within which its activities are shaped by a three-pronged strategy with a systematic focus on growth in accordance with the needs of the cooperative financial network, a continuation of the focusing of business activities, and integration within the network and with the cooperative banks.

Against a backdrop of advancing digitalization, DZ BANK is working in collaboration with all the other players in the cooperative financial network to help reinforce the competitiveness of the cooperative banks as part of the major KundenFokus Privatkunden (retail customer focus) project led by the Bundesverband der Deutschen Volksbanken und Raiffeisenbanken e.V., Berlin, (BVR) [National Association of German Cooperative Banks]. In this project, the various partners are jointly designing and implementing a target omnichannel structure. Product development closely involves the central IT service provider Fiducia & GAD IT AG, Karlsruhe and Münster, (Fiducia & GAD), which is making the necessary technical infrastructure available. However, DZ BANK is also providing individual solutions such as VR-AltersvorsorgeCockpit, a pensions-related app that is currently unique in the market. Retail customers can use this app to calculate gaps in their individual pension provision quickly and easily. The implementation of the omnichannel strategy will be extended in 2018 to include the KundenFokus Firmenkunden (corporate customer focus) project.

The technical aspects of the merger of DZ BANK and WGZ BANK into one cooperative central institution were completed in the year under review, accompanied by the successful conclusion of the migration to a uniform IT environment. Data relating to corporate customers, payment transactions, capital markets, and other internal systems was gradually integrated into the systems at DZ BANK over a period of twelve months. The implementation of the target organizational structure also made great progress, to the extent that all 28 departments of DZ BANK had been reorganized into the target structure by the end of the final stage of the implementation on January 1, 2018.

In the next step, DZ BANK aims to refine the governance structure along the lines of a holding company model. During the course of 2018, it will firstly set up a central advisory council – as specified in the merger agreement – to ensure that the primary banks' involvement in, and influence over, strategic decisions is safeguarded and expanded over the long term. Over the next two years, the responsibilities for the holding company activities and those for the corporate bank activities within DZ BANK will be separated from each other as far as possible. The configuration from a legal perspective requires further extensive preparations and checks to be carried out, particularly with regard to separating DZ BANK's individual functions into two legal entities. Decisions on this will need to be made from 2020 onward once the aforementioned measures have been implemented.

DZ BANK has also maintained its network-oriented corporate strategy in its business lines, as described below.

2.1 Cooperative Banks/Verbund

Support for the local cooperative banks provided by Regionaldirektoren [regional directors] and the consultancy and other services delivered in connection with strategic bank management are the responsibility of the Cooperative Banks/Verbund division. The Regionaldirektoren serve as a central strategic point of contact for the cooperative banks' business relationship with DZ BANK to strengthen the financial products and services they provide.

DZ BANK also offers the local cooperative banks consulting services on regulatory issues and at every stage of the strategic bank management process, from defining the strategy to managing risk and implementing the strategy. These services, together with the tools that DZ BANK offers the local cooperative banks to help them with their own-account investing, reporting and accounting, are continuously refined.

A new offering from DZ BANK in the year under review was the own-account-investing advisory mandate. This amounts to a comprehensive treasury management service for cooperative banks, facilitating integration between cooperative banks' own-account investing strategy and strategic bank management, coupled with the simultaneous implementation of regulatory requirements.

2.2 Corporate Banking

In the corporate banking market, DZ BANK operates both directly and on a decentralized basis through the local cooperative banks. It rigorously pursues a policy of regional focus, guaranteeing proximity to the local cooperative banks and the shared customers. In collaboration with its subsidiaries and international branches, DZ BANK offers its customers the entire range of corporate banking services. This relationship management approach has enabled the cooperative financial network to expand its share of the corporate lending market to 21 percent despite the fierce competition in a persistently challenging market environment. The aim is to increase this figure to 25 percent over the medium term.

DZ BANK, in partnership with the local cooperative banks, is increasingly turning to new technologies to help support this growth in its corporate banking business. For example, a target structure for the expansion of the omnichannel strategy was developed during the reporting year as part of the BVR-led KundenFokus Firmenkunden project. This project is addressing the challenges in the Corporate Banking business line and involves setting out and launching initiatives for the next few years.

DZ BANK is already offering some digital services for its corporate banking customers. For instance, it continued to develop the VR BusinessOnline channel during the year under review. This service enables online financing or investment inquiries from businesses to be passed to companies in the cooperative financial network, allowing the requests to be dealt with quickly and efficiently with a seamless transition between media. In the joint corporate banking business with the local cooperative banks, DZ BANK offers other digital solutions for the banks' relationship managers and their customers. One example is VR-GeschäftsNavigator, which has been designed by DZ BANK's Innovation LAB.

Through an equity investment in fintech company TrustBills GmbH, DZ BANK has, since the end of 2017, also offered corporate customers of the cooperative financial network access to an online auction platform that enables registered participants to buy or sell trade receivables.

The internationalization of the German economy and the rise in the associated demand for international business services is presenting further opportunities for growth in corporate banking. With this in mind, DZ BANK opened a representative office in Jakarta in February 2017, facilitating an even more comprehensive range of support for corporate customers in the Indonesian market, particularly in terms of trade and export finance. In the year under review, DZ BANK entered into a strategic partnership with China Development Bank, the largest state-owned development bank in the People's Republic of China. The agreement encompasses the financing of businesses in each other's market, trade and project finance business, and collaboration in capital markets business.

2.3 Retail Banking

DZ BANK offers the cooperative banks and carefully selected partner or third-party banks end-to-end services (generally platform- and process-driven) in the securities business, focusing on personal investments. These include a comprehensive range of investment services, intelligent liability products to strengthen and support the cooperative banks' market presence and balance sheets, as well as consulting services, market data, research, and trading/advisory/e-business platforms.

To leverage income synergies following the merger of the cooperative central institutions, DZ BANK stepped up marketing in the West sales region in the reporting year by extending the range of products and services in the local cooperative banks' securities business for customer account. It also focused on tapping into further potential income from business for customer account through a greater level of collaboration with DZ PRIVATBANK S.A., Strassen, (DZ PRIVATBANK S.A.; subgroup abbreviated to DZ PRIVATBANK).

DZ BANK is steadily expanding its digital options for providing information and generating sales in order to support the omnichannel approach of the cooperative

financial network. It is enabling customers to benefit not only from conventional banking but also from digital access to their bank via mobile login, online tools (such as VR-ProfiBroker and VR-ProfiTrader), and the DZ BANK derivatives portal.

2.4 Capital Markets

DZ BANK's expertise in capital markets business encompasses sales and advisory services in relation to investment and risk management products covering the interest rate, credit, equities, and currency asset classes. These services are provided for cooperative banks, institutional clients in Germany and abroad, and corporate customers in both primary and secondary markets. Research services round off the comprehensive offering.

On behalf of the cooperative financial network, Group Treasury also carries out the cash-pooling function and ensures access to global liquidity 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.

DZ BANK is steadily expanding its capital markets products and services to respond to changing customer demand and to make better use of both the existing customer base and the broader range of customers resulting from the merger of the central institutions. The implementation of regulatory requirements is also becoming increasingly important, for example in view of the provisions introduced under Directive 2014/65/EU on markets in financial instruments (MiFID II).

2.5 Transaction Banking

In the Transaction Banking business line, DZ BANK provides efficient, high-performance platforms that boost the competitiveness of the cooperative financial network. As the center of excellence for transaction banking, DZ BANK has the objective of helping the cooperative banks and the entities in the DZ BANK Group to exploit the potential offered by the market. To this end, it offers products and services covering payments, payments services, and acquiring, together with securities processing, depositary, and settlement services in connection with capital market products.

The present market circumstances – shaped by shifts in customer needs, innovative technologies, changes in legal requirements, and new market players – are increasingly transforming transaction banking and the role of banks. DZ BANK constantly analyzes the trends, assessing how it can benefit from the changes and position itself in the new market environment. In this context, a key requirement is to continuously expand the range of products and services.

Besides refining the functions of the paydirekt payments system, the inhouse Innovation LAB has recently developed and brought to market two payments-related value-added products: VR-FinanzGuide and VR-ExtraPlus, aimed at corporate customers and retail customers respectively. Further initiatives are concerned with the development of mobile payments using smartphones and with the expansion of the acquirer business. DZ BANK is also preparing to sign up to the pan-European instant payment system.

The focus in the securities, capital markets, and depositary services business in the year under review was on implementing regulatory requirements. DZ BANK supported the local cooperative banks in this regard, mainly by extending the range of services in relation to transaction-based reporting. It also continued to expand the depositary business, with assets under depositary reaching a record level.

Economies of scale and ongoing efficiency optimization also continued to be of great significance in the other segments. In this context, DZ BANK is undertaking further expansion of its network of strategic partnerships.

3 Management of DZ BANK

3.1 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 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 are each managed as a separate operating segment:

- DZ BANK
- Bausparkasse Schwäbisch Hall AG, Schwäbisch Hall, (Bausparkasse Schwäbisch Hall; subgroup abbreviated to BSH)
- Deutsche Genossenschafts-Hypothekenbank AG, Hamburg, (DG HYP)
- DVB Bank SE, Frankfurt am Main, (DVB Bank; subgroup abbreviated to DVB)
- DZ PRIVATBANK
- R+V Versicherung AG, Wiesbaden, (R+V Versicherung; subgroup abbreviated to R+V)
- TeamBank AG Nürnberg, Nuremberg, (TeamBank)
- Union Asset Management Holding AG, Frankfurt am Main, (Union Asset Management Holding; subgroup abbreviated to UMH)
- VR-LEASING AG, Eschborn, (VR-LEASING AG; subgroup abbreviated to VR LEASING)
- WL BANK AG Westfälische Landschaft Bodenkreditbank, Münster, (WL BANK).

These fully consolidated entities are management units and form the core of the financial services group. DZ BANK forms a separate management unit from a higher-level perspective.

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.

3.2 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.

3.2.1 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. Given the particular nature of the group, the Board of Managing Directors of DZ BANK consciously manages the group with a balanced centralized and decentralized approach with clearly defined interfaces and taking into account business policy requirements.

3.2.2 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).

3.2.3 Corporate management committees

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 ensures 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, the General Executive Manager of DZ BANK, and the chief executive officers of BSH, DG HYP, DZ PRIVATBANK, R+V, TeamBank, UMH, VR LEASING, and WL BANK.

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, and the Innovation Roundtable.

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 Group Finance, Group Strategy and Controlling, Group Risk Controlling, Credit, Credit Special, and Group 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. The limitation and monitoring of credit risk is based on agreed and binding group standards and procedures, taking into account the business policy concerns of the entities involved. The Group Credit Management working group is responsible for the further development of the group credit risk strategy and the group credit guidelines and 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 credit portfolio 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 **Asset Liability Committee/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, and regulatory law. It discusses new statutory requirements and works out possible implementation options.

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** have 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 **institutional clients** product and sales committee helps to 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 audits – and for developing best practice in internal audit activities. The working group reports to the Chief Executive Officer of DZ BANK 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 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. The Heads of Compliance working group is also responsible, in particular, for drawing up certain compliance standards in the DZ BANK Group that are discretionary under a comply-or-explain approach; 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. Innovation topics are broadly based throughout the DZ BANK Group and are promoted in the relevant DZ BANK departments and subsidiaries via the product and sales committees.

3.3 Key performance indicators

DZ BANK's KPIs for profitability, volume, productivity, liquidity adequacy, and capital adequacy are presented below.

- **Profitability figures:**
  The profitability figures (primarily allowances for losses on loans and advances, profit/loss before taxes, net income for the year) are presented in chapter II, sections 3.1 and 3.2 of this management report.

- **Volume figures:**
  The main volume-related KPIs include equity and total assets, which are presented in chapter II, section 4 of this management report and in the annual financial statements (balance sheet as at December 31, 2017).

- **Productivity:**
  One of the most significant productivity KPIs is the cost/income ratio. This figure is described in chapter II, section 3.1 of this management report.

- **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 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 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.

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

3.4 Management process

In the annual strategic planning process, the entities in the DZ BANK Group produce a business strategy (objectives, strategic direction, and initiatives), 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, allowing 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 review meetings with DZ BANK's divisions.

Groupwide initiatives are implemented in order to unlock identified marketing potential. These include the development of new, innovative products and sales methods for the business lines – Corporate Banking, Retail Banking, Transaction Banking, and Capital Markets – in order to further strengthen sales by the DZ BANK Group and the local cooperative banks. Regular reports on the individual initiatives are submitted to the relevant product and sales committee. On a case-by-case basis, certain aspects of the initiatives may be handled by the Group Coordination Committee. This results in more efficient cooperation in the cooperative financial network.

At DZ BANK level, the main divisions involved in the strategic planning process are Group Strategy and Controlling, Group Risk Controlling, Group 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 Group Strategy and Controlling division is responsible for overall coordination, including strategic financial planning as part of the strategic planning process.

II Business report

1 Economic conditions

Over the reporting year, average inflation-adjusted gross domestic product (GDP) in Germany rose by 2.2 percent year on year. The uptrend in economic growth of the previous few years was sustained in 2017, with expansion gathering pace.

Domestic economic output in the first quarter of 2017 was up by 0.9 percent compared with the preceding quarter. This was followed by a slight fall in the GDP gain to 0.6 percent in the second quarter. The third quarter saw growth of 0.7 percent, followed by expansion in the fourth quarter of 0.6 percent.

An increase in consumer spending once again provided a major boost to the German economy in the reporting year, although growth in government spending weakened. Consumer demand rose by 1.9 percent year on year, aided by robust trends in the labor market and no improvement in the extremely low returns available on consumer investments. In the year under review, businesses stepped up spending on capital equipment at a faster rate as demand picked up in international markets.

The increase in tax receipts generated by the robust economic growth meant that public finances in Germany ended 2017 once again with a budget surplus of 1.1 percent of GDP.

In the year under review, economic output in the eurozone grew by 2.5 percent year on year, the pace of growth being maintained with a first-quarter growth rate of 0.6 percent (compared with the previous quarter) and a rate of 0.7 percent in both the second and third quarters of 2017. Growth in the final quarter returned to the rate of 0.6 percent.

Consumer spending continued to be the main driver behind the economic recovery in the eurozone in 2017. So far, the geopolitical crises, various conflicts, and the uncertainty arising from the Brexit negotiations and the new US presidency have failed to dent consumer confidence. As in 2016, relatively low energy prices also continued to boost household consumption in the reporting year. Over the course of the year, it became clear that businesses were increasing their spending on capital equipment. In view of the stronger global economy, it is anticipated that the trade balance will have made a positive contribution to economic growth because export growth in the eurozone is likely to have gone up significantly.

In the United States, economic growth in the reporting year was 2.3 percent. The economy has therefore gained significant traction compared with 2016, when the year-on-year rate of expansion was 1.5 percent. Overall, the principal economic driver in the US remained the recovery in consumer spending, which was bolstered by further improvements in the labor market, notably a further fall in the unemployment rate and a sharp rise in recruitment. Investment by businesses in plant and machinery once again rose at a stronger rate in the year under review. The recovery in house-building was also sustained.

The majority of the emerging economies benefited from a trend toward economic recovery in the year under review. The economic crisis abated in Brazil and Russia, with both countries returning to growth in 2017. China managed to hold its economic growth steady at the fairly high level achieved in the previous year. By and large, 2017 saw a return of the stronger stimulus for German exports derived from the demand from emerging markets.

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

Over the course of 2017, economic growth in the eurozone gathered pace on the back of the stronger global economy, the rate of expansion at the end of 2017 reaching its highest level for ten years.

Once again, however, only limited progress was made in reducing new and total borrowing in the eurozone as a whole. At the end of the third quarter of 2017, the total borrowing of the 19 eurozone countries equated to 88.1 percent of their GDP, a year-on-year decrease of just 1.6 percentage points compared with the figure of 89.7 percent as at September 30, 2016.

Even though France and Italy, countries that are important in generating overall economic growth in Europe, along with Portugal and Spain, which had

been reliant on EU aid during the sovereign debt crisis, all made further gains in economic efficiency in the first three quarters of 2017 compared with the corresponding quarters in 2016, they continued to suffer from a high level of indebtedness in the same way as some other eurozone countries, notably Greece.

In the first three quarters of 2017, Greece itself achieved positive growth rates compared with both the previous quarter and the equivalent periods in 2016. Nevertheless, its public debt as a percentage of GDP remained virtually unchanged year on year at the high level of 177.4 percent in the third quarter of 2017 (third quarter of 2016: 177.9 percent). So far, the country has received around €47 billion of the total assistance of €86 billion available under the third economic adjustment program approved in 2015. European rating agency Scope Ratings AG based in Berlin believes that Greece is still likely to need financial support from other countries after the current financial assistance program expires in August 2018.

Economic growth in Italy in each of the first three quarters of 2017 was muted compared with the figure in the respective preceding quarters. Italian government debt as a percentage of GDP in the third quarter of 2017 was the highest in the eurozone after Greece at 134.1 percent (third quarter of 2016: 132.0 percent). This reflects a serious structural crisis, requiring sweeping reforms. To add to the problems, no other European country has as many non-performing loans on bank balance sheets as Italy, where they totaled €277 billion as at September 30, 2017. Furthermore, the current strength of Euroskeptic political forces means that the parliamentary elections due in the spring of 2018 are likely to represent the greatest risk factor at the moment in relation to any renewed widening of spreads on Italian bank loans.

Portugal's public debt as a percentage of GDP stood at 130.8 percent in the third quarter of 2017 (third quarter of 2016: 132.8 percent). The country made further progress on stabilizing its economy during the first nine months of the year, posting reasonable growth rates in each quarter compared with the respective preceding quarters. In view of this progress, Standard & Poor's also issued an investment-grade rating of BBB- for Portugal from the beginning of September 2017, whereas previously DBRS had been the only agency quoting an investment-grade rating for the country. Fitch Ratings upgraded its rating for Portugal in mid-December 2017 from BB+ to BBB. However, the country continues to face significant legacy issues in the form of non-performing loans.

Spain, where government debt stood at 98.7 percent of GDP in the third quarter of 2017 (third quarter of 2016: 99.9 percent), recorded strong economic growth for the first three quarters of 2017 compared with the respective preceding quarters. However, the minority government under current Prime Minister Mariano Rajoy, which has been in office since the end of October 2016, is likely to find it difficult to significantly reduce the substantial level of public debt.

As is the case in Italy, economic growth in France is hampered by structural deficiencies. The country's public debt as a percentage of GDP stood at 98.4 percent in the third quarter of 2017 (third quarter of 2016: 97.4 percent). Economic growth in the first three quarters of 2017 compared with the respective previous quarters was encouraging. The new President Emmanuel Macron, who also obtained a stable political majority in the French National Assembly, managed to push through the labor law reforms he had promised in the election campaign in record time. He has subsequently been preparing reforms covering vocational training and development and unemployment insurance.

The economic performance of the eurozone described above shows that the European Central Bank (ECB) with its policy of quantitative easing has 'bought' the necessary time for the EU countries burdened with significant debt to reduce their fundamental budget deficits. Nonetheless, these countries have made only limited efforts to reduce their high levels of indebtedness and bring in the necessary structural reforms. This is therefore worrying, mainly because it is questionable whether the EU countries concerned will be in any position at all (because of the size of their debt burden) to cope with substantially higher interest rates arising from a normalization of the ECB's monetary policy.

One of the main reasons why politicians are generally reluctant to introduce the necessary structural improvement measures to reduce public debt is that various EU countries are still seeing strong political movements that oppose the jointly agreed stabilization efforts. Even if, especially in France, Euroskepticism

has given way to a pro-European political majority, other countries in the eurozone, such as Italy and Spain, have recently faced some difficulty forming long-term stable government majorities.

A key reason for the European Commission's reluctance to implement the stability criteria under the Fiscal Compact agreed by the EU member states at the beginning of 2012 is most probably also the widespread return to a more nationalistic focus apparent within the eurozone. 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 addition, the affected EU countries' efforts to implement austerity measures will also diminish because the availability of low interest rates is noticeably reducing the debt burden.

On the other hand, the serious and far-reaching intervention in economic activity represented by the ECB's policy of zero and negative interest rates is making it harder for savers to build up sufficient capital and, in particular, to ensure they have adequate provision for old age. According to calculations by DZ BANK, German households suffered a loss of €340 billion on the interest or returns from deposits, bonds, and life insurance over the years 2014 to 2016. After deduction of the savings derived from low-interest loans, the net loss comes to €200 billion. Even if these calculations are only treated as rough estimates, they still clearly illustrate the amount of money involved.

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. Furthermore, the ECB's policy of maintaining extremely low interest rates is prompting investors to take on more risk and encouraging the formation of bubbles in real estate and equities markets, which could jeopardize the stability of the financial system. However, a return to rising interest rates could lead to payment problems for a large number of borrowers in Germany, a potential consequence then being a marked adverse impact on the profitability of individual banks.

Another consideration is that, if the ECB delays scaling back its expansionary monetary policy, it will find itself with insufficient leeway in the event of an economic downturn because key interest rates will still be close to zero. Without the option of reducing interest rates, the ECB also loses one of its conventional control mechanisms, namely that of stimulating net exports by lowering the value of the euro.

The ECB continued to follow a course of expansionary monetary policy in the year under review and maintained the bond-buying program it launched in March 2015. Having decided at the beginning of December 2016 to reduce the monthly purchasing volume from €80 billion to €60 billion from April 2017, it then made a further decision at the end of October 2017 to lower the purchasing volume again from €60 billion to €30 billion from January 2018 without specifying a date for the end of the program.

Throughout the reporting period, the main refinancing rate remained unchanged at 0.00 percent and the deposit facility for banks stayed at minus 0.40 percent.

By contrast, the Federal Reserve (Fed) raised its target range for the federal funds rate by 25 basis points on March 15, 2017 and then again on June 14, 2017, taking the target range to 1.00 percent to 1.25 percent. On December 13, 2017, it hiked the key rate once again by 25 basis points to the current target range of 1.25 percent to 1.50 percent. These interest-rate hikes were carried out in view of the prediction for 2017 of significantly higher US economic growth year on year combined with a continuation of the robust employment situation and the most recent inflation forecast of almost 2 percent. The Fed had begun to return its monetary policy to normal in December 2015 when it put up interest rates for the first time in around ten years.

The Fed announced on September 20, 2017 that from October it was planning to reduce the size of its balance sheet, which had swollen to almost US$ 4.5 trillion, in a gradual process starting with a decrease of US$ 10 billion per month. In this process, maturing US Treasuries and mortgage-backed bonds would no longer be replaced in full. It is intended to increase the amount of the reduction every three months by a further US$ 10 billion up to an upper monthly limit of US$ 50 billion.

The ECB cited the persistently low level of inflation as one of the critical reasons why it needed to continue its expansionary monetary policy measures. The ECB's stated aim is to guide inflation back to a level close to, but below, 2 percent. Inflation in the eurozone stood at 1.4 percent for December 2017 (December 2016: 1.1 percent), whereas the rate in June 2017 had been 1.3 percent.

Following the recent high demand for oil, particularly as a consequence of the agreement by the members of the Organization of the Petroleum Exporting Countries (OPEC) on November 30, 2016 to cut output, the price of a barrel of North Sea Brent Crude continued to stabilize in the second half of 2017. At a meeting at the end of November 2017, OPEC decided to extend its agreement until the end of 2018. However, this is likely to lead to a further expansion in US shale oil production with a countervailing impact on prices.

The core rate of inflation, which excludes energy and food prices, published by the EU's statistical office Eurostat for December 2017 was 0.9 percent (December 2016: 0.9 percent).

The ECB is maintaining its policy of strengthening economic growth by transferring liquidity to the eurozone banks, the aim of which is to encourage the banks to commit to a greater level of lending.

However, another factor that needs to be taken into account is that the eurozone banks are themselves under an obligation to improve their capital adequacy and liquidity position as a consequence of tighter regulatory requirements following the introduction of Basel III.

The volume of lending to businesses in the eurozone rose slightly during the reporting period. Lending to corporate customers across the EU rose by an average of 2.4 percent between the end of September 2016 and the end of September 2017. In Germany, the volume of lending to businesses increased markedly, driven primarily by the buoyant uptrend in capital investment. This trend was largely fueled by the high degree of capacity utilization and the return of rising export demand resulting from the favorable economic conditions. However, in contrast, lending by the banks in some southern European countries was more cautious, which in turn stemmed mainly from their high level of non-performing loans.

Stronger demand for lending from businesses in the eurozone is also held back by geopolitical factors, above all uncertainty about the impact of the ongoing Brexit negotiations.

Given the limited impact on the real economy from the ECB's monetary policy measures, which also entail significant risks, an improvement in structural conditions remains the best possible route by which a range of eurozone countries could escape their high level of indebtedness.

Against a backdrop of challenging market conditions, nearly all the major German banks had to accept a fall in operating income in 2017. The allowances for losses on loans and advances recognized by the major banks were mostly lower than in 2016. Administrative expenses decreased year on year in the majority of cases.

3 Financial performance

3.1 Financial performance at a glance

DZ BANK successfully consolidated its position in the year under review in challenging market conditions influenced primarily by the extremely low level of interest rates and demanding regulatory requirements. In 2017, financial performance was heavily affected by a negative balance of other net income and expense that was attributable to the subsidiary DVB Bank.

The year-on-year changes in the key figures that made up the operating profit generated by DZ BANK in 2017 were as described below.

Operating income amounted to €2,113 million, a year-on-year fall of €228 million (2016: €2,341 million). It is made up of net interest income, net fee and commission income, net trading income, and other net operating income/expense.

Administrative expenses went up by €15 million or 1.0 percent to €1,529 million (2016: €1,514 million).

The **cost/income ratio** (i.e. the ratio of administrative expenses, including merger-related expenses of €91 million, to operating income) for 2017 was 72.4 percent (2016: 64.7 percent).

FIG. 1 – INCOME STATEMENT

€ million	2017	2016	Change (%)
Net interest income[1]	**1,340**	1,351	-0.8
of which: income from long-term equity investments[2]	737	741	-0.5
Net fee and commission income[3]	**376**	406	-7.4
Net trading income	**424**	563	-24.7
Administrative expenses	**-1,529**	-1,514	1.0
Staff expenses	-643	-677	-5.0
Other administrative expenses[4]	-886	-837	5.9
Other net operating income/expense	**-27**	21	>100.0
Operating profit before allowances for losses on loans and advances	**584**	827	-29.4
Allowances for losses on loans and advances[5]	**14**	-313	>100.0
Operating profit	**598**	514	16.3
Other net income/expense[6]	**-278**	-245	13.5
of which: reversal of reserves required by section 340g HGB	250	-	100.0
Profit before taxes	320	269	19.0
Income taxes[7]	**250**	54	>100.0
Net income for the year	**570**	323	76.5

1 See annual financial statements, income statement, total of nos. 1.–4.
2 See annual financial statements, income statement, total of nos. 3.b)+3.c)+4.
3 See annual financial statements, income statement, total of nos. 5.+6.
4 See annual financial statements, income statement, total of nos. 9.b)+10.
5 See annual financial statements, income statement, no. 12. and no. 13.
6 See annual financial statements, income statement, total of nos. 14.–16. and nos. 18.+19.
7 See annual financial statements, income statement, total of nos. 21.+22.

Operating profit before allowances for losses on loans and advances decreased by €243 million to €584 million (2016: €827 million).

Allowances for losses on loans and advances amounted to a net reversal of €14 million, compared with allowances for losses on loans and advances of €313 million in 2016.

The **operating profit** amounted to €598 million (2016: €514 million), a year-on-year rise of €84 million.

The details on the financial performance of DZ BANK set out above and below (section 3.2) include the following variances compared with the information provided in the outlook in chapter V of the 2016 management report.

The profit before taxes and before the reversal of reserves required by section 340g HGB (fund for general banking risks) in 2017 in the amount of €250 million was €141 lower than the forecast for 2017. The main reason for this variance was the larger-than-expected negative balance of other net income and expense attributable to the subsidiary DVB Bank, although this was partly offset by a smaller-than-expected necessary net addition to allowances for losses on loans and advances that was partly due to significant reversals of specific loan loss allowances recognized in previous years. In addition, net interest income was boosted by higher-than-budgeted income from long-term equity investments, particularly from WGZ Finance plc, Dublin, as a result of its liquidation. Furthermore, the improved level of other net operating income resulting from unexpected income from the reversal of provisions was offset by two countervailing trends: Net trading income was less than budgeted as a consequence of the measurement of own issues while administrative expenses were higher than budgeted owing to additional expenses incurred for consultancy services and IT costs in relation to projects.

3.2 Financial performance in detail

The individual year-on-year changes in the financial performance of DZ BANK in 2017 are described in detail below.

In the following detailed descriptions, the financial performance of the business lines is explained on the basis of the net income values used by financial planning and control for business management purposes.

Net interest income declined by 0.8 percent to €1,340 million (2016: €1,351 million).

Net interest income (excluding income from long-term equity investments) fell by 1.1 percent to €603 million (2016: €610 million).

The total net interest margin contribution that was generated in the Corporate Banking business line and, disclosed separately since 2017, the real estate lending portfolio increased again slightly year on year despite a difficult competitive environment. However, this effect was diminished, in particular, by a reduced net interest margin contribution from group finance.

At DZ BANK, the Corporate Banking business line comprises the five regional corporate customer divisions that focus on corporate banking in Germany (Northern and Eastern Germany, Western Germany, Central Germany, Baden-Württemberg, and Bavaria), the Investment Promotion division, and the Structured Finance division covering business with German corporate customers and foreign customers with links to Germany.

A portion of the portfolio of real estate finance business hitherto managed by Region West was transferred to DG HYP at the beginning of September 2017 based on a value for the portion in question of €823 million. It is planned to transfer the remainder of the portfolio, which has a value of €2.6 billion, to DG HYP over the coming years. The total portfolio value of €3.4 billion was separated off in the year under review and no longer forms part of the Corporate Banking business line. As a consequence, the net interest margin contribution and the service contribution attributable to this €3.4 billion portfolio (the net interest margin contribution amounted to €35.5 million and the service contribution amounted to €2.1 million in 2017) stopped being recognized under the Corporate Banking business line in 2017.

In accordance with the cooperative principle of decentralization – the tried-and-tested distribution of responsibilities in the Volksbanken Raiffeisenbanken cooperative financial network – and focusing on the needs of the business concerned, customer relationship management for corporate customers is provided by the local cooperative bank in conjunction with DZ BANK, or directly by DZ BANK.

Germany's large and medium-sized companies continued to show a high level of willingness to commit to capital investment in the year under review. By some distance, bank loans remained these companies' preferred means of covering their financing requirements, which arose principally from the need for expansion investment and funding to cover a rising volume of business. Nevertheless, a sound capital and liquidity position enabled the vast majority of large and medium-sized companies to meet their capital investment requirements from their own cash flows or reserves.

However, even these companies cannot escape the geopolitical influences, above all uncertainty about the impact of the ongoing Brexit negotiations. The shortage of skilled employees is also a source of ever-increasing concern for these businesses.

Partly as a result of the stable German economy and companies' robust financial health, large and medium-sized companies are increasingly venturing into international business again – despite the current geopolitical uncertainties. DZ BANK has recognized this trend with the opening of a new representative office in Jakarta, Indonesia, at the beginning of 2017 and by entering into a cooperation agreement with one of the biggest banks in China in the middle of the year. China Development Bank (CDB), the largest state development bank in the People's Republic of China, and DZ BANK entered into an agreement on June 1, 2017 to form a strategic alliance. In the year under review, DZ BANK also succeeded in setting up the first financing arrangement in Germany for a Chinese paper manufacturer, involving the provision of an export credit guarantee from the Federal Republic of Germany.

In the Corporate Banking business line, the net interest margin contribution declined by 5.5 percent to €396.1 million (2016: €419.1 million), although it should be noted that the net interest margin contribution from corporate banking in 2016 still included an amount of €34.3 million relating to the real estate lending portfolio segregated in 2017 as described above.

In the five regional corporate customer divisions, the net interest margin contribution went down by 13.2 percent in total to €202.1 million (2016: €232.9 million). The net interest margin contribution from corporate banking in 2016 still included the aforementioned amount of €34.3 million relating to the real estate lending portfolio segregated in 2017.

The net interest margin contribution from the development lending business in the Investment Promotion division came to €61.1 million, which was slightly higher (by 1.8 percent) than the prior-year figure of €60.0 million.

The main areas of development activity within traditional investment finance were business start-ups and the implementation of energy efficiency measures in both the residential real estate and agriculture sectors. In spite of a fiercely competitive environment,

DZ BANK was able to expand the aforementioned development lending portfolios.

The main year-on-year changes in the net interest margin contribution from each of the product fields in the Structured Finance division are described below.

In the syndicated business/renewable energies product field, the net interest margin contribution advanced by 20.4 percent to €25.1 million in the year under review (2016: €20.8 million). Despite growing competition, there was a substantial increase in renewable energies business during the reporting year, particularly the funding of wind turbines. Factors contributing to the year-on-year growth also included spending brought forward in anticipation of consequences from the amendment of the German Renewable Energy Sources Act (EEG 2017) in the middle of the year under review.

In the acquisition finance product field, debt finance is arranged and structured to support the acquisition of large and medium-sized companies, primarily in the German-speaking countries. Large numbers of customers made use of the high degree of liquidity in lending and bond markets to redeem their loans. However, a selective approach to the granting of new loans helped to generate a 1.6 percent year-on-year rise in the net interest margin contribution to €23.9 million (2016: €23.5 million).

The project finance product field's net interest margin contribution declined by 6.4 percent to €23.6 million (2016: €25.2 million).

In the advice and sales (west) product field, which is responsible across all products for renewable energies, syndicated loans, acquisition finance, and international trade and export finance business, the net interest margin contribution rose sharply, by 22.2 percent, to €22.8 million (2016: €18.7 million).

The emphasis in the international trade and export finance product field is very much on providing support for German large and medium-sized corporate customers involved in international business. The net interest margin contribution dropped from €44.5 million in 2016 to €43.7 million in 2017, a year-on-year decrease of 1.7 percent.

DZ BANK's reported income from long-term equity investments went down by 0.5 percent to €737 million (2016: €741 million).

The year-on-year reduction was mainly attributable to a dividend from EURO Kartensysteme GmbH, Frankfurt am Main, (EKS), EKS having benefited from income of €62 million generated from the disposal of shares in MasterCard that had boosted the prior-year figure. Furthermore, there were year-on-year decreases in income from the long-term equity investments in DG HYP (down by €30 million), R+V Versicherung (down by €21 million), VR Equitypartner GmbH, Frankfurt am Main, (down by €20 million), DVB Bank (down by €11 million), and DZ PRIVATBANK S.A. (down by €10 million). These amounts were partly offset by the increases in the income from the long-term equity investments in WGZ Finance plc, Dublin, (formerly DZ BANK IRELAND plc, Dublin) as a result of its liquidation (up by €106 million), Union Asset Management Holding (up by €19 million), and DZ Vierte Beteiligungsgesellschaft mbH, Frankfurt am Main (up by €11 million).

Net fee and commission income, which came to €376 million, was 7.4 percent lower than the 2016 figure of €406 million.

In the year under review, the service contribution totaled €558 million, some of which was offset by costs in a total amount of €167 million relating to services obtained from third parties.

In the Corporate Banking business line, the service contribution declined by 21.2 percent to €143.0 million (2016: €181.4 million) owing to a reduction in new business. The service contribution from corporate banking in 2016 still included an amount of €6.1 million relating to the real estate lending portfolio segregated in 2017, as described above.

In the five regional corporate customer divisions, the service contribution went down by 18.2 percent in total to €55.0 million (2016: €67.1 million). The service contribution from corporate banking in 2016 still included an amount of €6.1 million relating to the aforementioned real estate lending portfolio segregated in 2017.

A new pricing structure for development lending was introduced in the Investment Promotion division on January 1, 2017, under which the cooperative banks receive an annual margin reimbursement. This led to a significant year-on-year fall in the service contribution (2017: minus €7.7 million; 2016: €0.5 million).

The main year-on-year changes in the service contribution from each of the product fields in the Structured Finance division are described below.

In the syndicated business/renewable energies product field, the service contribution of €5.6 million in the reporting year was up by 25.9 percent compared with the figure of €4.4 million reported for the previous year.

Much fiercer competition characterized the acquisition finance product field during the year under review. The service contribution therefore fell by 30.0 percent to €6.7 million (2016: €9.6 million).

In the project finance product field, the service contribution went down by 34.1 percent to €8.9 million (2016: €13.5 million).

The service contribution generated in the advice and sales (west) product field fell by 39.3 percent to €6.3 million (2016: €10.4 million).

In the international trade and export finance product field, the service contribution for the reporting year dropped by 20.6 percent to €9.0 million owing to increased competition (2016: €11.4 million).

The service contribution from the international documentary business product field (letters of credit, guarantees, collections) rose by 4.0 percent to €17.5 million (2016: €16.9 million).

In 2017, the service contribution in the asset securitization product field came to €39.1 million, down by 17.6 percent compared with the figure of €47.5 million for 2016. The main reasons for this decrease were the expiry and contractual reduction of some portfolio transactions.

In the Capital Markets Institutional Clients and Capital Markets Retail Clients divisions, the comprehensive range of advisory, structuring, and placement services available in relation to investment, capital, and mezzanine products again proved popular with customers of the cooperative banks and direct customers of DZ BANK in 2017.

Based on various ranges of products, DZ BANK managed to prevail against German and international competitors, despite the market remaining fiercely contested. The successfully implemented transactions and the satisfaction of customers are testimony to a high level of product expertise and effectiveness in a constantly changing market environment. The cooperative banks and direct customers value the transaction security offered by DZ BANK in connection with the execution of capital and mezzanine transactions.

The service contribution generated by the Operations/Services division in 2017 was also higher than the equivalent figure reported for 2016 as a result of a rise in the income from securities custody business.

Net trading income amounted to €424 million in 2017 (2016: €563 million). The markedly larger gain in 2016 was attributable to the reasons set out below.

The liabilities recognized at fair value gave rise to a positive effect on earnings of around €60 million in 2016 (2017: expense of €26 million) that was largely attributable to DZ BANK's own issues.

Also in 2016, the successful completion of the mediation proceedings in the legal dispute with Lehman Brothers International Europe resulted in income of approximately €50 million from the reversal of provisions to cover the cost of legal proceedings and attorneys.

In addition, net trading income in 2016 was affected by the net figure for realized and unrealized gains and losses relating to asset-backed securities (ABSs), which amounted to a gain of €19 million (2017: €17 million).

Key influences on capital markets during the year under review were the aforementioned continuation of the ECB's program of quantitative easing and the three interest-rate hikes by the Fed described earlier.

The lack of clarity about the direction of the US administration's economic policy going forward – tax reforms have been initiated but an infrastructure program and protectionist measures have only been

announced at the moment – and about the impact of the ongoing Brexit negotiations also had a short-term adverse impact on capital markets, as did the uncertainty in the run-up to the elections in both the Netherlands and France in the first few months of 2017. To add to this, further negative geopolitical concerns emerged during the year, primarily as a result of the conflicts in the Middle East and the tensions with North Korea, although the effect of these concerns on capital markets remained limited.

The global economic recovery, which gathered momentum during the reporting period, and the continued uptrend in the eurozone economy caused average share prices on European stock markets to soar above the level seen in 2016. At the same time, prices were a lot less volatile in the year under review than in 2016.

However, the regulatory environment in 2017 remained challenging for both markets and market players, which again had to cope with the demanding requirements imposed by banking regulators in the period under review.

The products and services of DZ BANK's customer-oriented capital markets business are geared to the needs of cooperative banks, specialized service providers within the cooperative sector, and their retail and corporate customers. In addition, DZ BANK has business relationships with direct corporate customers and institutional customers in Germany and abroad. The portfolio comprises competitively priced investment and risk management products involving the asset classes of interest rates, equities, loans, and foreign exchange. These products are complemented by a broad range of advisory and research services, structuring expertise, and platforms. In respect of all customer groups and products, the proportion of business conducted through electronic systems is rising significantly and increasingly replacing traditional telephone trading.

Against the current backdrop of low interest rates, German retail investors' top priorities are safety and intelligent investment solutions. Catering to this customer need, DZ BANK works closely with the local cooperative banks and in 2017 achieved record sales of investment certificates, doubling the previous year's figure to more than €4.4 billion. DZ BANK's performance – as measured by data from the Deutscher Derivate Verband (DDV) [German Derivatives Association] – has been impressive, demonstrating its capabilities as market leader with a market share of 16.6 percent as at the end of December 2017, based on the market volume invested in structured securities. The comprehensive range of high-quality services also earned DZ BANK the Best Issuer of 2017/2018 award from an independent panel of experts in this year's Investment Certificates Awards, the first time that DZ BANK has received this accolade.

Furthermore, DZ BANK's focus on continuously and effectively digitalizing and optimizing securities processes in retail banking was recognized by renowned experts when it received the Best Process Award 2016. DZ BANK also has an advanced quality management system for customer service and product development in the Capital Markets Retail Clients division based on the new ISO 9001:2015 standard. The system was comprehensively audited and certified in 2017 by DQS GmbH Deutsche Gesellschaft zur Zertifizierung von Managementsystemen.

In order to stabilize their financial performance over the long term, the cooperative banks acquired investments with residual maturities of more than 5 years as part of their own-account investing activities. They stepped up their investments in corporate bonds and simply structured credit-rating-linked products. Demand for structured bullet maturity bonds and share bonds was also brisk. Business involving bonds from financial institutions remained steady at the high prior-year level. The cooperative banks also aimed for broad diversification in their securities portfolios, particularly with regard to investments in equities and real estate. To this end, they increasingly invested in fund products from the Union Investment Group.

Capital market business with institutional customers was once again expanded in the year under review. The principal contributing factor was a brisk level of business in interest-rate derivatives used for hedging purposes, but interest-rate structures for occupational retirement pensions and group funding via secured and unsecured issues also played a major role.

The investment behavior of institutional customers was influenced to a large degree by the distortion of market prices, and thus risk premiums, caused by the ECB's monetary policy of negative interest rates.

Income sources were widely spread, ranging across the entire fixed-income product segment but primarily bond trading in the secondary market. Sales of bank bonds, bonds from agencies, covered bonds, and corporate bonds were particularly strong. In the case of interest-rate structures and credit-linked notes, a range of diverse products has been available to DZ BANK's institutional customers for many years, with some of these products being very highly placed in the relevant rankings.

In the capital markets business with corporate customers, demand from large and medium-sized companies and major corporations extended over DZ BANK's broad spectrum of products, with particular focus on currency and interest-rate hedging in order to manage currency and interest-rate risk. In the period under review, approximately 1,700 corporate customers entered into interest-rate or currency hedging transactions and/or made short-term investments.

The pattern of growth differed between the interest-rate products business and the currency products business. Currency products business saw encouraging growth, whereas income growth in the interest-rate products business fell slightly as a result of customer caution in response to market conditions.

In the new bond issuance business, the volume of new issuance mandates generated by DZ BANK was maintained at the prior-year level. While new issuance business with the federal states in Germany declined, there was encouraging growth in new issuance business from northern Europe, France, and Austria, and in connection with promissory notes for corporates in Germany. The bank was able to consolidate its new issuance business and its excellent reputation, as well as that of the cooperative financial network overall, in the segment covering sustainability bonds for issuers in both Germany and abroad. In the year under review, the ECB's bond-buying program continued to have a long-term impact on the level of returns and on the composition of order books.

Administrative expenses at DZ BANK amounted to €1,529 million, an increase of €15 million or 1.0 percent on the comparable figure in 2016 (€1,514 million).

Other administrative expenses went up by €49 million to €886 million (2016: €837 million) in 2017 on the back of higher consultancy and IT costs relating to projects. They included merger-related expenses of €91 million incurred in connection with data migration.

The €34 million drop in staff expenses to €643 million (2016: €677 million) was primarily due to reduced expenses for bonuses and special payments.

Other net operating income/expense at DZ BANK amounted to a net expense of €27 million in 2017 (2016: net income of €21 million).

The other net operating expense included income of €45 million (2016: €38 million) from the reversal of provisions, which had been offset in 2016, in particular, by expenses of €17 million arising from assumption of the defined benefit obligations of WGZ BANK Unterstützungskasse and by the addition of €13 million to the provision for fire safety measures relating to DZ BANK's Cityhaus I building (to the extent not used for banking operations).

The other net operating expense also consisted of a net expense of €69 million (2016: net income of €23 million) resulting from the measurement of the occupational pension plan. The latter primarily comprised the interest cost of €86 million reported in 2017 (2016: €22 million) in connection with the measurement of defined benefit obligations and the income generated from plan assets in 2017 of €17 million (2016: €45 million).

Allowances for losses on loans and advances amounted to a net reversal of €14 million (2016: allowances for losses on loans and advances of €313 million).

Under specific loan loss allowances, there was a net addition of €8 million in 2017 (2016: net addition of €42 million). The specific loan loss allowances recognized – particularly in corporate banking – were offset by reversals resulting from the continued success of efforts to aid the recovery of non-performing loans and receipts from loans and advances previously impaired. Overall, the change in specific loan loss allowances, which also benefited from the stable economic environment, reflects the stability of the credit portfolio and DZ BANK's sustainable risk policy.

Under portfolio loan loss allowances, there was a net reversal of €16 million (2016: net addition of €47 million).

Further detailed disclosures regarding the level of credit risk at DZ BANK can be found in this management report in section 8.9 of chapter VI (Combined opportunity and risk report).

In the year under review, DZ BANK's **other net income and expense** amounted to an expense of €278 million (2016: expense of €245 million).

Within this figure, gains on investments of €225 million (2016: gains of €117 million) included both gains from long-term equity investments of €185 million (2016: gains of €85 million) and gains on long-term securities totaling €40 million (2016: gains of €32 million).

The gains from long-term equity investments in 2017 included, in particular, gains of €126 million on the disposal of DZ BANK's long-term equity investment in Concardis GmbH, Eschborn. There was also a €44 million reversal of a write-down on the carrying amount of DZ BANK's long-term equity investment in WL BANK.

In 2016, the gains from long-term equity investments had included, in particular, gains of €136 million on the disposal of DZ BANK's long-term equity investment in VISA Europe Ltd., London. Furthermore, the former WGZ BANK had generated a gain of €37 million on the disposal of its long-term equity investment in Union Investment Real Estate GmbH, Hamburg. Gains from long-term equity investments had also included write-downs of €30 million and €61 million respectively on the carrying amounts of DZ BANK's direct investments in VR-LEASING AG and WL BANK.

The net gain on long-term securities in the reporting period included, in particular, income of €49 million on the disposal of liquidity-pool securities and the closing out of derivatives used for hedging and a loss of €15 million from ABSs that resulted largely from the recognition of impairment losses.

In 2016, there had been income of €19 million on the sale and on the maturity of securities in the banking book and a gain of €13 million from ABSs.

The €351 million expense in respect of the transfer of losses (2016: €20 million) was largely attributable to an expense of €300 million resulting from the transfer of losses from DVB Bank and an expense of €39 million resulting from the transfer of losses from VR-LEASING AG.

In 2016, the expense in respect of the transfer of losses was mainly due to an expense of €18 million resulting from the transfer of losses from IMPETUS Bietergesellschaft mbH, Frankfurt am Main.

In 2017, the extraordinary result amounted to an expense of €402 million (2016: expense of €342 million) and included an expense of €500 million arising from an income subsidy paid by DZ BANK to DVB Bank and income of €107 million for DZ BANK resulting from winding up the business activities of WGZ Finance plc (formerly DZ BANK IRELAND plc).

In 2016, the extraordinary result had included an expense of €150 million arising from an income subsidy paid by DZ BANK to DVB Bank, restructuring expenses of €135 million, and expenses of €57 million for the transaction and preparation of the migration in connection with the merger.

In 2017, there was income of €250 million resulting from a withdrawal from the fund for general banking risks, whereas the reserves pursuant to section 340g HGB had remained unchanged in 2016.

Profit before taxes amounted to €320 million (2016: €269 million).

The tax income for the year under review of €250 million (2016: income of €54 million) includes deferred tax income of €170 million (2016: income of €47 million), income from group tax levies of €229 million (2016: €201 million), and a tax expense of €149 million (2016: €194 million).

Net income for the year came to €570 million (2016: €323 million).

As a result of the net income for the year of €570 million, and taking account of profit brought forward from 2016 of €4 million and an addition to revenue reserves of €250 million, DZ BANK will propose a dividend of €0.18 per share to the Annual

General Meeting. This would equate to a total distribution of €322 million.

3.3 Number of branches

As at December 31, 2017, DZ BANK had 7 German branches in Berlin, Düsseldorf, Hanover, Koblenz, Munich, Münster, and Stuttgart as well as 4 international branches situated in London, New York, Hong Kong, and Singapore.

The Hanover and Munich branches oversee two sub-offices in Hamburg and Nuremberg.

4 Net assets

As at December 31, 2017, DZ BANK's **total assets** had decreased by €1.3 billion to €252.0 billion (December 31, 2016: €253.3 billion), a fall of 0.5 percent.

DZ BANK's international branches accounted for €27.4 billion or around 10.9 percent of the total assets of DZ BANK as at December 31, 2017. New York (€13.3 billion) and London (€8.3 billion) together accounted for around 78.9 percent of the €27.4 billion. The remaining €5.8 billion was attributable to the branches in Singapore (€3.8 billion) and Hong Kong (€2.0 billion).

The **return on assets**, which was calculated by dividing the net income for the year by the total assets at December 31, 2017, was 0.2 percent.

As at December 31, 2017, the **volume of business** amounted to €282.2 billion (December 31, 2016: €284.0 billion). This figure comprises not only total equity and liabilities but also the contingent liabilities of €8,551 million (December 31, 2016: €8,805 million) and DZ BANK's other obligations of €21,664 million (December 31, 2016: €21,917 million).

FIG. 2 – TOTAL ASSETS

The derivatives recognized at fair value of €1,020.7 billion (December 31, 2016: €951.4 billion) and **the derivatives not recognized at fair value** of €64.9 billion (December 31, 2016: €61.0 billion) came to a notional amount of €1,085.6 billion as at December 31, 2017 (December 31, 2016: €1,012.4 billion). Of this total amount, €19.0 billion was accounted for by positive fair values (December 31, 2016: €26.1 billion).

Loans and advances to banks had risen by €18.0 billion to €136.1 billion as at December 31, 2017, compared with €118.1 billion as at December 31, 2016. Loans and advances to affiliated banks had increased by €3.1 billion or 4.7 percent to €71.2 billion. Loans and advances to other banks had risen by €14.9 billion or 29.7 percent to €64.9 billion.

Loans and advances to customers had gone down by €0.7 billion to €33.0 billion as at December 31, 2017 (December 31, 2016: €33.7 billion). Within this amount, loans and current account debit balances had declined by €1.3 billion and €0.3 billion respectively, while development program loans had increased by €1.0 billion.

As at December 31, 2017, the value of **bonds, shares, and other securities** had fallen by €10.5 billion to €35.4 billion (December 31, 2016: €45.9 billion). This change was attributable almost exclusively to holdings of bonds, the value of which amounted to €35.3 billion as at December 31, 2017 (December 31, 2016: €45.8 billion). The value of shares and other variable-yield securities was unchanged year on year at €0.1 billion (December 31, 2016: €0.1 billion).

The **trading assets** line item was €29.8 billion as at December 31, 2017, a drop of €8.4 billion compared with December 31, 2016 (€38.2 billion). This was mainly the result of a decrease of €4.1 billion for derivatives, €3.8 billion for repurchase agreements, and €0.5 billion for bonds.

Deposits from banks had advanced by €7.5 billion to €127.6 billion as at December 31, 2017 (December 31, 2016: €120.1 billion). Deposits from affiliated banks had climbed by €2.9 billion to €52.1 billion, while deposits from other banks had gone up by €4.6 billion to €75.5 billion.

Deposits from customers as at December 31, 2017 had risen by €3.6 billion to €31.5 billion (December 31, 2016: €27.9 billion). This change was predominantly attributable to an increase in current account credit balances (up by €2.4 billion) and overnight deposits (up by €1.5 billion), compared with a decrease in fixed-term deposits of €0.5 billion.

Debt certificates issued including bonds stood at €36.5 billion. This equates to a fall of €11.7 billion compared with the figure at December 31, 2016 of €48.2 billion. The reasons for this were a €2.3 billion decline in the portfolio of bonds (excluding German commercial paper) and a €9.3 billion reduction in the portfolio of commercial paper.

The **trading liabilities** line item had increased by €1.2 billion to €33.2 billion (December 31, 2016: €32.0 billion). Within this amount, repurchase agreements were up by €1.0 billion, investment certificates issued by €0.6 billion, and bearer bonds by €0.5 billion, whereas premiums received from options were down by €0.8 billion.

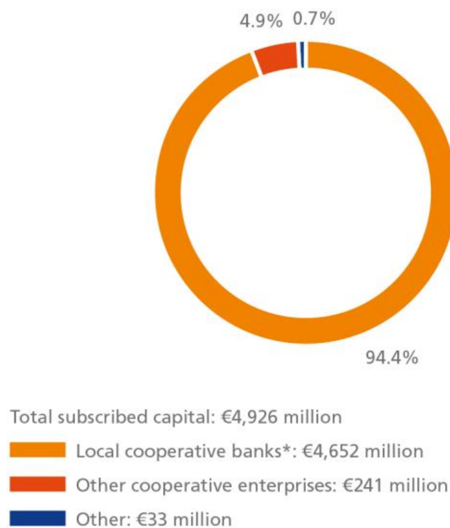
The **fund for general banking risks** in accordance with section 340g HGB stood at €4,272 million, which was €243 million lower than the figure of €4,515 million as at December 31, 2016.

The **equity** of €10,504 million reported on the balance sheet as at December 31, 2017 was €248 million higher than the equivalent figure as at December 31, 2016 (€10,256 million).

The disclosures on the Company's holdings of treasury shares pursuant to section 160 (1) no. 2 of the German Stock Corporation Act (AktG) can be found in Note 22 of the notes to these annual financial statements.

DZ BANK's **capital and solvency situation** is described in this management report in chapter VI (Combined opportunity and risk report), section 7.3.3 (DZ BANK banking group).

FIG. 3 – SHAREHOLDERS AS AT DECEMBER 31, 2017



Total subscribed capital: €4,926 million
- Local cooperative banks*: €4,652 million
- Other cooperative enterprises: €241 million
- Other: €33 million

* Directly and indirectly.

5 Financial position

Liquidity management for the entities in the Bank sector is carried out by Group Treasury 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, DZ BANK 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.

DZ BANK has a highly diversified funding base for **operational liquidity**. A considerable portion is accounted for by money market activities resulting from the cash-pooling function with the local cooperative banks. This enables local cooperative banks with available liquidity to invest it with DZ BANK, while primary 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. DZ BANK therefore has a comfortable level of liquidity at its disposal. Funding on the interbank market is not strategically important to DZ BANK.

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

Money market funding also includes collateralized money market activities, which DZ BANK has centralized in Group Treasury and which form the basis for broadly diversified funding on money markets. To this end, Group Treasury has a portfolio of securities eligible for central bank borrowing (collateral pool). 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 1 year) of DZ BANK.

Structural liquidity is measured daily on the basis of total liquidity 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 local cooperative banks' own-account and customer-account securities business and marketed to institutional clients. DZ BANK also has the option of obtaining liquidity through covered issues known as DZ BANK BRIEFE. These are primarily marketed to institutional investors.

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

Group Treasury at DZ BANK carries out groupwide **liquidity planning** annually. This involves determining the funding requirements of the DZ BANK Group, including DZ BANK, 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 management report in chapter VI (Combined opportunity and risk report), section 6.2 (Economic liquidity adequacy).

III Events after the balance sheet date

There were no events of particular importance after the end of the financial year.

IV Human resources report and sustainability

1 Human resources report

1.1 HR work in the year of the migration

Following the successful merger of the two institutions in the previous year, HR activities in 2017 centered not only on HR management aspects of the migration process but also on operational matters, such as expansion of the digitalization process to include a module for business travel (portal-based booking and settlement).

1.2 Professional development

An area of focus for continuing professional development (CPD) in 2017 was the planning and running of migration training courses in connection with the migration project.

A learning platform, 'Meine Trainings' (my training courses), was also introduced. Incorporating a variety of functions, the platform integrates all seminar-related processes. As well as providing an overview of the courses on offer, it has features for online registration and cancellation. Employees can thus check at any time what training they have booked and find out which courses are available and when. There was strong demand for specialist training on topics such as banking regulation and for short-format events in the Knowledge Forum series. Eight events were offered. One of these was 'Get in contact', the DZ BANK Group's innovation day. In another event, DZ BANK's trend scouting team provided an insight into banking in the future. On average, the Knowledge Forum events were attended by up to 100 employees. The events in the Management for Managers Forum series concentrated on management in the future. Of these events, the 'Management in the Future – DZ BANK Internal' workshop, in which members of the Board of Managing Directors participated, received excellent feedback.

Executive management development activities focused on providing support for the integration. As a result of the merger, the number of participants tripled compared with 2016 on the programs 'Startklar' (for new managers) and 'Spurwechsel' (for managers switching to a new role).

The bank's CPD program also includes division-specific training courses. In 2017, the focus was on continuation of the customer focus project, including the strategic CPD courses introduced in 2015, such as 'value-adding advisory excellence' and 'sales training' in which 314 people took part. The training series for professional sales support in corporate customer business was held once again. Project management training, which is offered at three levels (basic, advanced, and expert), is a permanent feature of the CPD offering. More than 200 project managers have now completed the training program, which was launched at the pre-merger DZ BANK in 2013. The training is offered in collaboration with Deggendorf Institute of Technology and the Haufe Academy, Neu-Isenburg. A certificate is issued upon completion. The Personal and Communication Skills training series, which are run in conjunction with the Frankfurt School (FS), Frankfurt am Main, end with an exam and a certificate is then issued by FS. FS has also included the banking training in its own CPD program.

1.3 Training and development of young talent

In 2017, 65 new trainees (25 women and 40 men) began their professional career by joining various training programs in the joint central institution after completing their studies at school or university. Training and developing the next generation is regarded as a shared responsibility within the bank. The HR division establishes the necessary structures and monitors the trainees and the departmental coordinators, but the training itself is carried out within the individual departments. In view of future requirements, the emphasis is increasingly shifting from traditional banking-oriented training programs to training and bachelor-degree programs focusing on IT, business informatics, and digitalization. The Trainee Program 4.0, which centers on innovation and digitalization, is due to start on May 1, 2018.

DZ BANK encourages individual responsibility among its trainees in order to prepare them as fully as possible for taking on suitable roles in the bank. Besides equipping trainees with specialist knowledge, the development programs therefore focus on expanding their methodological, social, and personal skills. A variety of initiatives have taken place, including the opportunity for trainees to act as trend

scouts or workplace pilots. This enabled them to build on their innovation and digitalization skills and to put them into practice for the benefit of the bank. Last year also saw the launch of reverse mentoring, in which 17 heads of department paired up with a trainee. In contrast to a classic mentoring program, the young employees are the mentors in reverse mentoring and share their experience in using social media and technology with the managers, who can therefore strengthen their digital skills. Due to the very positive feedback, the program is to be continued in 2018.

1.4 Health management

Services aimed at promoting the health of employees were offered in the year under review. These included a range of sporting activities and anti-stress programs as well as lectures and workshops on fascia training, heart health, nutrition and other topics.

1.5 Work-life balance

One of the core objectives of HR policy is to create a working environment that takes account of changing family and age structures. With this in mind, DZ BANK adopted a policy for flexible and family-friendly organization of working hours back in 2015. The policy sets out binding rules and expectations regarding flexible working hours, which are based on the principle of give and take. DZ BANK supports parents and carers by offering flexible working hours, teleworking, and parent-and-child offices. The bank has contracted external service providers that operate throughout Germany to arrange or provide childcare for employees and to arrange or provide support for family members requiring care. For example, regular daycare places are available in kindergartens or with au pairs or carers. The arrangement service is free of charge for bank employees. A daycare center for bank employees' children opened in mid-2016 in the new building that was constructed as part of the expansion of the Frankfurt site.

The Hertie Foundation recognizes companies with family-friendly and life-stage-oriented HR policies by awarding the *auditberufundfamilie®* certificate, which has to be renewed every three years. DZ BANK has held the certificate since 2007.

1.6 TeamUp trainee program

This trainee program for the local cooperative banks has become well established, celebrating its sixth anniversary in 2017. Since the launch of the program in October 2011, over 50 young people have signed up to start their careers via TeamUp.

A new key area covering innovation and digitalization had been designed in 2016 and was launched on June 1, 2017. This new area of the program is a response by DZ BANK to the local cooperative banks' need for well-trained university graduates who can work on aspects of innovation and digitalization in different divisions. The new key area was popular with applicants, and four trainees were hired.

The quality of the TeamUp trainee program is derived from the variety of placements and job-shadowing opportunities presented by the different entities in the cooperative financial network. The program delivers key benefits for successful personal career development, including familiarity with multiple levels of the cooperative financial network, a combination of practical training and academic qualifications, broadly based professional expertise, and the associated opportunity to build up a personal network of professional contacts from an early stage. In the key area of innovation/digitalization, trainees also undergo training on various methods such as design thinking, participate in the GENOhackathon, and are mentored by innovation experts from across the DZ BANK Group.

1.7 'Verbund First' career development program

In 2017, the third group of participants started the 'Verbund First' career development program, which focuses on digitalization and innovation. The 18 participants – managers and employees from the cooperative banks – examined various issues relating to digitalization both within and outside the cooperative financial network. According to the participants, the networking opportunities and the chance to gain a new perspective on matters affecting the cooperative financial network are the main reasons for the program's success. The learning journey format was particularly helpful in enabling participants to pick up new ideas. Another group will embark on the program in 2018.

1.8 Corporate Campus for Management & Strategy

The Corporate Campus for Management & Strategy was set up in 2010 as a think tank and as an information-sharing and strategy platform for senior managers in the DZ BANK Group. It has become

successfully established and is now in its eighth year. In 2017, 220 participants attended a total of 11 different events. All the feedback from the participants was very positive without exception. Participants included members of boards of managing directors, heads of divisions, and, in some cases if relevant to the topic under discussion, employees below head-of-division level. Further information can be found at *www.corporatecampus.dzbankgruppe.de*

1.9 DZ BANK Group's employer branding campaign

The objective of the campaign is to establish the DZ BANK Group as an employer in the marketplace and thereby attract suitable candidates and retain existing employees over the long term with the aim of safeguarding the future viability of the DZ BANK Group.

The campaign was initiated back in 2014 with the launch of an internal communications and information-sharing platform. In 2016, the activities were expanded to include a joint external careers website featuring vacancies across the group. Further public relations activities ensued, supporting the launch of the employer brand in the external job market. In 2017, these activities included a countrywide bike-sharing campaign that was promoted on relevant social media.

1.10 Employer awards

DZ BANK received the following awards in the first half of 2017: Top German Employer (Top Employers Institute, since 2008), Candidate Experience Award (since 2015), Career-enhancing & Fair Trainee Program (Absolventa, since 2012), Trendence Student Survey/Germany's 100 Top Employers (ranked since 2008), Universum Student Survey/Germany's Most Attractive Employers for Students (ranked since 2008), Focus Best Employer (since 2013), and Fair Company Initiative (since 2004).

1.11 Declaration on corporate governance

Equal participation of women and men in managerial positions

The German Act on the Equal Participation of Women and Men in Managerial Positions in the Private Sector (FührposGleichberG) requires companies subject to codetermination that have more than 500 employees to set binding targets for the supervisory board, board of managing directors, and the first and second levels of management (heads of division and heads of department).

In 2015, the targets for the first two management levels were defined as follows for the period up to June 30, 2017:

First-level management	5 percent
Second-level management	19 percent.

The quotas achieved as at June 30, 2017 were as follows:

First-level management	6.25 percent
Second-level management	14.2 percent.

The merger of WGZ BANK and DZ BANK in 2016 meant that it was not possible to achieve the defined targets.

The merger-related structural changes, including in respect of the management levels, resulted in an increase at the first level of management. However, it was not possible to achieve the target for the second level of management. Moreover, the total number of employees went up.

The Board of Managing Directors of DZ BANK examined in detail how to implement German Act on the Equal Participation of Women and Men in Managerial Positions in the Private and Public Sectors (FührposGleichberG) at DZ BANK and have set the following targets for the period up to December 31, 2021: Target for first-level management: 10 percent Target for second-level management: 20 percent.
In 2015, the target for the Board of Managing Directors for the period up to June 30, 2017 was set at zero. In a resolution passed on February 22, 2017, a target of zero was set for the proportion of women on the Board of Managing Directors of DZ BANK for the period up to December 31, 2018.

The target for the Supervisory Board was set at 15–20 percent for the period up to June 30, 2017. There have been four female members of the Supervisory Board since the election of employee representatives on May 28, 2015. The upper end of the target range (20 percent) was thus reached ahead of the deadline. According to a resolution passed by the Supervisory Board on February 22, 2017, a new target was set and the strategy aimed at promoting the nomination of women, who are currently under-represented, was modified. The Supervisory Board took account of the

rule pursuant to section 111 (5) sentence 2 AktG, according to which the proportion of women must not fall below the quota achieved of 20 percent. The objective of the strategy adopted to promote the under-represented gender (women) on the Supervisory Board of DZ BANK AG is, by 2021, to stabilize the number of female members of the Supervisory Board at the current level as a minimum. The target was therefore kept unchanged at 20 percent. The shareholder representatives on the Supervisory Board will endeavor to have at least one female candidate elected to the Supervisory Board by 2021.

Irrespective of the statutory requirements, the aim is to further increase the proportion of women in managerial positions. In accordance with the stipulations of the KWG that came into force in 2014, the Supervisory Board has also adopted a strategy aimed at increasing the proportion of members who are women, as they are currently under-represented.

FIG. 4 – EMPLOYEE DATA

Employees (average for the year, excluding trainees)	**2017**	**2016**
Total	**5,482**	**5,673**
Employees (as at December 31, including trainees)		
Total	**5,542**	**5,792**
Employees	5,385	5,612
Trainees	157	180
Proportion of trainees (%)	2.8	3.1
Germany	5,298	5,549
ROW	244	243
Male	3,214	3,367
Female	2,328	2,425
Total proportion of women (%)	42.0	41.9
Total number of managers	660	660
Proportion of female managers (%)	19.1	18.2
Full-time	4,479	4,717
Part-time	1,063	1,075
Proportion of part-time (%)	19.2	18.6
Period of service (years)	15.1	14.7
Staff turnover (%)	7.0	4.0
Resignations (%)	2.1	2.2
Professional development days per employee	2.9	2.7

2 Sustainability

DZ BANK is required to prepare a non-financial statement pursuant to section 289b (1) in conjunction with section 315b (1) HGB.

The non-financial statement for the DZ BANK Group is available in German at

www.berichte2017.dzbank.de

V Outlook

1 Economic conditions

1.1 Global economic trends

As 2018 began, a substantial recovery was under way in the global economy. In particular, the United States was continuing to advance along its growth trajectory, sustaining the fairly high pace of expansion established since the spring of 2016. The official growth figure for the Chinese economy in 2017 was 6.9 percent. Economic growth in the country has therefore picked up again following a downward trend over a number of years. The economic uptrend is also advancing in key emerging markets, Russia and Brazil continuing to benefit from the recovery in commodities markets. In Europe, neither the various elections nor the Brexit negotiations between the EU and the UK have led to any noticeable adverse economic impact to date. Quite the contrary in fact, with growth in the eurozone gaining even greater momentum.

Against this background, global economic growth in 2017 is likely to be confirmed at around 3.5 percent. At the moment, there are no obvious signs that this trend in global expansion is going to fall away. A further uptick is probable in 2018, with growth forecast to be approximately 3.8 percent for the year.

Expansionary monetary policies tending to be pursued by key central banks are also continuing to boost the current growth rates in the global economy. This very much applies to the ECB, which has not yet initiated any serious normalization of its monetary policy. By contrast, the US Federal Reserve has implemented modest interest rate hikes and has been taking action since October 2017 to reduce its massively swollen balance sheet. Nevertheless, money supply remains abundant overall.

The inflation rate will probably rise slightly from around 3.4 percent in 2017 to approximately 3.6 percent in 2018.

1.2 Trends in the USA

The economy in the United States is on a robust path of growth. Consumer spending, in particular, continues to be the key driver behind this growth. Surveys conducted in industry and construction, and among service providers and consumers, show that sentiment remains very upbeat.

In 2018, a further economic boost could come from the tax reform set in motion by Congress before the end of 2017 and now approved. The reform will lead to comprehensive tax cuts. Some of the strong economic growth at the end of 2017 is likely to have been caused by spending brought forward as a consequence of the imminent tax reform. This is suggested by the very hefty spending on capital equipment, in particular. This trend is likely to continue in 2018.

In these conditions, the US economic growth rate is forecast to rise from approximately 2.3 percent in 2017 to around 2.5 percent in 2018.

Inflationary pressure remains rather subdued despite both the upturn, which has already lasted for eight years, and the slightly expansionary monetary policy, which still remains in place. A significant, and also protracted, rise in the oil price could push up inflation markedly. Although the solid uptrend in employment is predicted to continue, there is only expected to be a slight increase in momentum in terms of wage rises. Overall, conditions for higher inflation are projected to remain moderate. Therefore, the Federal Reserve has little reason to hurry in pursuing a tighter monetary policy.

Currently, an average inflation rate in the region of 2.3 percent is projected for 2018.

1.3 Trends in the eurozone

The economic recovery in the eurozone is broadly based and gathered further pace in the second half of 2017. Consumer spending and gross capital investment are the most significant contributing factors. The positive overall picture is also confirmed by a review of the individual countries of the eurozone. The top performers include the Spanish economy, which has enjoyed very high growth rates now over a number of quarters, and the economic heavyweight Germany. The French economy is also picking up speed. Even Italy – which admittedly still has comparatively weak growth rates – is being increasingly pulled along by the powerful economic cycle within the eurozone.

The extremely favorable economic position currently prevailing in the eurozone is likely to continue through

2018. However, some potential for a setback is looming from the UK's planned exit from the EU. The outcome of the exit negotiations remains unresolved. Even recent progress in these negotiations has done little to reduce the current level of uncertainty. However, results of surveys indicate that the potential negative consequences for the eurozone economy from any uncoordinated exit by the UK are likely to remain relatively limited.

The robust growth figures are also reflected in the labor market. The average unemployment rate in the eurozone fell once again in November 2017, dropping to 8.7 percent, which was the lowest level since January 2009.

In view of the developments described above, it is reasonable to assume that a sound rate of economic expansion will be sustained in the eurozone in 2018. The rate of GDP growth is likely to be in the region of 2.0 percent in 2018 compared with around 2.3 percent in 2017.

Overall, inflation in the eurozone is lagging behind the positive economic conditions. The upward trend in consumer prices has been comparatively modest. Even in the case of industrial goods (excluding energy) or services, price inflation has been rather low. The inflation rate in 2017 was an average of approximately 1.5 percent. Current forecasts for 2018 are predicting an inflation rate in the vicinity of 1.5 percent.

1.4 Trends in Germany

At the end of 2017, the German economy was experiencing a strong broadly based economic recovery. According to the latest surveys, corporate optimism is at its highest level since reunification. In addition, the economy continues to be boosted by exceptionally positive consumer sentiment and the excellent position in the job market.

The expansion in the global economy is helping German exports to get back to the good years prior to the financial crisis and the problems in the eurozone. Overall, the country's industry is growing very rapidly, driven by buoyant export demand. Furthermore, the domestic economy in Germany has also been enjoying a positive trend for several years. Household consumption and capital investment in residential construction have risen significantly with the benefit of a strong tailwind from the very good employment rate in the job market. Following years of caution, businesses are now once again responding to the strong upturn with noticeably rising spending on capital equipment.

The economic recovery in Germany is likely to become increasingly mature, as a result of which the rate of expansion will probably ease off over the medium term, coming closer to the trend growth rate. In particular, a shortage of labor could restrict further growth opportunities.

Against this backdrop, Germany's unemployment rate for 2018 is predicted to fall further to around 5.5 percent.

At the moment, all the indicators suggest that the favorable economic conditions in Germany will continue in 2018, with economic output projected to rise by around 2.2 percent.

The inflation rate in 2017 crept up to 1.7 percent, mainly as a result of a rise in prices for crude oil and foodstuffs, and increases in housing rents. The projected inflation rate for 2018 is also approximately 1.7 percent.

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 the restructuring of the financial sector to make it more resilient in the event of a crisis, to be achieved by reorganizing the supervisory architecture and improving capital and liquidity adequacy. 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.

However, there is always a possibility that European banks could be more heavily impacted as a result of the variation in the way that the rules are applied at international level.

Significant rules and regulations coming into force in 2018 include the application of the financial reporting standard IFRS 9, covering the accounting treatment

of financial instruments with implications for the calculation of regulatory ratios, and the implementation of the Markets in Financial Instruments Directive (MiFID II), together with the accompanying Markets in Financial Instruments Regulation (MiFIR), with tighter requirements for the provision of investment services in relation to a large number of financial instruments as well as comprehensive transparency and disclosure requirements for transactions involving these products.

Further information on the regulatory environment can be found in section 5.1.2 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 capital and liquidity adequacy.

However, in addition to the regulatory environment described above, new competitors with approaches based on the use of data and 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 overcome the challenges described above will once again be made more difficult in 2018 by the expected continuation of low nominal interest rates, which are currently accompanied by a relatively flat yield curve and are likely to prevent any significant increase in margins in interest-related business.

This assessment is based on the continuation of the expansionary monetary policy pursued by the ECB, which decided in October 2017 to extend its asset-buying program until at least September 2018.

By contrast, at a meeting in September 2017, the US Federal Reserve decided to begin the process of unwinding its crisis-era quantitative easing policy. It is anticipated that, at the same time as the change in balance sheet policy, the Federal Reserve will continue to gradually hike interest rates with the objective of keeping US economy on a growth trajectory while ensuring price stability.

The expected growth in large swathes of the global economy should also provide a boost for the financial position and financial performance of the European financial sector.

However, the potential implications from uncertain political and economic trends for the economic position of banks and insurance companies should not be ignored. Further information on macroeconomic risk factors can be found in section 5.1.3 of the opportunity and risk report.

2 Changes in financial position and financial performance

2.1 Financial performance

Despite potential for growth in the operating business, profit before taxes at DZ BANK is under pressure because of fiercer competition in both domestic and international markets in 2018. The growing number of international competitors entering the German market is having a range of effects, including greater pressure on margins.

Fintech companies are also stepping up the competition by substituting new approaches in place of traditional services in parts of the value chain.

Moreover, the protracted period of low interest rates combined with reduced potential for reversals of impairment losses, plus the increasing restrictions on investment banking resulting from growing regulatory requirements, may also have an adverse impact on financial performance in 2018.

This reduced earnings potential, combined with higher costs in connection with regulatory and IT-related requirements, will make it difficult to achieve further earnings growth.

Profit before taxes is likely to fall sharply in 2018, not least because of the reversal of reserves pursuant to section 340g HGB in 2017. The income subsidy for, and the transfer of losses from, DVB depressed profit before tax in 2017. As a result of the conclusion of a profit-and-loss transfer agreement between DVB and DZ BANK AG at the end of 2017, no income subsidies will be paid in the future. No further losses are expected for 2017.

Variations in economic performance within the eurozone, combined with rising populism and economic policies that restrict growth, could lead to volatility in the capital and financial markets in 2018.

It continues to be difficult to assess the economic impact of US economic and monetary policy and of the ongoing Brexit negotiations. This may lead to increased protectionist measures that would particularly affect Germany and its export-driven economy.

These negative conditions may pose a risk to earnings in 2018.

Net interest income (excluding income from long-term equity investments) in 2018 is predicted to be significantly below the 2017 level, one of the main reasons being a sharp fall in group funding. Margins in business with corporate customers are expected to be further squeezed as a result of fiercer competition. Despite the planned volume growth under the corporate banking initiative, a sustained increase in income is likely to be hampered by the competitive market environment.

Income from long-term equity investments will probably decline markedly in 2018. Besides the liquidation of WGZ Finance plc, which is not factored into the planning for 2018, net income from long-term equity investments will continue to be negatively impacted by the persistently low level of interest rates. Earnings will come under pressure, especially in the subsidiaries with interest-earning business models. This will adversely affect the predicted income from long-term equity investments.

Net fee and commission income is expected to rise substantially in 2018. Additional income is anticipated in transaction banking, primarily on the back of stimulus provided by volume growth and the digitalization strategy. Income in retail banking will probably be influenced by the growing volume of brokerage transactions, while commitment and structuring fees should bolster income in corporate banking.

Net trading income is likely to rise significantly in 2018. This assumption is based primarily on the fact that the figure for 2017 was adversely affected by a reduced positive impact from the measurement of own issues.

Despite the difficult market environment, an encouraging level of customer business in the capital markets is anticipated in 2018. This will require constant and, above all, stable conditions in the capital markets.

In 2018, the improvement in capital markets business is to be achieved by continuing to pursue the strategic objectives set for this business line.

Key income drivers in the customer business are greater exploitation of cross-selling potential to corporate customers, further expansion of the range of products into the territory of the former WGZ BANK, and the harnessing of potential in the securities business by stepping up collaboration with the local cooperative banks.

DZ BANK also plans to expand the e-trading platforms to create a bigger sales channel for institutional business in order to make the business relationships with institutional customers more profitable over the long term.

In capital markets business with retail customers, income will be boosted in 2018 by increasing customer-account business transacted with existing customers and attracting new customers.

Moreover, an improved ability to compete in the digital sphere and the expansion of digital sales channels for customer-account business in the cooperative financial network should generate additional income from customers.

Macroeconomic conditions that lead to destabilization of the capital markets are one of the main factors that could adversely affect net trading income.

The figure reported under **other net operating income/expense**, which is again expected to be negative, is likely to deteriorate substantially in 2018 owing to higher expenses for pensions resulting mainly from the anticipated decrease in the discount rate. Moreover, the figure for 2017 was bolstered by positive one-off items.

In all probability, **administrative expenses** will see a small decline in 2018, the main reason being the absence of merger-related expenses. Above all, project costs will decrease significantly due to the successful

completion of the migration projects. Costs will also fall as a result of the realization of planned synergies; this particularly applies to staff expenses, which will benefit from a reduction in the number of jobs.

However, strategy-related investment in innovation management has to be factored in for 2018. Even disregarding merger-related expenses, the cost situation will remain difficult in 2018.

The **cost/income ratio** is anticipated to deteriorate slightly in 2018. Positive effects from the realization of synergies and the absence of costs for migration projects will not be sufficient to offset the decrease in income caused by one-off items.

Active cost management continues to be a strategic focus in view of the additional regulatory requirements and increased capital expenditure on digitalization. As operations are expanded and made more profitable, there should be a lasting improvement to the cost/income ratio in the coming years.

Based on a conservative approach, expenses for **allowances for losses on loans and advances** will probably rise in 2018. The forecast for specific loan loss allowances is in line with the predicted change in the expected loss. In 2017, allowances for losses on loans and advances were significantly affected by reversals, but reversals of the same magnitude have not been included in the planning for 2018.

A possible downturn in the economic outlook combined with uncertainty in the financial markets and protectionist leanings could have an adverse effect on allowances for losses on loans and advances.

Net income/expense from other business is predicted to improve markedly in 2018. The negative impact on the 2017 figure from the income subsidy for DVB as well as the transfer of losses from both DVB and VR LEASING are not expected to be repeated in 2018.

2.2 Liquidity

Based on the position in the year under review and the funding measures planned for 2018, the DZ BANK Group predicts that it will be able to continue satisfying the economic and regulatory **liquidity adequacy** requirements.

As matters currently stand, the DZ BANK Group's **capital adequacy** will continue to be assured for 2018 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 strengthened its capital base from its own resources – by retaining profits and reducing risk – and by implementing a capital increase in 2015. In 2018, a high priority will once again be given to capital management activities.

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 37v and 37y 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 **IAS 1.134–136** (capital), **IFRS 7.31–42** (nature and extent of risks arising from financial instruments), and **IFRS 4.38–39A** (nature and extent of risks arising from insurance contracts). The maturity analysis in respect of financial assets and financial liabilities under **IFRS 7.39(a) and (b)** is disclosed in the notes to the consolidated financial statements (note 84).

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 this opportunity and risk report.

The opportunity and risk report also satisfies those **regulatory transparency requirements** in Part 8 of the CRR that specify disclosures based directly on the risk management system. The disclosures concerned are as follows:

- Risk statement by the Board of Managing Directors (section 2), including the declaration by the Board of Managing Directors on the appropriateness of the risk management system in relation to the risk profile and business strategy (section 2.1)
- Basic principles of risk management (section 3.1)
- Risk management objectives and strategies (sections 3.2 and 3.3)
- Structure and organization of risk management (section 3.4), including the nature and scope of the risk reporting systems (section 3.4.5) and the provision of risk information to the Supervisory Board (section 3.4.5)
- Risk management procedures, including the nature and scope of risk measurement systems (section 3.5.2)
- Guidelines for mitigating and hedging risk as well as strategies and procedures for monitoring the ongoing effectiveness of the measures taken to mitigate and hedge risk (sections 3.5.5, 6.2.4, 8.4.7, 10.4.4, 14.4.4, 16.4, 17.2.2, 18.2.2, and 19.2)

This 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 extend beyond the statutory requirements and that are intended to improve the usefulness of the disclosures in the decision-making process.

In accordance with the statutory requirements, 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 disclosures in the decision-making process, as required by law.

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.

DZ BANK Group

2 Summary

2.1 Statements from the Board of Managing Directors

The Board of Managing Directors of DZ BANK considers that the **risk management system** in place is adequate with regard to the risk profile and risk strategy of the DZ BANK Group. DZ BANK continuously develops the risk management system and ensures that any need for improvement identified internally or by the supervisory authorities is addressed systematically without delay with a view to implementation.

The DZ BANK Group's **business model** and the associated business models used by the management units (see section I.1 and section I.2 of the (group) management report) shape the risk profile of the group. The main risks associated with the business models in the management units are presented in Fig. 6 and Fig. 7 in section 2.3.2 of the opportunity and risk report. The businesses operated by the DZ BANK Group and the management units that have a significant impact on the risk profile are described under 'Definition and business background' and 'Risk strategy' within the sections of the opportunity and risk report covering the different risk types.

In the other direction, the main risks and the risk profile, together with a number of other factors, influence the business models used in the DZ BANK Group. This occurs firstly in strategic planning, where the risk profile is taken into account by restricting – in conjunction with the imposition of risk limits – the risk assumed in connection with new business. Secondly, in all activities, the DZ BANK Group only takes on risk if it has an adequate understanding of the risk involved and the expertise necessary to measure and manage it.

The extent to which the liquidity risks and the risks backed by capital (**risk profile**) are reasonable in relation to the risk limits is expressed in the values for the DZ BANK Group's **risk-related KPIs** shown in Fig. 5. The values for these KPIs are compared against the (internal) minimum targets 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 DZ BANK Group met the internal and external minimum targets at all times in the year under review. Further details on risk appetite can be found in section 3.3.

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.

2.2 Opportunity and risk management system

2.2.1 Fundamental features

DZ BANK and the DZ BANK Group 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** at DZ BANK and in the DZ BANK Group 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. Attractive opportunities are taken into account in the 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.

DZ BANK and the DZ BANK Group have a comprehensive **risk management system** that meets their own business management needs and the statutory requirements. Furthermore, the management of opportunities and risks forms an integral part of the groupwide strategic planning process.

FIG. 5 – RISK-RELATED KPIS

	Measured figure		Internal minimum target[1]		External minimum target	
	Dec. 31, 2017	Dec. 31, 2016	2017	2016	2017	2016
LIQUIDITY ADEQUACY						
DZ BANK Group						
Economic liquidity adequacy (€ billion)[2]	16.1	11.2	4.0	4.0	0.0	0.0
DZ BANK banking group						
Liquidity coverage ratio (%)	161.7	151.0	90.0	80.0	80.0	70.0
CAPITAL ADEQUACY						
DZ BANK Group						
Economic capital adequacy (%)[3]	170.5	170.1	120.0	130.0	100.0	100.0
DZ BANK financial conglomerate						
Coverage ratio for the financial conglomerate (%)[4,5]	189.3	180.3			100.0	100.0
DZ BANK banking group						
Common equity Tier 1 capital ratio (%)[6,7]	14.0	14.5	11.0	10.6	7.9	
Tier 1 capital ratio (%)[6,7]	15.3	16.0	12.5	12.1	9.4	
Total capital ratio (%)[6,7]	17.4	18.6	14.5	14.1	11.4	
Leverage ratio (%)[6]	4.6	4.4	3.5	3.5		

1 As specified by the Board of Managing Directors.
2 Economic liquidity adequacy is expressed through the minimum liquidity surplus KPI. The figure used relates to the stress scenario with the lowest minimum liquidity surplus. The internal minimum target relates to the observation threshold.
3 The internal minimum target is the amber threshold in the traffic light system for managing and monitoring economic capital adequacy.
4 Figure measured as at December 31, 2017: Preliminary coverage ratio. Figure measured as at December 31, 2016: Final coverage ratio.
5 It is planned to set an internal minimum target in 2018.
6 Measured values and internal minimum targets in accordance with the CRR transitional guidance.
7 The external minimum targets are the binding regulatory minimum capital requirements. There are no comparative prior-year figures for the method that the ECB has applied since 2017 for determining the minimum capital requirements. Details on the minimum capital requirements can be found in section 7.3.3.

Not available (grey cells)

The risk management system is based on **risk strategies** that are consistent with the business strategies and have been approved by the Board of Managing Directors. In particular, risk policy guidelines on risk appetite have been drawn up in the form of the **risk appetite statement**, which forms an integral part of the risk strategies.

Efficient 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 organizational arrangements, methods, and IT systems in place that enable them to identify material opportunities and risks at an early stage and initiate appropriate control measures, both at group level and at the level of the individual management units. This applies in particular to the **early detection and management of risks that could affect the group's survival as a going concern**.

The tools used for the purposes of risk management also 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. A risk limit system based on risk-bearing capacity, stress testing encompassing all material risk types, and a flexible internal reporting system ensure that management is in a position to initiate targeted corrective action if required.

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 is based on a qualitative approach and is tightly integrated into 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 **minimum liquidity surplus**, which reflects economic liquidity adequacy, and **economic capital adequacy** are the key figures in the DZ BANK Group. Disclosures on the method used to calculate these key figures can be found in sections 6.2.4 and 7.2.2. Disclosures on the relationship between these figures and the balance sheet can be found in sections 6.2.6 and 7.2.2. The changes made on January 1, 2017 to how economic capital adequacy is determined are presented in section 2.2.5 of this opportunity and risk report.

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 use of these figures in the opportunity and risk report complies 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. Each management unit forms a separate operating segment, and they are assigned to the sectors as follows:

Bank sector:
- DZ BANK
- BSH
- DG HYP
- DVB
- DZ PRIVATBANK
- TeamBank
- UMH
- VR LEASING
- WL BANK

Insurance sector:
- R+V

DG HYP and **WL BANK** apply the **waiver** pursuant to section 2a (1), (2), and (5) KWG in conjunction with article 6 (1) and (5) and article 7 CRR. This means that DG HYP and WL BANK as individual institutions are no longer required to apply the provisions of Parts 2 to 5 and Parts 7 and 8 CRR and are instead covered at DZ BANK banking group level.

The management units represent the operating segments of the DZ BANK Group. They 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 ensure that their respective subsidiaries and investees are also included in the DZ BANK Group's risk management system – indirectly via the majority-owned entities – and meet the minimum standards applicable throughout the group.

2.2.4 Effects of the merger between DZ BANK and the former WGZ BANK

Following the completion of the legal aspects of the merger between DZ BANK and the former WGZ BANK in 2016, the **migration of business data** from the IT systems operated by the former WGZ BANK to the IT systems at DZ BANK, which had been started in 2016, and the **merging of risk exposures** were then also completed in the year under review.

2.2.5 Material changes

The DZ BANK Group holds a capital buffer ('**capital buffer requirement**') in readiness to allow for a possible lack of precision in the measurement of the risks backed by capital. Up to 2016, the capital buffer was deducted from the available internal capital without further differentiation. Since January 1, 2017, a distinction has been made between decentralized and centralized capital buffer requirements in the management of economic capital adequacy. Decentralized capital buffer requirements are managed within the upper loss limits for the individual risk types, whereas the centralized capital buffer is managed on

the basis of an upper loss limit covering all sectors and risk types.

Freely available internal capital remains unchanged by this adjustment. As of the year under review, this figure has been calculated as the difference between available internal capital and the risk capital requirement including the capital buffer requirement (aggregate risk). Up to the end of the prior year, freely available internal capital was calculated as the difference between available internal capital (after deduction of the capital buffer requirement) and the risk capital requirement. Consequently, economic capital adequacy, which was previously calculated as the ratio of available internal capital (after deduction of the capital buffer) to the risk capital requirement, is now calculated as the ratio of available internal capital to aggregate risk. This change in methodology would have led to a minor decrease in economic capital adequacy compared with 2016 even if both available internal capital and the risk capital requirement had remained unchanged year on year.

Owing to the changed definition of the capital buffer, the disclosures on the risk capital requirement and the upper loss limits as at December 31, 2017 are not directly comparable with the corresponding disclosures as at December 31, 2016.

At present, the **merger of DG HYP and WL BANK** planned for 2018 is not expected to result in material changes to the opportunity and risk management system or to the DZ BANK Group's key risk indicators.

2.3 Risk factors, risks, and opportunities

2.3.1 Risk factors

The DZ BANK Group and DZ BANK are exposed to **risk factors related to both the market and sector**. These risk factors may be reflected in liquidity adequacy and capital adequacy.

The **regulatory framework** for the banking industry remains characterized by ever tighter regulatory capital and liquidity standards and increasingly stringent process and reporting requirements. These developments particularly have an impact on business risk.

The **macroeconomic risk factors** that are significant to the DZ BANK Group and DZ BANK are the European sovereign debt crisis, the persistently tough market conditions for the shipping and offshore finance business, and the low interest rates. Potentially, the macroeconomic risk factors could particularly have a negative impact on credit risk, equity investment risk, market risk, business risk, and reputational risk in the Bank sector and on market risk and counterparty default risk in the Insurance sector. The protracted period of low interest rates will reduce profits. These risk factors are described and analyzed in detail in section 5.1.

Moreover, the DZ BANK Group and DZ BANK are exposed to **business-specific risk factors of an overarching nature** that affect a number of risk types. These factors may include potential shortcomings in the risk management system, the possible downgrading of the credit rating for DZ BANK or its subsidiaries, or ineffective hedges. These risks are generally taken into account in risk management. Section 5.2 contains a detailed description and analysis of these risk factors.

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 19, in each case under the header 'Specific risk factors'.

2.3.2 Risks and opportunities

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. 6 and Fig. 7.

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 more material entities in the group (indicated in Fig. 6 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. 6 by a dot on a light gray background).

The subcategories shown under credit risk and market risk in Fig. 6 are those with material significance for the Bank sector. The risk management system also includes other subcategories of credit risk and

market risk but these additional subcategories are not described in this opportunity and risk report because they are of minor significance in the overall risk management picture, although they are included in the figures disclosed in the report.

The **solvency** of the DZ BANK Group was never in jeopardy at any point during the reporting period. By holding ample liquidity reserves, the group ensures that it is able to protect its liquidity against any potential crisis-related threats. It also complied with regulatory requirements for liquidity adequacy at all times. The DZ BANK Group remained within its economic **risk-bearing capacity** in 2017 and also complied with regulatory requirements for capital adequacy at all times. There are no indications that the **continued existence** of the DZ BANK Group or individual management units, including DZ BANK, as going concerns might be at risk.

The **opportunities** presented by the forecast developments are reasonable in relation to the risks that will be incurred.

3 Fundamental principles of managing opportunities and risks

3.1 Regulatory framework for risk management

The **conglomerate-wide risk management system** complies with the statutory requirements specified in section 25 (1) 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) and the pronouncements of the BCBS and the 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) 2016/1075 and the Minimum Requirements for the Design of Recovery Plans (MaSan). A fully 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 authority responsible for the preparation of resolution plans and for all decisions in connection with the resolution of all institutions 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 2017 in Germany, this was the Bundesanstalt für Finanzmarktstabilisierung (FMSA) [Federal Agency for Financial Market Stabilization]). The **resolution plan** is aimed at ensuring the resolvability of the banking group. In accordance with section 42 (1) SAG, the resolution authority (FMSA) 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 again dedicated a great deal of time and effort in 2017 to helping with the ongoing preparation of the resolution plan for the DZ BANK Group. It supplied the resolution authority with numerous analyses and a range of written materials as well as providing details using standardized document templates.

3.2 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.

FIG. 6 – RISKS AND OPERATING SEGMENTS IN THE BANK SECTOR[1]

Risks

	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).	– Funding structure for lending business – Uncertainty surrounding tied-up liquidity – Changes in the volume of deposits and loans – Funding potential in money markets and capital markets – Fluctuations in fair value, marketability of securities, and the eligibility of such securities for use in collateralized funding arrangements – Exercise of liquidity option – An obligation on the DZ BANK Group to pledge its own collateral
	RISK COVERED BY CAPITAL		
Financial-sector 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 lending volume as a result of new business and increase in the fair value of existing business – Increase in the concentration of volume by counterparty, industry, country, or maturity – Deterioration in the lending portfolio's credit rating structure
Financial-sector 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-sector risks	**Market risk** – Interest-rate risk – Spread risk and migration risk – Equity risk – Fund price risk – Currency risk – Asset management risk – Market liquidity risk	– Risk of losses on financial instruments or other assets arising from changes in market prices or in the parameters that influence prices (market risk in the narrow sense of the term). – Risk of losses arising from adverse changes in market liquidity (market liquidity risk)	– Widening of credit spreads on European government bonds – Shortages of market liquidity
Business-performance risk	**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)
Business-performance risk	**Business risk**	Risk of losses arising from earnings volatility which, for a given business strategy, is caused by changes in external conditions or parameters.	– Costs of regulation – Competition based on pricing and terms – Greater competition in capital markets business – Digitalization and new competitors in transaction banking
Business-performance risk	**Reputational risk**[3]	Risk of losses from events that damage confidence, mainly among customers (including the local 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 – Support of stakeholders such as shareholders and employees
Business-performance risk	**Operational risk**	Risk of losses from human behavior, technological failure, weaknesses in process or project management, or external events.	HR risk: – Strikes and other business interruption – Insufficient availability of employees IT risk: – Malfunctions or breakdowns in data processing systems Outsourcing risk: – Disruptions to outsourced processes and services Risks in connection with the (consolidated) financial reporting process: – Inaccurate external financial reporting Legal risk: – Changes in the legal framework – Changes in the official interpretation of relevant regulations – Government intervention – Court or arbitration proceedings – Changes in the business environment Tax risk: – Changes in the tax framework – Changes in the interpretation by tax authorities of the existing tax framework – Changes in the business environment Compliance risk: – Failure to recognize violations of legal provisions

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 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**	**DG HYP**	**DVB**	**DZ PRIVATBANK**	**TeamBank**	**UMH**	**VR LEASING**	**WL BANK**
– 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 – Allowances for losses on loans and advances – Risk capital requirement	Sections 8.6, 8.7, and 8.8 Section 8.9 Section 8.10	•	•	•	•	•	•		•	•
– Investment volume – Risk capital requirement	Section 9.5	•	•	•	•		•	•	•	•
– Risk capital requirement – Value-at-risk	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 14.6 Section 14.7	•	•	•	•	•	•	•	•	•

Consideration of quantitative and qualitative disclosures

management units in quantitative disclosures

opportunity and risk report: not relevant

FIG. 7 – 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				
Core financial sector 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: In the case of products with long-term guarantees, the long duration of the contracts means that what happens over the term of the contracts may vary from the calculation assumptions made at the time the contracts were signed. – Health actuarial risk: The level of claims resulting from policyholders' and service providers' behavior may cause a larger rise in claims expenses than the one in the calculation assumptions. – Non-life actuarial risk: The actual impact of losses, particularly from catastrophe risk, may exceed the forecast impact.	– Claims rate trend in non-life insurance – Overall solvency requirement	Section 16.6 Section 16.7
Core financial sector risks	**Market risk** – Interest-rate risk – Spread risk – Equity risk – Currency risk – Real-estate 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.	– An increase in interest rates or widening of credit spreads on government bonds or other bonds could lead to a fall in fair values, resulting in a temporary or permanent adverse impact on operating profit. – A possible worsening of the financial circumstances of issuers and/or debtors could result in partial or complete default on receivables or write-downs as a result of rating downgrades.	– Lending volume – Overall solvency requirement	Sections 17.4 and 17.5 Section 17.6
Core financial sector 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.	Unexpected default or deterioration in the credit standing of mortgage loan borrowers, counterparties of derivatives, reinsurance counterparties or policyholders, or insurance brokers.	– Lending volume – Overall solvency requirement	Sections 17.4 and 17.5 Section 18.4
Business-performance risk	**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 IT risk: – Malfunctions or breakdowns in data processing systems – Business interruptions Legal risk: – Changes in the legal framework – Changes in the official interpretation of relevant regulations – Government intervention – Court or arbitration proceedings – Changes in the business environment Tax risk: – Changes in the tax framework – Changes in the interpretation by tax authorities of the existing tax framework – Changes in the business environment	Overall solvency requirement	Section 19.4
	RISK COVERED BY CAPITAL PURSUANT TO SOLVENCY I				
	Risks of 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 20

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 the management units have an adequate understanding of, and expertise in, measuring and managing the risk. At the same time, the entities in the DZ BANK Group consider all material risks from the perspectives of capital/income and liquidity and avoid assuming risk in an aggressive manner.

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 planning horizon is one 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 Special, and Group Strategy and Controlling divisions in close 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.

3.3 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 banking supervisors 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 minimum targets are set internally. These key figures constitute the DZ BANK Group's risk-oriented key performance indicators. The values for the KPIs and the internal minimum targets are shown in Fig. 5.

Disclosures relating to the business model and business strategies can be found in the (group) management report in section I.1 (Business model) and section I.2 (Strategic focus of the DZ BANK Group as a network-oriented central institution and financial services group).

3.4 Opportunity and risk-oriented corporate governance

3.4.1 Governance structure

The DZ BANK Group's **risk management system** builds on the risk strategies adopted by the Board of Managing Directors of DZ BANK. It is based on three pillars that are interlinked and well established in the monitoring and control environment. The DZ BANK Group and DZ BANK thereby have a governance structure complying with MaRisk requirements that sets out the operational framework for risk management. Fig. 8 shows the governance structure for risk management.

The **three pillars model** clarifies the understanding of risk management within the DZ BANK Group and defines clearly formulated and distinct roles and responsibilities.

The interaction between the three functional areas, or 'pillars', provides the basis for effective groupwide risk management. The tasks of the individual pillars are as follows:

- **Pillar 1**: Day-to-day assumption and management of risk
- **Pillar 2**: Establishment and enhancement of a framework for risk management; monitoring of compliance with the framework by pillar 1 and reporting on this to the Supervisory Board and Board of Managing Directors
- **Pillar 3**: Process-independent examination and assessment of risk management and control processes in pillars 1 and 2; reporting to the Board of Managing Directors, Supervisory Board, and Audit Committee; communication with external control functions.

The Supervisory Board monitors corporate management and evaluates the adequacy of the risk management system and internal control system on an ongoing basis.

Independent auditors and the banking and insurance supervisory authorities form the **external control environment**, whereby the supervisory authorities may specify the focus of the audit to the auditors and 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 explained in section I.3.2.3 (Corporate management committees), which can be found in the 'DZ BANK Group fundamentals' chapter of the (group) management report.

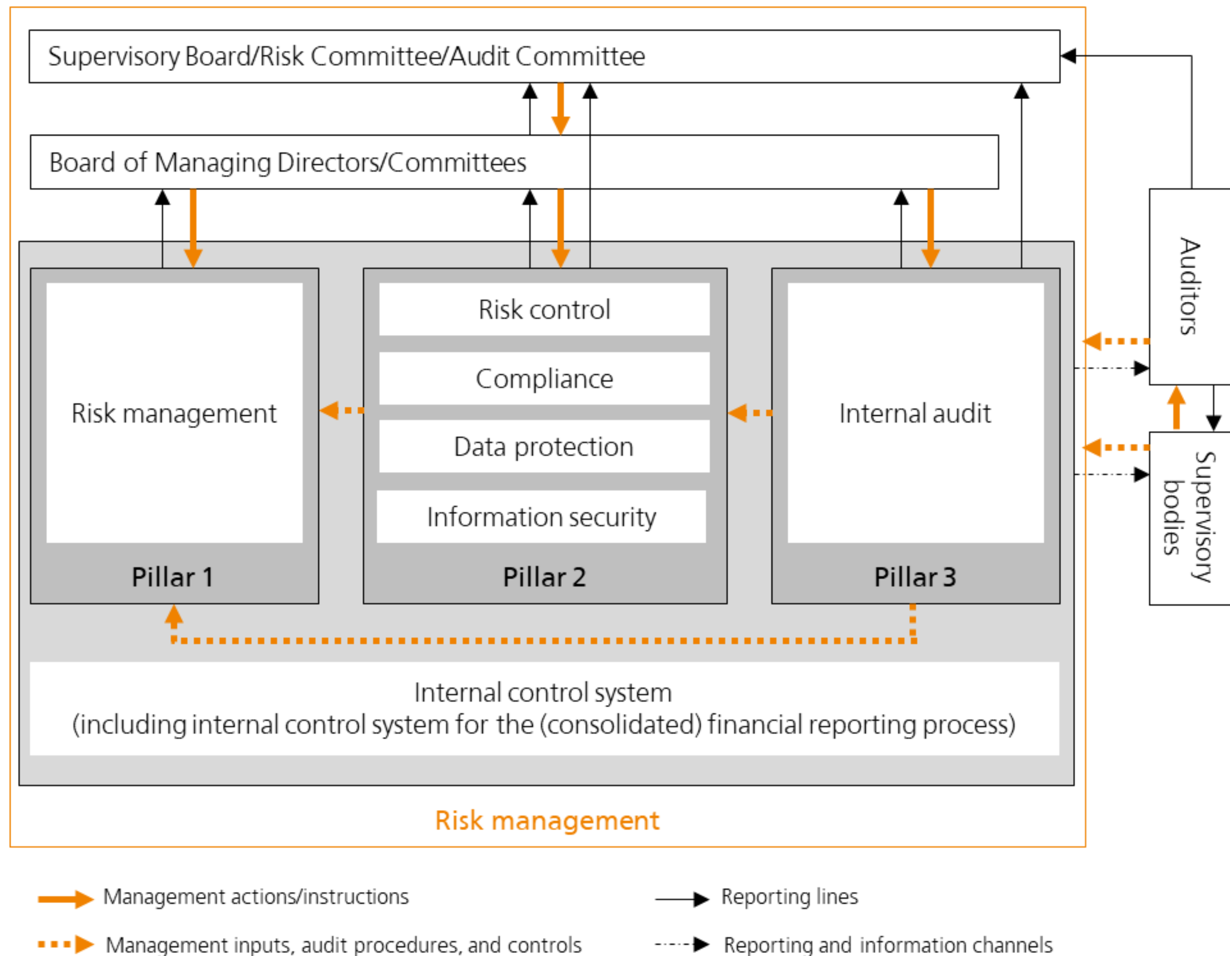
The **business opportunities** are discussed during the course of the strategic planning process at the level of the individual management units and within special closed sessions held by the Board of Managing Directors.

3.4.2 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 (SCHEMATIC DIAGRAM)



The divisions responsible for risk management are separated both in terms of organization and function from downstream divisions.

3.4.3 Risk control

Central Risk Controlling at DZ BANK is responsible for identifying, measuring, and assessing risk in the DZ BANK Group. This is accompanied by the planning of upper loss limits. It 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. In addition to this, the management units are responsible for their own risk reporting.

3.4.4 Compliance, data protection, and information security

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), there is a single compliance framework for the main entities in the DZ BANK Group that lays down rules on cooperation between the individual compliance functions and sets 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.

Data protection

The entities in the DZ BANK Group have introduced suitable precautions to ensure 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.

During the course of 2017, the entities in the DZ BANK Group identified the areas for action arising in connection with the introduction of the EU GDPR on May 25, 2018 and initiated appropriate implementation activities.

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.

3.4.5 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 and all subsidiaries involved follow the special requirements for the structure of the internal audit function specified in MaRisk.

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 provides the Supervisory Board of DZ BANK with regular and timely reports 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. Furthermore, the Board of Managing Directors provides the Supervisory Board with regular reports about significant loan and investment exposures and the associated risks. The Supervisory Board discusses these issues with the Board of Managing Directors, advises it, and monitors its management activities. The Supervisory Board is always involved in decisions of fundamental importance.

The Supervisory Board has set up a Risk Committee that pays close attention to risk-related corporate management. The chairman of the Risk Committee provides the full Supervisory Board with regular and timely reports on the material findings of the committee's work. The Risk Committee held 5 meetings in the year under review.

Each quarter, the Board of Managing Directors provides the members of the Risk Committee and the other members of the Supervisory Board with an overall risk report in writing, containing information on the risk situation in the DZ BANK Group. The Risk Committee is also informed about the credit risk report, the report on the economic stress tests, and the report on current indicator levels in accordance with MaSan on a quarterly basis. The chairman of the Risk Committee informs the full Supervisory Board about these matters no later than at its next meeting. The minutes of Risk Committee meetings are sent to all members of the Supervisory Board on a regular basis.

External control functions

During the audit of the annual financial statements, independent **auditors** carry out an assessment pursuant to section 29 (1) sentence 2 no. 2a KWG in conjunction with section 25a (1) sentence 3 KWG to establish whether the risk management processes, including the internal control functions, of the entities in the Bank sector are appropriate and effective. For the Insurance sector, verification of the Solvency II balance sheet is carried out pursuant to section 35 (2) VAG and an assessment of the suitability of the early-warning system for risk, including the internal monitoring system of R+V, is carried out during the audit of the annual financial statements pursuant to section 35 (3) VAG in conjunction with section 317 (4) HGB and section 91 (2) AktG.

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

3.4.6 General internal control system

DZ BANK uses the groupwide internal control system to implement the relevant regulatory requirements specified in MaRisk. The objective of the internal control systems is to ensure the effectiveness and efficiency of the risk management activities within the DZ BANK Group and at DZ BANK by means of suitable 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.

3.4.7 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 an internal control system for the (consolidated) financial reporting process as an integral component of the control system 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 regularly 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 (using suitable IT systems) permit 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, with the organizational units of the DZ BANK Group taking responsibility for preparing and checking the quantitative and qualitative information required for the consolidated financial statements. 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 in 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 suitable IT systems. Comprehensive 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 a number of automated and manual checks.

Suitable 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. The business continuity plans are fine-tuned and continuously checked using appropriate tests.

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. IT-supported controls are used, the purpose of which is 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 IT-supported (consolidated) accounting systems is subject to the security controls implemented on the basis of the general IT security principles at DZ BANK and the other entities in 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 audit work carried out at DZ BANK and the other entities in the DZ BANK Group.

Ensuring and improving effectiveness

The processes used are regularly reviewed to ensure they remain appropriate and fit for purpose; they are adapted in line with new products, situations, 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 at an early stage 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.

3.5 Risk management tools

3.5.1 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.

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

		BANK SECTOR											INSURANCE SECTOR								
		Credit risk				Market risk							Actuarial risk			Market risk					
										Portfolio assignment[2]											
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	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 exposures in the consolidated financial statements, the details for liquidity risk are not provided here for reasons of clarity.
2 Disclosures for the banking business.

A further breakdown of the line items in the consolidated financial statements used to determine **credit risk** is given in section 8.6.1.

The investments used for the purposes of measuring **equity investment risk** are the following items reported in note 55 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, 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 62 and 63 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 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 7.2.2.

3.5.2 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**. It thus reflects the regulatory requirements defined by the SREP regarding 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 in the **Insurance sector** is not material at DZ BANK Group level. Firstly, this is because liquidity is typically tied up in liabilities and assets over the long term in insurance business. Secondly, R+V is only exposed to a low level of liquidity risk because of its wide range of products and customers and the high quality and liquidity of its investments. Consequently, R+V is not taken into account in the liquidity risk management of the DZ BANK Group.

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 one 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 99.50 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 to provide a holistic view across all types of risk. The analysis of intra-risk concentrations is described for each type of risk in the sections below.

Risk covered by capital in the Bank sector

Expected and unexpected losses are calculated during credit-portfolio analysis for transactions containing credit risk that are conducted by entities in the Bank sector. The capital requirement for **credit risk** is determined as the unexpected loss equivalent to the difference between the value-at-risk and the expected loss. This calculation is based on one-year default probabilities derived from historical loss data, taking into account additional transaction-specific features and reflecting the current rating of the borrower. The rating reflects an assessment of the borrower's future economic strength. Other factors taken into account in the calculation of exposures subject to default risk include measurable collateral, netting agreements, and expected recovery rates based on past experience.

In order to highlight concentrations of credit risk, the exposure at portfolio level is categorized by, among other things, 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.

Equity investment risk is determined using Monte Carlo simulation, in which portfolio concentrations in industries and individual exposures are examined by simulating industry-wide and investment-specific risk factors.

The capital requirement for **market risk** is calculated as the value-at-risk over a one-year time horizon based on simulations. The results of stress tests are included in this calculation. In addition to calculating economic capital, and for purposes of operational management, a value-at-risk for a holding period of one trading day and a unilateral confidence level of 99.00 percent is calculated for market risk with the internal model.

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. Stress tests are carried out for market liquidity risk.

A special collective simulation, which includes the 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**. Concentrations of this risk are most likely to arise from new business risks.

Business risk is determined 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. For the Bank sector, **strategic risk** is classified as non-material and examined in the context of business risk.

Reputational risk in the Bank sector is taken into account within business risk and is therefore implicitly included in the measurement of risk and assessment of capital adequacy.

The economic capital requirement for **operational risk** is determined using a portfolio model. Analyses of internal losses, risk indicators, or risk self-assessments facilitate identification of risk concentrations. 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.

From the perspective of economic capital adequacy, **funding risk** is not material.

Risks in the Insurance sector

To determine **actuarial risk**, negative scenarios are examined that have been taken from Solvency II and, in some cases, supplemented by the group's own parameterization or internal risk assessment.

Modeling and risk quantification, including on the basis of historical claims data, is carried out for parts of the premium and reserve risk and non-life catastrophe risk. These are based on the group's own portfolio and, in the case of natural catastrophes, on data from third-party providers.

The analysis, monitoring, and management of concentrations of actuarial risk are carried out as an integral part of the risk management process. Potential risk concentrations arise when different types of risk are combined with the concentration dimension in question (e.g. individual exposure, sector, country group). The same risk concentrations are analyzed at DZ BANK level.

When measuring **market risk**, shock scenarios are examined that have been taken from Solvency II and, in some cases, supplemented by the group's own parameterization.

The capital requirements for **counterparty default risk** are determined on the basis of the relevant exposure and the expected losses per counterparty.

The risk capital requirement for **operational risk** in the Insurance sector is calculated as a factor of the volume measures of premiums and provisions and, in the case of unit-linked business, as a factor of costs. In addition, operational risk is identified and quantified using a scenario-based risk self-assessment. The outcome of the factor approach is validated against the risk self-assessment using DZ BANK's portfolio model. R+V uses suitable quality standards and communications strategies to limit its reputational risk.

The risk capital requirement for **non-controlling interests in insurance companies** is included on a pro-rata basis in accordance with Solvency II. Risk for **entities in other financial sectors** is quantified in accordance with the requirements currently specified by the insurance regulator. This means applying the capital requirements in Solvency I, which are essentially calculated as a factor of the volume measures of benefit reserves and capital at risk.

Strategic risk is classified as non-material for the Insurance sector. R+V analyzes and forecasts national and global developments with an influence on business-related parameters on an ongoing basis. The findings are evaluated, for example in terms of customer needs, and are incorporated into the development of new insurance products.

3.5.3 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.

3.5.4 Limitation principles

The DZ BANK Group has implemented a system of limits to ensure that risk-bearing capacity is maintained. The limits used may be risk limits or volume limits, depending on the type of transaction 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 (upper loss limits) and monitored using a traffic-light system. The limit system is used to monitor whether economic liquidity adequacy is assured both at DZ BANK Group level and at the level of the management units.

3.5.5 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 items and the derivatives used for the hedge, the mismatches are either eliminated or reduced by designating the hedging transaction as a hedge in accordance with the hedge accounting requirements of IAS 39, or the fair value option is exercised. Hedge accounting in the DZ BANK Group includes hedging interest-rate risk and currency risk and therefore affects market risk in both the Bank and Insurance sectors. Hedging information is disclosed in note 82 of the notes to the consolidated financial statements.

DZ BANK has exercised the option provided for in section 254 HGB and has generally not recognized hedges on the balance sheet, although economic hedges do exist. However, one hedge is reported in note 39 of the notes to DZ BANK's separate financial statements.

3.5.6 Risk reporting and risk manual

The quarterly **overall risk report** includes the risks throughout the group identified by DZ BANK. Together with the **stress test report**, which is also compiled on a quarterly basis, and the **report on recovery indicators**, which is prepared on a monthly and quarterly basis, the overall risk report is the main channel by which risks incurred by the DZ BANK Group and the management units are communicated to the Supervisory Board, the Board of Managing Directors, and the Group Risk and Finance Committee. In addition, the Board of Managing Directors receives portfolio and exposure-related management information in the quarterly **credit risk report**. The Board of Managing Directors also receives monthly information on **liquidity risk** in the DZ BANK Group and in the management units.

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, the purpose of these systems is to ensure that decision-makers and supervisory bodies at all times receive transparent information 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's risk manual was replaced by the Solvency II guidance with effect from January 1, 2016.

3.5.7 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. The risk inventory check revealed that the main risks in 2017 were the same as in 2016. Likewise, there was no change in significant risk concentrations compared with the prior year.

DZ BANK also conducts an annual **appropriateness test** 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. Suitable measures are being defined and carried out in order to make these improvements.

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.3.4 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 further enhancing the satisfaction levels of customers of the local cooperative banks. To this end, the DZ BANK Group, in its role as financial services provider, supplies decentralized products, platforms, and services.

The strategic focus of the DZ BANK Group, guided by the 'Verbund First' principle, is a significant contributing factor in helping the **cooperative banks to strengthen their market position**. The local cooperative banks therefore not only receive substantial financial support in the form of fees, commissions, and profit distributions, they also enjoy the transfer of cost benefits and the availability of competitive products and services.

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 and they enable further economies of scale to be created for the entire cooperative financial network.

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 2018. 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

Digitalization refers to developments that tap into the prevalence of mobile devices and internet-based services and that are supported by the consumerization of technologies, i.e. the availability of high-tech end devices to consumers. These developments are encouraging the intermediation of **new competitors** at the interface between customers and banking services.

As a consequence of advancing digitalization across all areas of life, opportunities are opening up in relation to day-to-day banking business, especially payments processing. This trend is also being reinforced by changes in customer behavior. 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 electronic payments processing. This may also lead to a reduction in the costs incurred by

banks in relation to the supply and disposal of coins and notes.

The entities in the DZ BANK Group responded to these developments a while ago by increasing the innovative services that they offer. These included trialing the use of biometric processes by the payments processing provider equensWorldline SE, Utrecht, collaborating with iZettle on the development of a mobile point of sale, and implementing paydirekt (a cross-bank e-commerce payment process), as well as the first transatlantic payment on a blockchain platform between ReiseBank and ATB Financial, Calgary.

This portfolio of measures is helping the DZ BANK Group to drive the substitution of cash payments with mobile and other electronic payment processes so that it can participate in the move toward electronic payment transactions and seize opportunities for increasing its earnings. Furthermore, the Transaction Banking business line is working with universities and technology companies to test technologies and developments that may be of interest in the future – such as blockchains in payments processing and the securities business – and assess whether they are viable for use.

To underpin these measures, cross-sectoral innovation management, including an Innovation Roundtable, has been introduced in order to coordinate the group's innovation activities, monitor market trends, and launch targeted innovation projects.

4.2.3 Credit ratings

DZ BANK is awarded credit ratings by the three largest rating agencies, Standard & Poor's, Moody's, and Fitch. 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 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.

The ratings are critical in determining the funding opportunities available on money and capital markets. They open up additional business options and potential opportunities for the entities in the DZ BANK Group.

During the year under review, the rating agencies reviewed the credit ratings issued for DZ BANK. Both Fitch and Moody's left their ratings unchanged. At the beginning of 2017, Standard & Poor's divided the credit rating for unsecured, non-subordinated bonds into a rating for unsecured, senior bonds and a rating for unsecured, subordinated bonds in this category in view of Directive 2014/59/EU (Bank Recovery and Resolution Directive, BRRD) and its adoption into German law with effect from January 1, 2017. The credit rating for unsecured, subordinated bonds in this category was lowered by one notch. This change did not have any marked impact on the DZ BANK Group's funding.

In the year under review, Moody's included the covered bonds (DZ BANK BRIEFE) in their ratings. The high quality of DZ BANK BRIEFE was affirmed with a rating of Aaa. Standard & Poor's gives DZ BANK BRIEFE a rating of AA+.

Fig. 10 provides an overview of DZ BANK's credit ratings. The issuer ratings have been added to the table for 2017; these ratings were not included in the 2016 opportunity and risk report.

As at December 31, 2017, the long-term credit rating for the cooperative financial network issued by Fitch and Standard & Poor's remained unchanged at AA-.

5 General risk factors

5.1 Market and sector 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 market and sector risk factors have an impact on liquidity adequacy and capital adequacy. For the most part, the factors can be classified under business risk but are addressed separately here because of their key importance.

5.1.1 Commercial-law environment

The financial position and financial performance of the DZ BANK Group and DZ BANK are presented in accordance with IFRS. Changes to IFRSs and the associated interpretations may lead to a discrepancy between the results and financial position that are reported in the future and the current forecasts, or changes to (consolidated) financial reporting standards that are introduced retrospectively may lead to

FIG. 10 – DZ BANK RATINGS

	Standard & Poor's		Moody's		Fitch	
	Dec. 31, 2017	Dec. 31, 2016	Dec. 31, 2017	Dec. 31, 2016	Dec. 31, 2017	Dec. 31, 2016
Issuer rating	AA-	AA-	Aa3	Aa3	AA-	AA-
Covered bonds (DZ BANK BRIEFE)	AA+	AA+	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-	–	Aa1	Aa1	AA-	–
Long-term rating for unsecured, 'non-preferred' bonds	A+	AA-	Aa3	Aa3	AA-	AA-
Short-term rating	A-1+	A-1+	P-1	P-1	F1+	F1+

differences between results shown for prior-year periods and the results that were previously published. Such changes may also have an impact on regulatory capital and the financial key performance indicators.

The entities in the DZ BANK Group observe potential changes to (consolidated) financial reporting and examine their possible effects.

The DZ BANK Group and DZ BANK face material risks from a changed (consolidated) accounting standard in connection with the adoption of **IFRS 9 Financial Instruments** into European law.

The provisions of IFRS 9 Financial Instruments will supersede the content of IAS 39 Financial Instruments: Recognition and Measurement. IFRS 9 includes requirements relating to the following areas, which have been fundamentally revised: classification and measurement of financial instruments, the impairment model for financial assets, and hedge accounting. The reformed model for allowances for losses on loans and advances and new rules on the categorization of financial instruments, in particular, will result in a need to modify business processes and IT systems. DZ BANK has set up projects to implement IFRS 9.

5.1.2 Regulatory environment

Basel IV

In December 2017, the BCBS published its finalization document containing a comprehensive range of new provisions covering certain aspects of the calculation of risk for regulatory purposes. An initial draft of a revised CRR (referred to as CRR II) at European level is already available. The new rules currently planned, most of which do not have to be applied until 2 years after the effective date, are expected to increase the capital requirements for the DZ BANK banking group and DZ BANK.

Leverage ratio

The leverage ratio shows the ratio of a bank's Tier 1 capital to its total exposure. In contrast to risk-based 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.

A mandatory minimum value for the leverage ratio has not been specified at European level for now. However, the current drafts for CRR II provide for the introduction of a minimum ratio of 3 percent from January 1, 2019. There are also plans to include graduated markups on the minimum ratio for global and other systemically important institutions. In addition, the draft states that the adjustment of the calculation method for the total exposure is planned for a later date.

If the mandatory minimum leverage ratio turns out to be higher than currently expected, this could lead to an additional capital requirement for the DZ BANK banking group and/or DZ BANK based on the current volume of business. A negative impact on the business model and competitive position cannot be ruled out either.

Minimum Requirement for Own Funds and Eligible Liabilities

The BRRD, the Single Resolution Mechanism, and the SAG have created the legal basis at European and national level for the new 'minimum requirement for

own funds and eligible liabilities' (MREL) regulatory ratio.

The MREL is intended to ensure that banks hold a sufficiently large volume of capital 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 taking an equity interest if a bank gets into financial difficulties, enabling resolution to take place without recourse to government help and without jeopardizing the stability of the financial system.

The MREL ratio is the ratio of own funds and bail-in-able liabilities to the bank's total liabilities and own funds.

Since 2016, the SRB has been requesting data with the aim of setting institution-specific minimum MREL ratios and obtaining an indication of the individual institutions' MREL liabilities and bail-in-able liabilities. Such a ratio has not yet been set for the DZ BANK banking group or DZ BANK.

Supervisory Review and Evaluation Process

On December 19, 2014, the EBA published its Guidelines on Common Procedures and Methodologies for the Supervisory Review and Evaluation Process. The provisions contained in this document came into force on January 1, 2016. One of the aims being pursued by the EBA with SREP is the EU-wide harmonization of the supervisory review and evaluation process enshrined in Pillar 2 of Basel III. Harmonization is intended to create the same competitive conditions in the jurisdictions involved. At the end of each financial year, the supervisory authorities can use the results of the SREP to set individual capital and liquidity requirements for the subsequent year that go beyond the existing requirements.

In 2017, the DZ BANK banking group underwent the complete supervisory review and evaluation process on the basis of the EBA's guidance. The minimum capital requirements resulting from the SREP in the previous year are described in section 7.3.3.

Standardized definition of borrower default

In 2017, the EBA published details on harmonizing the definition of 'default of an obligor' pursuant to article 178 CRR. Implementation is mandatory for all institutions that have received approval to use the Standardized Approach to credit risk and the internal ratings-based (IRB) approaches. This requires extensive changes to data management, credit rating models, credit procedures, and internal control processes. The aim is to harmonize the definition of default for the purposes of the Standardized Approach and the IRB approaches and thus to standardize the capital requirements for credit risk.

DZ BANK has analyzed the planned new requirements and their impact, and is currently preparing the notification of changes to key models required by the ECB by June 30, 2018. Changes to the default history and associated effects on the credit rating systems – including the possible need for recalibration – cannot be ruled out. This could lead to higher regulatory capital requirements and an increase in the credit value-at-risk.

Capital requirements for market risk

The BCBS published the finalized rules to fundamentally revise the capital requirements for market risk in the trading book on January 14, 2016. Significant new features include a revision of the boundary between the trading book and banking book, the introduction of a new Standardized Approach, a complete revision of the risk measurement approach for the internal market risk model, and more stringent criteria for the approval of internal market risk models, even down to the level of individual trading desks based on the regulator's definition. The new rules are also aimed at greater integration between the Standardized Approach and internal models-based approaches.

The new Standardized Approach must be applied by all banks in the DZ BANK banking group. As the requirements cover internal model banks, DZ BANK must also introduce the new Standardized Approach and is thus obliged to calculate the capital requirement for market risk in the trading book in parallel to 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.

Banks are likely to have to apply the new Basel capital requirements from 2022 once they have been implemented in national law. Application is expected to mean that the DZ BANK banking group and DZ BANK will be subject to an additional capital requirement. Moreover, the possibility of a negative impact on cost structures or implications for

organizational structures, the risk management system, the business model, or competitive position cannot be ruled out.

Risk data management

In January 2013, the BCBS published principles for effective risk data aggregation and risk reporting. The principles aim to increase aggregation capability for all risk data used for internal risk management and to improve the risk management and decision-making processes (including internal risk reporting) at banks. BaFin incorporated some of the BCBS regulations on risk data management into the national rules with the 5th amendment of MaRisk BA, which came into force on October 27, 2017.

Domestic systemically important banks must implement these requirements within 3 years of being classified as an other systemically important institution (O-SII). BaFin classified DZ BANK as an O-SII in the second quarter of 2016. As a consequence, the DZ BANK Group must implement the rules on risk data management at financial conglomerate level by the second quarter of 2019.

The implementation of the new requirements, but also the possibly inadequate implementation, could have a negative effect on the competitive position of the DZ BANK Group and/or DZ BANK, or lead to the need for additional capital.

Instant payments

The Euro Retail Payments Board, the ECB, and the European Commission have been pushing ahead with SEPA Instant Payments, a new system of payments processing, since late 2014. The scheme was launched on November 21, 2017. In the DZ BANK Group, instant payments particularly affect DZ BANK, which has initiated a project with the aim of enabling the bank to join the scheme by the end of 2018. Delayed or inadequate implementation of the requirements could lead to sanctions being imposed by the banking regulator and to reputational damage.

Other regulatory risk factors

In addition to the regulatory requirements described above, the reform of the deposit guarantee schemes could give rise to risks for the DZ BANK Group and DZ BANK.

The EBA is also making decisions regarding the interpretation of the CRR, as a result of which there could be new capital requirement rules for certain products. This could lead to a significant fall in the capital ratios for the DZ BANK banking group, depending on how the supervisory authorities apply the interpretation decisions.

5.1.3 Macroeconomic risk factors

European sovereign debt crisis

During the year under review, trends in international financial markets were shaped by the significant improvement in the global economy and, once again, by central banks' expansionary monetary policy. Since the European sovereign debt crisis, global economic growth and especially the situation in financial markets have improved again markedly. Nevertheless, the consequences of the financial and sovereign debt crisis are still evident and are affecting national monetary policy, in particular.

The economies of **Portugal**, **Italy**, **Greece**, 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 elections on March 4, 2018 did not produce any clear parliamentary majority, but populist Euroskeptic forces gained substantial political ground. The process of forming a government is likely to be extremely difficult and protracted, the outcome of which will probably be a weak coalition. In view of the political prospects, it is doubtful whether there will be any progress with reforms, and it is possible that even those structural reforms already carried out could be repealed. This could result in heightened financial volatility in the country, stalling the modest economic recovery currently under way. Italy could face an enduring loss of confidence in the international political arena and among investors. This would seriously prejudice the ability of the country to obtain funding in international capital markets.

Even after agreement on the third bailout from the European Stability Mechanism, which is due to run until August 2018, **Greece's** solvency is not assured and there is no guarantee that it will stay in the eurozone. 'Grexit' could lead to turbulence in the international financial markets, which would potentially have a negative impact on the countries of the eurozone.

The ECB's expansionary monetary policy and particularly its bond-buying program are currently largely preventing the structural problems in some EMU member countries from being appropriately reflected in the capital markets. However, there is a risk this could change in the event of a shift in monetary policy. In this case, highly indebted countries would find it considerably more difficult to arrange funding through capital markets.

Shipping finance and offshore finance

In the shipping finance business, an oversupply of tonnage continues to have a detrimental impact on asset values and customer credit quality. To add to the problems, the low price of oil is adversely affecting global offshore oil production, leading to significantly lower demand for supply ships and other floating offshore equipment. This trend is accompanied by a rising number of laid-up offshore vessels.

Environment of low interest rates

With interest rates at a historically low level, interest receivable on loans is low and the interest margin is relatively narrow, restricting the opportunities for earning income in **traditional banking business**. A risk scenario involving a very long period of low interest rates, possibly combined with a deflationary trend, would therefore also have a considerable negative impact on the performance of the DZ BANK Group and DZ BANK.

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. The risks from the low interest rates are mitigated with action such as optimizing the home savings portfolio and refining the home savings product.

The entire **insurance industry** is affected by the historically low interest rates in the capital markets. This environment of persistently low interest rates is adversely affecting personal insurance providers in the short and medium term because they have to recognize supplementary change-in-discount-rate reserves on their balance sheets. However, recognizing these additional reserves puts in place key, long-term prerequisites for limiting risk in life insurance and pension insurance business.

Given the long period of low interest rates, the challenge faced by the DZ BANK Group's extensive **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 UniProfiRente product and the guarantee fund product group. UniProfiRente is a retirement pension solution certified and subsidized by the German government (known in Germany as a Riester pension). 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 so that it can meet its guarantee commitments, this could have a substantial detrimental impact on the financial performance of the DZ BANK Group.

A rapid **rise in interest rates** on capital markets could also involve some risks. The pricing losses on fixed-income securities and necessary remeasurement of low-interest long-term lending business that could result from such an upturn could have an adverse impact on the earnings of the DZ BANK Group.

A long period of low interest rates also increases the risk of **incorrect valuations in financial and real estate markets**.

Latent risk factors

The possible negative impact of the **United Kingdom's exit from the EU** (known as Brexit) that is expected following the referendum on June 23, 2016 presents a risk to future economic growth, both at EU level and, in particular, for the United Kingdom. Reduced exports and a reluctance to invest on the part of companies as a result of increased uncertainty are also likely to subdue the German economy. After the referendum, the United Kingdom's credit rating from Standard & Poor's was downgraded from AAA to AA with a negative outlook. Moody's maintained the credit

rating at Aa1 but changed the outlook to negative. The credit ratings from the two rating agencies therefore still correspond to the internal VR rating class 1A used by the DZ BANK Group. DZ BANK is currently examining the implications of the UK's exit from the EU for the DZ BANK Group in a working group with the involvement of the subsidiaries concerned. Relevant contracts are being reviewed and amended, and other suitable action taken, to counter potential contractual uncertainty arising from Brexit.

In the year under review, the volume of non-performing loans in the **Italian banking sector** was substantially reduced from €360 billion to €260 billion. However, the economic outlook, which remains moderate at best, means that there is no definitive trend reversal in sight at present. Because of European bail-in rules, the Italian government is using the privately funded bailout funds Atlante and Atlante II (now renamed Italian Recovery Fund) to recapitalize Italian banks and help them recover. These funds have insufficient resources however, so other options have been used in individual cases to strengthen the capital base, including capital increases, the conversion of bank bonds into equity, and the disposal of assets. Some larger banks have managed to complete a recovery from their own resources, but parts of other smaller banks affected by the crisis have been taken over. To support the rescue of Banca Monte dei Paschi, the ECB authorized the Italian government to acquire 68 percent of the shares and sell high-risk loans with a total value of €17.6 billion to the Italian Recovery Fund.

In **Turkey**, domestic and international political risk factors have deteriorated since the unsuccessful military coup in July 2016. Internally, the country has been in crisis since the coup and legal certainty is severely limited. Internationally, Turkey is isolated in Europe. Even the relationship with the United States is increasingly strained. From a geopolitical perspective, Turkey finds itself in a volatile environment because of its proximity to Iraq and the civil war in Syria. On the other hand, its economic position is stable, although weaker compared with previous years. Economic growth is positive, but manifestly bolstered by the government's fiscal stimulus packages. Investor confidence is diminishing because of the adverse domestic and international political factors. Against this background and the significant current account deficit caused by structural deficiencies, the country is considerably more susceptible to external shocks than in previous years. Key external liquidity ratios have already deteriorated. Furthermore, the Turkish lira was hit by another sharp fall in its value against both the euro and the US dollar in 2017. Any worsening of domestic and international political tensions would probably have a very rapid negative impact on investor confidence and the country's options for obtaining funding on international capital markets.

In the **United States**, Donald Trump emerged as the victor in the presidential election in November 2016. At the same time, the Republicans gained a majority in Congress. This presents the new US president with significant scope to pursue his political agenda. Over the medium term, there is a risk that an increase in trade barriers could dampen the economic outlook, both in the US and around the world as a whole. Some of the faith in the US Federal Reserve (Fed) could also be lost, leading to a long-term slide in the value of the US dollar.

The elections in the **Spanish region of Catalonia** on December 21, 2017 were once again won by the separatists, the forces for independence from Spain having already obtained a parliamentary majority in the preceding elections held in September 2015. The period of political, and to some extent also economic, uncertainty is therefore continuing. As the creation of an independent Catalonia against the will of the central government in Spain is to all intents and purposes out of the question, discussions between the Catalan regional government and the central government in Madrid going forward are likely to center on the issue of greater autonomy for Catalonia. If the two sides are now forced into a constructive dialog, this will afford some chance of a solution, at least in the medium term. However, if the efforts in support of independence gain further momentum, this could have a negative impact on the Spanish economy overall.

Risk impact

Negative macroeconomic trends have an impact on various risks to which the DZ BANK Group and DZ BANK are exposed. In the **Bank sector**, this affects credit risk (deterioration in the credit quality of public-sector bonds, and in the case of shipping finance, asset values and customer creditworthiness, increase in the allowances for losses on loans and advances), equity investment risk (increased requirement for the recognition of impairment losses on the carrying amounts of investments), market risk (increase in credit spreads, reduced market liquidity), business risk (contraction in the demand for financial

services), and liquidity risk (a combination of the effects mentioned above).

In the **Insurance sector**, market risk is the type of risk most affected by macroeconomic trends. An increase in interest rates or a widening of credit spreads on government bonds or other market investments would lead to a drop in fair values. Fair value losses of this nature could have a temporary or permanent adverse impact on capital.

5.1.4 Climate risks

Risks arising from climate change could act as a trigger in the Bank sector, especially in respect of credit risk and operational risk. Operational risk could materialize, for example, if weather or environmental events cause buildings or IT systems to become unavailable. In the **Insurance sector**, actuarial risk (premium and reserve risk, non-life catastrophe risk) is the main type of risk that potentially could be significantly affected by climate risk. If climate risks are relevant on the basis of the business model, they are backed with capital within the risk types referred to above.

5.2 Overarching bank-related risk factors

The DZ BANK Group is exposed to the bank-specific risk factors described below. These factors have an impact on a number of risk types relevant to liquidity adequacy and capital adequacy and are taken into account in the management of risk.

5.2.1 Shortcomings in the risk management system

Regardless of the fundamental suitability of the risk measurement procedures used in the DZ BANK Group and at DZ BANK, it is conceivable that there may be circumstances in which risks cannot be identified in good time or in which a comprehensive, appropriate response to risks is not possible. Despite careful development of models and regular reviews, situations may arise in which actual losses or liquidity requirements are higher than those calculated in the risk models and stress scenarios.

For any given confidence level, the value-at-risk used for determining the risk capital requirement can be significantly influenced by extreme events for which the probability of occurrence is low. However, estimates for such rare events are generally subject to a great deal of uncertainty (referred to as model risk). Moreover, there are no comprehensive historical observations in most cases for extreme losses of this nature, which makes it more difficult to validate any models. Key input parameters for measurement models are also subject to uncertainty, because they are already estimates themselves.

The measurement of liquidity risk is subject to similar model risk related to the design of models and parameters and their validation. In addition, risks arising from scenarios that extend beyond the risk appetite for serious crises set by the Board of Managing Directors are accepted and therefore not taken into account for risk management purposes.

Despite continuously reviewing crisis scenarios, it is simply not possible to set down a definitive record of all economic conditions that could potentially have a negative impact. Therefore, an analysis of crisis scenarios in stress tests cannot guarantee that there will not be other crisis situations that could lead to greater losses or liquidity needs.

5.2.2 Rating downgrades

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 the costs of raising equity and of borrowing. As a result, new liabilities could arise, or liabilities dependent on the maintenance of a specific credit rating could become due for immediate payment.

DZ BANK's credit rating is an important element in any comparison with competitor banks. It also has a significant impact on the ratings for DZ BANK's main subsidiaries. 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.

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 the Credit Support Annex or Collateralization Annex to the German Master Agreement for Financial Futures) or in which it was no longer considered a suitable counterparty for derivative transactions at all. 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 subsidiary concerned, and therefore

also the funding costs for all the other management units in the group, could suffer an adverse impact.

5.2.3 Hedge ineffectiveness

The DZ BANK Group and DZ BANK are exposed to the risk that a counterparty in a hedge could become insolvent and therefore no longer be in a position to meet its obligations. Consequently, the hedge could prove to be ineffective and the DZ BANK Group or DZ BANK would then be exposed to risks that it believed it had hedged.

Unforeseen market trends could undermine the effectiveness of action taken to hedge market risk. One example is the risk in connection with the financial crisis and sovereign debt crisis. In this case, the DZ BANK Group or DZ BANK would only be able to minimize some of this risk with great difficulty; it may not be possible to hedge some of the risk at all. One of the particular factors to take into account is that some of the quantitative measurement methods and key risk indicators in the risk management system are based on estimates made by experts. Furthermore, the quantitative risk management system does not encompass all risks and makes assumptions about the market environment that are not based on specific events. It is conceivable there could be market scenarios in which the measurement methods and key risk indicators used do not forecast certain potential losses correctly, resulting in miscalculations.

In the management of market risk, use is made of credit derivatives, comprising credit-linked notes, credit default swaps, and total return swaps, in order to reduce the issuer risk attaching to bonds and derivatives. 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. If these instruments and measures turn out to be ineffective or only partially effective, it is possible that the DZ BANK Group and/or DZ BANK could incur losses against which the instruments or measures ought to have provided protection. Moreover, hedging activities give rise to costs and may result in additional risks. Gains and losses arising from ineffective risk hedges can increase the volatility of the earnings generated.

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 (KWG and Solvency Regulation, SolvV).

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 liquidity adequacy

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.

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. Liquidity risk thus has the character of insolvency risk.

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

6.2.2 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 establishes 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 temporary interruption in 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 (for example, corporate customers, institutional customers, and customer banks). The broad diversification is achieved with active market and customer support, intensively maintained customer relationships, and DZ BANK's excellent reputation in the money markets. The local cooperative banks also provide a significant and stable source of funding.

The liquidity risk strategy is consistently aligned with the overall **business strategies** and to this end is reviewed at least once a year and adjusted as necessary.

6.2.3 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 Asset-Liability Committee/ 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 **Group Risk and Finance Committee** receives a quarterly report on the liquidity risk of the DZ BANK Group and the individual management units.

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 **Asset-Liability Committee/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.

6.2.4 Risk management

Measurement of liquidity risk

To determine **liquidity risk for a 1-year time horizon**, DZ BANK uses its own liquidity risk measurement and control method approved by

BaFin in accordance with section 10 of the German Liquidity Regulation (LiqV) for the assessment of adequate liquidity in accordance with section 2 LiqV in place of the standard regulatory method.

The internal liquidity risk model is also used to determine the liquidity risk at DZ BANK Group level. 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 all times. 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 minimum target for economic liquidity adequacy specified in the risk appetite statement. The observation threshold and limit were unchanged compared with December 31, 2016. 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 ensures 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.

6.2.5 Specific risk factors

Liquidity risk arises from a mismatch in the timing and amount of cash inflows and outflows and is affected to a significant degree by other types of risk, such as market risk and reputational risk. The following key factors affect the level of liquidity risk:

- the funding structure of lending transactions;
- the uncertainty surrounding liquidity tied up in the funding of structured issues and investment certificates with termination rights and obligation acceleration;
- changes in the volume of deposits and loans, in which the cash-pooling function in the cooperative financial network is a significant determining factor;
- the funding potential in money markets and capital markets;
- the fluctuations in fair value and marketability of securities, and the eligibility of such securities for use in collateralized funding arrangements, such as bilateral repos or transactions in the tri-party market;
- the potential exercise of liquidity options, such as drawing rights in irrevocable loan or liquidity commitments, and termination or currency option rights in lending business;
- the obligation to pledge collateral in the form of cash or securities (for example, for derivative transactions or to guarantee payments as part of intraday liquidity);
- changes to an entity’s own rating if contractual requirements to provide collateral depend on the rating;
- the absence of follow-up funding for the short-term funding of the asset-backed commercial paper program (ABCP program) on the money market.

6.2.6 Quantitative variables

The available liquid securities and the unsecured short-term and medium-term funding are the main factors determining the minimum liquidity surplus. These factors are presented below.

Liquid securities

Liquid securities, together with balances on nostro accounts and non-collaterallized funding capacity, form part of the **counterbalancing capacity**. Liquid securities are largely held in the portfolios of the treasury units at the entities in the DZ BANK Group or in the portfolios held by DZ BANK’s Capital Markets Trading division. 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, 2017	Dec. 31, 2016
Liquid securities eligible for GC Pooling (ECB Basket)[1]	**28.1**	**38.0**
Securities in own portfolio	28.1	36.5
Securities received as collateral	10.6	11.8
Securities provided as collateral	-10.6	-10.3
Liquid securities eligible as collateral for central bank loans	**12.2**	**17.7**
Securities in own portfolio	12.1	16.2
Securities received as collateral	2.6	4.6
Securities provided as collateral	-2.5	-3.1
Other liquid securities	**5.6**	**7.1**
Securities in own portfolio	5.5	6.9
Securities received as collateral	0.1	0.2
Securities provided as collateral	-	-0.1
Total	**45.9**	**62.8**
Securities in own portfolio	45.7	59.6
Securities received as collateral	13.3	16.6
Securities provided as collateral	-13.2	-13.4

1 GC = general collateral, ECB Basket = eligible collateral for ECB funding.

As at December 31, 2017, the total liquidity value at the level of the **DZ BANK Group** was €45.9 billion (December 31, 2016: €62.8 billion). The total liquidity value attributable to **DZ BANK** as at December 31, 2017 was €33.2 billion (December 31, 2016: €45.4 billion). The significant year-on-year decline in the volume of liquid securities as at December 31, 2017 was attributable to the sale of securities, mainly at DZ BANK.

Consequently, liquid securities represent the largest proportion of the counterbalancing capacity for both the DZ BANK Group and DZ BANK, and make a major contribution to ensuring that they remain 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 are almost exclusively responsible for maintaining solvency in the stress scenarios with defined limits.

Funding and liquidity maturities

The level of liquidity risk in the DZ BANK Group and at DZ BANK is determined by the short-term and medium-term funding structure. The main sources of funding on the unsecured money markets are shown in Fig. 12. The change in the composition of the main sources of funding compared with December 31, 2016 was 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).

The maturity analysis of contractual cash inflows and cash outflows is set out in note 84 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.

FIG. 12 – UNSECURED SHORT-TERM AND MEDIUM-TERM FUNDING

	DZ BANK Group		DZ BANK	
%	Dec. 31, 2017	Dec. 31, 2016	Dec. 31, 2017	Dec. 31, 2016
Local cooperative banks	54	46	58	49
Other banks, central banks	12	11	11	10
Corporate customers, institutional customers	13	12	13	11
Commercial paper (institutional investors)	21	30	18	29

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, 2017	Dec. 31, 2016	Dec. 31, 2017	Dec. 31, 2016	Dec. 31, 2017	Dec. 31, 2016
Downgrading	-44.7	-62.0	77.2	85.4	32.5	23.3
Corporate crisis	-47.2	-62.5	63.3	73.8	16.1	11.2
Market crisis	-51.5	-65.4	76.3	84.4	24.8	19.1
Combination crisis	-23.4	-66.6	42.6	79.8	19.2	13.2

6.2.7 Risk position

Fig. 13 shows the results of measuring liquidity risk in the four stress scenarios with defined limits. 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, 2017 for the stress scenario with defined limits with the lowest minimum liquidity surplus (squeeze scenario) was €16.1 billion (December 31, 2016: €11.2 billion). 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 of Managing Directors as the minimum target for 2017. Furthermore, it did not fall below the limit of €1.0 billion at any time in the reporting period. The observation threshold and limit remained unchanged year on year.

The corresponding liquidity risk value attributable to **DZ BANK** as at December 31, 2017 was €5.7 billion (December 31, 2016: €3.8 billion). This value is derived from the stress scenario with defined limits that had the lowest minimum liquidity surplus and relates to the forecast period defined for the limit, which is just 1 month for DZ BANK in contrast to the longer period used for the DZ BANK Group. The minimum liquidity surplus did not fall below the limit at any time in the year under review. The impact of the stress scenarios for DZ BANK is measured and analyzed precisely for each day and is taken beyond the limit period of 1 month right up to 1 year.

The results demonstrate that economic liquidity adequacy was maintained at all times in the reporting year. The minimum liquidity surplus as at December 31, 2017 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 Regulatory liquidity adequacy

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) 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. From January 1, 2017, banks had to maintain an LCR of at least 80 percent. The minimum ratio rose to 100 percent from January 1, 2018. 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) 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 is not expected to become mandatory before the 2020 financial year when CRR II comes into force. 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) 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 **Asset-Liability Committee/Treasury and Capital Committee** and the **Board of Managing Directors** are notified of the LCR (monthly) and the NSFR (quarterly).

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) 2015/61 as at December 31, 2017 are shown in Fig. 14.

In the reporting year, the regulatory minimum requirement for the LCR of 80 percent (2016: 70 percent) was significantly exceeded on every reporting date at the level of both the DZ BANK banking group and DZ BANK.

6.4 Outlook

The extension of the **measurement of intraday liquidity risk**, which began in 2016, is to continue in 2018. It is also planned to implement requirements related to **economic liquidity adequacy** specified by the ECB in its ILAAP guidance published under the Single Supervisory Mechanism (SSM).

In addition, the new regulatory liquidity reporting ratios will continue to be integrated into liquidity risk management in the coming financial year, with activities focused on the **NSFR**. In connection with this, it is planned to extend the forecast horizon specified for the limits at DZ BANK from 1 month to 1 year.

FIG. 14 – LIQUIDITY COVERAGE RATIOS AND THEIR DETERMINING FACTORS

	DZ BANK banking group		DZ BANK	
	Dec. 31, 2017	Dec. 31, 2016	**Dec. 31, 2017**	Dec. 31, 2016
Total liquidity buffer (€ billion)	**77.5**	67.8	**55.7**	46.9
Total net liquidity outflows (€ billion)	**47.9**	44.9	**40.0**	33.5
Liquidity coverage ratio (%)	**161.7**	151.0	**139.1**	139.9

7 Capital adequacy

7.1 Principles

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 Capital Requirements Directive IV (KWG and 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 always consistent with the DZ BANK Group's capital resources.

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.

7.2 Economic capital adequacy

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 Strategy, organization, and responsibility

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 upper loss 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 Asset-Liability Committee/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.

7.2.2 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 upper loss 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 upper loss 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** is to cover the lack of precision in some areas of risk measurement. This applies to migration risk on traditional loans, for example. 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 upper loss limits for the individual risk types, whereas the centralized capital buffer is managed on the basis of an upper loss limit covering all sectors and risk types.

7.2.3 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 minimum target for economic capital adequacy specified in the risk appetite statement, which in 2017 was 120 percent (2016: 130 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 percent in the year under review (2016: 120 percent).

The threshold values for economic capital adequacy are reviewed annually and adjusted if necessary.

7.2.4 Risk-bearing capacity

Available internal capital

The DZ BANK Group's **available internal capital** as at December 31, 2017 was measured at €28,049 million. The comparative figure as at December 31, 2016 was measured at €27,623 million before deduction of the capital buffer requirement and €25,694 million after deduction of the capital buffer requirement. The figure originally measured as at December 31, 2016 and disclosed in the 2016 opportunity and risk report came to €26,408 million before deduction of the capital buffer requirement and €24,479 million after deduction of the capital buffer requirement. The year-on-year increase was mainly because the capital buffer requirement was no longer deducted in 2017. However, the increase in available internal capital also arose because of the positive financial performance in the year under review.

The **upper loss limit** derived from the available internal capital amounted to €23,575 million as at December 31, 2017 (December 31, 2016: €22,299 million). The rise in the upper loss limit was largely due to the integration of the capital buffer requirement.

As at the reporting date, **aggregate risk** was calculated at €16,450 million. The comparable figure as at December 31, 2016 excluding the capital buffer requirement stood at €15,108 million. The risk capital requirement excluding the capital buffer requirement originally measured as at December 31, 2016 and disclosed in the 2016 opportunity and risk report was €14,975 million. The increase in risk arose mainly because of the inclusion of the capital buffer requirement and higher capital buffer components.

Economic capital adequacy

As at December 31, 2017, the economic capital adequacy ratio for the **DZ BANK Group** was calculated at 170.5 percent. The comparable figure as at December 31, 2016 was 170.1 percent. The figure originally measured as at December 31, 2016 and disclosed in the 2016 opportunity and risk report was 163.5 percent. During the course of the reporting year, the economic capital adequacy ratio was higher than the minimum target of 120 percent at all times. Fig. 15 provides an overview of the DZ BANK Group's economic capital adequacy.

The upper loss limits and risk capital requirements including the decentralized capital buffer requirements for the Bank sector, broken down by risk type, are shown in Fig. 16. Fig. 17 sets out the upper loss limits and overall solvency requirements for the **Insurance sector**, broken down by risk type, and includes policyholder participation. The definition of the upper loss 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 upper loss limits for each risk type are not cumulative.

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 €332 million as at December 31, 2017. The corresponding upper loss limit was €350 million.

It was necessary to **recalculate the overall solvency requirement** as at December 31, 2016 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 2017 for the Insurance sector on the basis of R+V's 2016 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 key risk indicators at DZ BANK Group level. The figures as at December 31, 2016 given in this opportunity and risk report have been restated accordingly and are not directly comparable with the figures in the 2016 opportunity and risk report.

FIG. 15 – ECONOMIC CAPITAL ADEQUACY OF THE DZ BANK GROUP

€ million	Dec. 31, 2017	Sep. 30, 2017	Jun. 30, 2017	Mar. 31, 2017	Dec. 31, 2016
Available internal capital (€ million)[1]	28,049	28,247	27,811	27,843	25,694
Upper loss limit (€ million)	23,575	23,575	23,575	23,575	22,299
Aggregate risk (€ million)[2]	16,450	16,367	16,940	16,746	15,108
Economic capital adequacy (%)	**170.5**	**172.6**	**164.2**	**166.3**	**170.1**

1 As at December 31, 2016, a capital buffer requirement of €1,929 million was deducted from the available internal capital of €27,623 million, which meant that available internal capital after deduction of the capital buffer requirement amounted to €25,694 million.
2 As at December 31, 2016, the risk capital requirement excluded the capital buffer requirement.

FIG. 16 – UPPER LOSS LIMITS AND RISK CAPITAL REQUIREMENT INCLUDING CAPITAL BUFFER IN THE BANK SECTOR

	Upper loss limits					Risk capital requirement including the decentralized capital buffer requirement[1]				
€ million	Dec. 31, 2017	Sep. 30, 2017	Jun. 30, 2017	Mar. 31, 2017	Dec. 31, 2016	Dec. 31, 2017	Sep. 30, 2017	Jun. 30, 2017	Mar. 31, 2017	Dec. 31, 2016
Credit risk	7,628	7,624	7,474	7,474	6,606	5,772	5,737	5,959	5,674	4,472
Equity investment risk	1,422	1,422	1,422	1,422	1,468	1,100	1,067	1,214	1,223	1,263
Market risk[2]	6,863	6,882	7,043	7,043	7,582	4,097	4,134	4,381	4,580	4,347
Technical risk of a home savings and loan company[3]	558	558	558	558	600	558	558	558	558	541
Business risk[4]	1,040	1,025	1,025	1,025	1,024	781	771	767	762	912
Operational risk	1,147	1,147	1,147	1,147	1,152	821	790	927	944	892
Total (after diversification)	**17,805**	**17,805**	**17,805**	**17,805**	**17,089**	**11,866**	**11,802**	**12,477**	**12,407**	**11,105**

1 December 31, 2016 excluding capital buffer requirement.
2 Market risk contains spread risk and migration risk.
3 Including business risk and reputational risk of BSH.
4 Apart from that of BSH, reputational risk is contained in the risk capital requirement for business risk.

FIG. 17 – UPPER LOSS LIMITS AND OVERALL SOLVENCY REQUIREMENT IN THE INSURANCE SECTOR

	Upper loss limits					Overall solvency requirement				
€ million	Dec. 31, 2017	Sep. 30, 2017	Jun. 30, 2017	Mar. 31, 2017	Dec. 31, 2016	Dec. 31, 2017	Sep. 30, 2017	Jun. 30, 2017	Mar. 31, 2017	Dec. 31, 2016
Life actuarial risk	1,200	1,200	1,200	1,200	1,200	697	655	623	583	574
Health actuarial risk	370	370	370	370	330	165	152	151	178	214
Non-life actuarial risk	3,580	3,580	3,580	3,580	3,250	3,094	2,952	2,927	2,822	2,835
Market risk	3,800	3,800	3,800	3,800	3,540	2,966	2,995	2,875	2,809	2,802
Counterparty default risk	130	130	130	130	110	51	64	58	92	65
Operational risk	650	650	650	650	640	531	543	543	545	509
Risks from non-controlling interests in insurance companies and from entities in other financial sectors	140	140	140	140	120	115	116	116	110	110
Total (after diversification)	**5,420**	**5,420**	**5,420**	**5,420**	**5,210**	**4,257**	**4,243**	**4,131**	**4,016**	**4,004**

7.2.5 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.

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 a 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.

7.2.6 Outlook

The DZ BANK Group has given a high priority to implementing the principles for effective **risk data aggregation and risk reporting** published by the BCBS. An as-is analysis was carried out in 2015 and an action plan drawn up. Since then, the entities in the DZ BANK Group have kept further expansion of their risk data aggregation and reporting capacity high on the agenda with the aim of satisfying the main requirements by the end of 2018. The requirements are being implemented in groupwide projects.

In 2018, it is also planned to implement the requirements from the guidance on the **ICAAP** published by the ECB as part of the SSM.

7.3 Regulatory capital adequacy

7.3.1 Principles

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 all times. Monitoring takes place continuously for the DZ BANK financial conglomerate, monthly for 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.

7.3.2 DZ BANK financial conglomerate

The German Supervision of Financial Conglomerates Act (FKAG) essentially forms the 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) 342/2014 in conjunction with article 49 CRR.

The financial conglomerate coverage ratio is the ratio between the total of eligible own funds in the financial conglomerate and the total of solvency requirements for the conglomerate. The resulting ratio must be at least 100 percent.

On the basis of a provisional calculation, the DZ BANK financial conglomerate's eligible own funds as at December 31, 2017 amounted to €27,458 million (December 31, 2016: confirmed final eligible own funds of €25,638 million). On the other side of the ratio, the provisional solvency requirement was €14,506 million (December 31, 2016: confirmed final solvency requirements of €14,624 million). This gives a provisional coverage ratio of 189.3 percent (December 31, 2016: confirmed final coverage ratio of 180.3 percent), which is

significantly in excess of the regulatory minimum requirement of 100 percent.

7.3.3 DZ BANK banking group

Regulatory framework

The DZ BANK banking group uses the following methods to calculate the regulatory own funds requirements 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.

Regulatory minimum capital requirements

The minimum capital requirements that the DZ BANK banking group had to comply with in the year under review 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 own funds requirements in Pillar 2, determined in the outcome of the SREP conducted for the DZ BANK banking group in 2016, also had to be satisfied.

Since the end of 2017, the ECB has used a modified approach for determining the additional own funds requirement under Pillar 2. In the new approach, the supervisor specifies a mandatory add-on (Pillar 2 requirement) that is factored into the basis of calculation for the maximum distributable amount (MDA). The add-on will be determined from the findings of the SREP.

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 own funds requirements. Nevertheless, this figure is relevant as an early warning indicator for capital planning.

The mandatory minimum capital requirements and their components applicable to 2017 and 2018 are shown in Fig. 18.

The mandatory and the recommended minimum capital requirements were complied with in the year under review. This applies to both the currently applicable solvency regime (CRR transitional guidance) and the regime in force from 2019 (full application of the CRR). According to current projections, the requirements will also be satisfied in 2018.

In the year under review, BaFin issued a decision that DZ BANK would continue to be classified as an other systemically important institution (O-SII). In 2018, the DZ BANK banking group will have 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 0.66 percent.

This figure will increase to 1.0 percent from 2019.

Regulatory capital ratios in accordance with CRR transitional guidance

The regulatory **own funds** of the **DZ BANK banking group** as at December 31, 2017 determined in accordance with the currently applicable CRR transitional guidance amounted to a total of €22,728 million (December 31, 2016: €22,066 million).

FIG. 18 – REGULATORY MINIMUM CAPITAL REQUIREMENTS[1 2]

%	2017	2018
Minimum requirement for common equity Tier 1 capital	4.50	4.50
Additional Pillar 2 own funds requirement	1.75	1.75
Capital conservation buffer	1.25	1.88
Countercyclical capital buffer	0.02	
O-SII capital buffer	0.33	0.66
Mandatory minimum requirement for common equity Tier 1 capital	**7.85**	**8.79**
Minimum requirement for additional Tier 1 capital[3]	1.50	1.50
Mandatory minimum requirement for Tier 1 capital	**9.35**	**10.29**
Minimum requirement for Tier 2 capital[4]	2.00	2.00
Mandatory minimum requirement for total capital	**11.35**	**12.29**

1 Percentage values based on risk-weighted assets.
2 As a result of the method specified by the ECB to be used for the first time in 2017, there are no comparative figures as at December 31, 2016.
3 The minimum requirement can also be satisfied with common equity Tier 1 capital.
4 The minimum requirement can also be satisfied with common equity Tier 1 or additional Tier 1 capital.

(Grey cell:) The value has not yet been determined because the countercyclical capital buffer has to be recalculated for each reporting date.

The rise in own funds was mainly attributable to a total increase of €1,097 million in **common equity Tier 1 capital**. Net profits eligible for retention and the increase in the revaluation reserve eligible for inclusion in accordance with the CRR were the main factors behind the rise in common equity Tier 1 capital.

Tier 2 capital declined from €3,077 million at the end of 2016 to €2,687 million as at December 31, 2017, a year-on-year decrease of €390 million. This 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.

As at December 31, 2017, the regulatory **own funds requirements** for the DZ BANK banking group were calculated at €10,464 million (December 31, 2016: €9,477 million). The rise in own funds requirements resulted mainly from the discontinuation of grandfathering arrangements at various long-term equity investments. This is because DZ BANK, with regard to the long-term equity investments acquired through the merger with the former WGZ BANK, is no longer applying the Standardized Approach to credit risk with 100 percent risk weighting in accordance with the CRR transitional guidance, but instead using approaches with 190 percent and 370 percent risk weightings on the basis of internal assessments. In particular, DZ BANK has decided to discontinue the grandfathering arrangements in relation to its long-term equity investment in R+V and to apply a 370 percent risk weighting to this company. The increase in own funds requirements can also be attributed to the first-time inclusion of the interest-rate 'smile' in the internal market risk modeling.

The DZ BANK banking group's **common equity Tier 1 capital ratio** was 14.0 percent as at December 31, 2017 and thus lower than the ratio of 14.5 percent as at the end of 2016. As at December 31, 2017, the **Tier 1 capital ratio** was 15.3 percent, again a decrease on the ratio of 16.0 percent as at December 31, 2016. The **total capital ratio** also declined from 18.6 percent as at December 31, 2016 to 17.4 percent as at the balance sheet date.

The **common equity Tier 1 capital ratio** for **DZ BANK** was calculated at 17.3 percent as at December 31, 2017, which was lower than the equivalent figure of 18.1 percent as at December 31, 2016. The **Tier 1 capital ratio** was also down, from 19.1 percent as at December 31, 2016 to 18.2 percent as at December 31, 2017. In addition, the **total capital ratio** declined from 24.4 percent as at December 31, 2016 to 22.4 percent as at the reporting date.

The fall in the capital ratios was largely due to the increased own funds requirements.

The ratios at DZ BANK banking group level and at DZ BANK level were well above the regulatory minimum CRR capital ratios at all times during 2017.

Fig. 19 provides an overview of the DZ BANK banking group's regulatory capital ratios in accordance with the CRR.

FIG. 19 – REGULATORY CAPITAL RATIOS IN ACCORDANCE WITH CRR

	Dec. 31, 2017	Sep. 30, 2017	Jun. 30, 2017	Mar. 31, 2017	Dec. 31, 2016
Capital					
Common equity Tier 1 capital (€ million)	18,251	17,009	17,461	17,460	17,154
Additional Tier 1 capital (€ million)	1,790	1,793	1,797	1,776	1,835
Tier 1 capital	20,041	18,802	19,258	19,236	18,989
Total Tier 2 capital (€ million)	2,687	2,804	3,032	3,122	3,077
Total capital	22,728	21,606	22,290	22,358	22,066
Capital requirements					
Credit risk including long-term equity investments (€ million)	9,099	9,237	9,290	9,403	8,153
Market risk (€ million)	542	497	548	456	510
Operational risk (€ million)	823	823	823	823	814
Total	10,464	10,557	10,661	10,682	9,477
Capital ratios[1]					
Common equity Tier 1 capital ratio (%)	14.0	12.9	13.1	13.1	14.5
Tier 1 capital ratio (%)	15.3	14.3	14.5	14.4	16.0
Total capital ratio (%)	17.4	16.4	16.7	16.7	18.6

1 Percentage values based on risk-weighted assets.

Regulatory capital ratios with full application of the CRR

The capital ratios for the DZ BANK banking group and DZ BANK based on full application of the CRR are shown in Fig. 20.

At all times in the reporting year, the ratios were in excess of the minimum values planned for the future and the present ECB requirement specified in the SREP.

Leverage ratio

The leverage ratio shows the ratio of a banking group's or bank's Tier 1 capital to its total exposure. In contrast to risk-based 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 for the DZ BANK banking group and DZ BANK – in each case in accordance with the currently applicable CRR transitional guidance and assuming full application of the CRR – are presented in Fig. 21.

The year-on-year rise in the **DZ BANK banking group's** leverage ratio as at December 31, 2017 calculated in accordance with the **CRR transitional guidance** mainly arose because of an increase of €1.1 billion in Tier 1 capital combined with a small contraction of €2.8 billion in the total exposure. The fall of the total exposure was largely due to a reduction in securities financing transactions. In contrast, on-balance-sheet business rose slightly.

The leverage ratio also went up at **DZ BANK** level, accounted for principally by an increase of €0.6 billion in Tier 1 capital and a fall of €6.9 billion in the total exposure.The main reason behind the rise in Tier 1 capital was the switch in the basis for calculating regulatory own funds from HGB to IFRS in October 2017. The lower total exposure resulted from a contraction in securities financing transactions, derivatives, and off-balance-sheet exposures, although some of this contraction was offset by a slight rise in on-balance-sheet business.

FIG. 20 – REGULATORY CAPITAL RATIOS WITH FULL APPLICATION OF CRR[1]

	DZ BANK banking group		DZ BANK	
%	Dec. 31, 2017	Dec. 31, 2016	Dec. 31, 2017	Dec. 31, 2016
Common equity Tier 1 capital ratio	13.9	14.5	16.5	18.1
Tier 1 capital ratio	14.4	15.1	17.3	19.1
Total capital ratio	17.4	18.8	21.3	24.4

1 Percentage values based on risk-weighted assets.

FIG. 21 – LEVERAGE RATIOS

	DZ BANK banking group		DZ BANK	
%	Dec. 31, 2017	Dec. 31, 2016	Dec. 31, 2017	Dec. 31, 2016
Leverage ratio according to CRR transitional guidance	4.6	4.4	4.2	4.0
Leverage ratio applying the CRR in full	4.4	4.1	4.2	4.0

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.

As at December 31, 2017, the preliminary figure for the regulatory risk-bearing capacity of the R+V Versicherung AG insurance group was 202.4 percent (December 31, 2016: 187.5 percent). The group had eligible own funds of €11,235 million at its disposal on December 31, 2017 (December 31, 2016, €10,043 million) to cover a solvency requirement of €5,549 million (December 31, 2016: €5,356 million).

The recalculation of the overall solvency requirement described in section 7.2.4 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 2016. The figures as at December 31, 2016 given in this opportunity and risk report have been restated

accordingly and are not directly comparable with the figures in the 2016 opportunity and risk report.

Analysis of the capital market scenarios applied in the internal planning shows that the regulatory risk-bearing capacity of the R+V Versicherung AG insurance group under Solvency II will exceed the minimum statutory requirement as at December 31, 2018. In view of the ongoing challenging situation in the financial markets, forecasts about changes in the solvency capital requirement and own funds are subject to significant uncertainty. However, R+V will take suitable measures to ensure it maintains its risk-bearing capacity.

R+V carries out the stress tests specified by EIOPA and BaFin, and uses them to review whether it is in a position to meet its obligations to policyholders, even in the event of a sustained crisis situation on the capital markets.

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 test 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 consist of a number of **multiple-risk scenarios** and **specific stress tests** for the individual risk types backed by capital in the DZ BANK Group. The stress tests 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 risk-type-specific stress tests are hypothetical scenarios reflecting a degree of stress for a crisis that can occur every 10 years. 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 comprehensively and in an appropriate manner 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 stress tests are calculated every quarter and the results approved by the **Board of Managing Directors** of DZ BANK and the Supervisory Board.

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 to economic and 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 **scenarios** analyzed in the reverse stress tests are based on available adverse scenarios (crisis situations) that are then extended to include further scenario elements, such as events (reverse elements). Scenario elements are determined taking into account key risk drivers and events. The relevant scenarios are adjusted such that the minimum requirements for the economic and regulatory KPIs can no longer be achieved even after all the measures available to maintain the business model have been applied.

Bank sector

8 Credit risk

8.1 Definition and business background

8.1.1 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 in the form of default 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.

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.

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. 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.

8.1.2 Business background

Default risk from traditional lending business arises primarily at DZ BANK, BSH, DG HYP, DVB, and WL BANK. 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, DG HYP, and WL BANK. Replacement risk arises for the most part at DZ BANK, DZ PRIVATBANK, and DVB.

8.2 Risk strategy

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.

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. Based on these principles, a policy on sustainable lending applicable throughout the sector was drawn up and approved in the year under review. The policy applies to the majority of the management units operating lending business.

The latitude permitted by the credit risk policy for infrastructure projects was broadened slightly in 2017. On the other hand, DZ BANK will not provide any more finance for coal-fired power plants going forward because of its commitment to sustainability in its lending business.

8.3 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 the active management of credit risk.

The **credit risk report** keeps the Group Risk and Finance 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, industry, credit rating class, and the lending volume to single borrowers. In addition, the reports include details on specific exposures and specific loan loss allowances. The credit value-at-risk in the context of the risk mitigation provided by the upper loss limit is also part of the credit risk report.

8.4 Risk management

8.4.1 Rating systems

Characteristics of the rating systems

The generation of internal credit ratings for the business partners of entities in the Bank sector helps, in particular, to provide a solid basis for lending decisions in the management of individual transactions. 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, and countries, as well as project finance, asset finance, acquisition financing, and investment funds. 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 ABCP. These rating systems have been approved by BaFin 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), agricultural businesses, public-sector entities, not-for-profit organizations, foreign SMEs, and insurance companies. Although these systems satisfy the requirements for the foundation IRB approach in the opinion of DZ BANK, they are deemed to be of less significance and have not yet been reviewed by the supervisory authority. In addition, the rating systems for open-ended real estate funds and for commercial real estate used by the former WGZ BANK Group are used for internal management purposes.

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

The revision of the rating system for **project finance** used by DZ BANK for internal management purposes was completed in the year under review. The same also applies to the development of the supervisory **slotting approach for project finance**, which is scheduled to be used from 2020 onward to calculate the regulatory capital requirement. The enhancement of the **rating system for banks** was also completed in 2017. A supervisory assessment of the IRB approach followed by approval from the banking supervisor is still required before this rating system can be introduced. The assessment is scheduled for the first quarter of 2018.

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. 22 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. 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.

8.4.2 Pricing in the lending business

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 individual 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 allowances for losses on loans and advances 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.

FIG. 22 – BANK SECTOR: DZ BANK'S VR CREDIT RATING MASTER SCALE AND EXTERNAL CREDIT RATINGS

Internal rating class	Average default probability	External rating classes: Moody's	Standard & Poor's	Fitch	Rating category
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	Past due > 90 days				Default
5B	Specific loan loss allowance				
5C	Exemption from interest/debt restructuring				
5D	Insolvency				
5E	Compulsory winding-up/ derecognition				
NR	No rating necessary or not rated				

In addition to standard risk costs, **an imputed 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.

8.4.3 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 standard for project finance. Loans to cooperative banks and to entities in the DZ BANK Group, as well as exposures that are being restructured, are some of the arrangements exempt from the checks.

At DZ BANK, industry-related principles are used in addition to the sustainability checklist when reviewing loan applications from sensitive industries (such as forestry, commodities mining/extraction, dam construction, maritime industries). These principles specify the details to be reviewed with reference to international industry-specific conventions, recognized standards, certification, and optimum production processes.

8.4.4 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 allowances for losses on loans and advances.

In the leasing business, minimum lease payments are used as a basis for measuring the gross lending volume, while principal amounts are used for this purpose in building society operations. 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 clients. 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.

8.4.5 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.

Replacement risk is generally determined on the basis of fair value, taking into account appropriate add-ons. At DZ BANK, where replacement risk is particularly relevant, a portfolio simulation is used to determine the risk from simple interest-rate swap derivatives arranged on an OTC basis with settlement via a central counterparty or clearing broker. The portfolio simulation models future exposures, taking into account specific transaction details and a large number of risk factors. Replacement risk on other OTC derivatives is calculated mainly on the basis of fair value and the add-on for an individual transaction. The add-on takes 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 amount at risk is deemed to be the amount owed, i.e. the amount actually due to be paid by the counterparty to the bank. 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** 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 related to credit ratings or, in certain circumstances, a general limit is determined for each issuer as the basis for managing issuer risk. There is a separate limit for covered bonds that are subject to special public supervision in accordance with article 52 (4) of Directive 2009/65/EC. 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.

8.4.6 Management of risk concentrations and correlation risks

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 concentrations and correlations and specify collateral quality depending on the credit rating of the counterparties. In addition to daily monitoring of the relevant rules and regulations, an annual report is prepared for the Credit Committee that presents the remaining concentration risk and wrong-way risk.

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 and the Credit Committee is notified.

Furthermore, specific wrong-way risk in connection with **credit derivatives** in which the counterparty and underlying instrument form part of the financial sector is notified to the Credit Committee in a half-yearly report.

8.4.7 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 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. Under Regulation (EU) No. 648/2012 on OTC derivatives, central counterparties, and trade repositories (European Market Infrastructure Regulation, EMIR), it has been mandatory to enter into collateral agreements for new transactions with financial counterparties since March 1, 2017.

DZ BANK’s policy on collateral 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 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 entered into before March 1, 2017 generally include thresholds and minimum transfer amounts 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, the regulator has specified these contractual provisions as standard.

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.

8.4.8 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 subportfolio 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 subportfolios 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 allowances for losses on loans and advances

The following descriptions apply to DZ BANK. The main subsidiaries in the Bank sector have implemented comparable guidelines on the recognition of allowances for losses on loans and advances adapted in line with their respective business activities.

The entire transaction is deemed to be **'past due'** if interest payments, repayments of principal, or other receivables are more than 1 day in arrears. A borrower is classified as in **'default'** if the borrower is not expected to meet his/her payment obligations in full without the need for action such as the recovery of any available collateral. Regardless of this definition, a borrower is classified as in default according to CRR criteria if payments are past due by more than 90 days.

If there is objective evidence that the value of repayments under **loans** is impaired, a review is carried out to establish whether it is likely that the borrower will not meet his/her contractual obligations in full and whether a financial loss could be incurred. **Specific loan loss allowances** are recognized for the difference between the carrying amount of the loan or advance and the net present value of the anticipated payments (including any proceeds from the recovery of collateral), if the carrying amount of the loan or advance is higher than the net present value.

Provisions for loan commitments and **liabilities under financial guarantee contracts** are recognized in an amount equivalent to the difference between the present value of the potential default amount and the present value of expected payments, provided that it is probable the obligation will actually be incurred.

If no specific allowances are recognized for losses on payments due under loans or if there are no provisions for loan commitments or liabilities under financial guarantee contracts, then these transactions are taken into account in the recognition of the **portfolio loan loss allowance**. Portfolio loan loss allowances consist of the loss allowances for the portfolio of loans and advances, provisions for loan commitments, and liabilities under financial guarantee contracts. As soon as an impairment becomes apparent or a transaction is identified as requiring a provision or liability, it is derecognized from the portfolio allowance and recognized as a specific loan loss allowance. The

calculation of the portfolio loan loss allowance is based on the method for the calculation of expected losses used for regulatory purposes.

In **trading units**, derivatives business and parts of the securities and money market business are measured at fair value through profit or loss. Any impairment is therefore immediately recognized in the income statement and on the balance sheet, precluding the need for the recognition of any allowances for losses on loans and advances. For securities and money market placements that are recognized at amortized cost or fair value through other comprehensive income, impairment losses are determined using the same procedure as that for loans.

BSH recognizes **specific loan loss allowances evaluated on a group basis** for its retail business. These specific loan loss allowances evaluated on a group basis are based on cash flows from credit portfolios with the same risk characteristics analyzed using migration scenarios and probabilities of default.

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 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:

– Loan loss allowance ratio (balance of allowances for losses on loans and advances as a proportion of total lending volume)
– Risk cover ratio (balance of allowances for losses on loans and advances 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 balance of allowances for losses on loans and advances is calculated as the total of specific loan loss allowances (including specific loan loss allowances evaluated on a group basis), portfolio loan loss allowances, provisions for loan commitments, and liabilities under financial guarantee contracts.

8.4.9 Credit-portfolio management

In risk-related credit-portfolio management, a distinction is made between the expected loss and unexpected loss arising from the credit portfolio as a whole. The calculation of an expected loss for each individual transaction prevents a creeping erosion of equity. Most of the management units determine the standard risk costs necessary for this calculation. These costs vary according to credit rating.

Credit portfolio models are also used together with value-at-risk methods to quantify unexpected losses that may arise from the credit portfolios of management units. 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. The measurement includes default risk from both lending and trading businesses.

The credit portfolio in the Bank sector is managed by limiting the credit value-at-risk to the upper loss limit set for credit risk.

8.5 Specific risk factors

Key values used in determining the credit risk include the lending volume, concentrations in terms of counterparties, sectors, countries, and maturities, and the credit quality structure of the credit portfolio.

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.

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, causing losses with a negative impact on the financial performance and financial position of the DZ BANK Group or DZ BANK.

8.6 Lending volume

8.6.1 Reconciliation of lending volume to the consolidated financial statements

Fig. 23 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. 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 overall 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.

Measurement differences in **derivatives business** and **money market business** are mainly because countervailing positions are offset for the purposes of risk management, whereas positions must not be netted in this way 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.

In money market business, further discrepancies arise between the consolidated financial statements and internal credit risk reports due to the method in which repo transactions are recognized. In contrast to the consolidated financial statements, securities provided or received as collateral are offset against the corresponding assets or liabilities for the purposes of the internal management accounts.

8.6.2 Change in lending volume

The **total lending volume** of the **Bank sector** decreased by 3 percent overall in the year under review, from €387.7 billion as at December 31, 2016 to €375.2 billion as at December 31, 2017. This was mainly because of a decline of 15 percent in the lending volume in the **securities business**, from €95.5 billion as at December 31, 2016 to €81.1 billion as at December 31, 2017. This decrease arose primarily at DZ BANK. The lending volume in the **derivatives and money market business** was also down year on year, in this case by 13 percent from €16.3 billion as at December 31, 2016 to €14.2 billion as at December 31, 2017. Most of this change was accounted for by DZ BANK. In contrast, there was a slight increase in the Bank sector's volume of **traditional lending business**, which rose from €275.8 billion as at December 31, 2016 to €279.8 billion at the end of 2017, a gain of 1 percent.

At **DZ BANK**, the **total lending volume** went down by 4 percent, from €205.8 billion as at December 31, 2016 to €197.2 billion as at December 31, 2017. This contraction was principally attributable to the **securities business** (€43.0 billion as at December 31, 2017, compared with €54.5 billion at the end of 2016), which was notably affected by a fall in public-sector bond exposures. **Derivatives and money market business** at DZ BANK also declined to €13.1 billion as at December 31, 2017 compared with the December 31, 2016 figure of €15.1 billion. On the other hand, the volume in the **traditional lending business** advanced by 4 percent, from €136.1 billion at the end of 2016 to €141.1 billion as at December 31, 2017.

8.6.3 Collateral called in

Given the efficiency of the workout process in the **Bank sector**, the role played by calling in collateral during the course of workout procedures for non-performing borrowers was as negligible in 2017 as it had been in 2016. The collateral called in by the entities in the Bank sector amounted to €13 million as at December 31, 2017, which was unchanged year on year.

8.6.4 Sector structure of the credit portfolio

Fig. 24 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.

FIG. 23 – 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, 2017	Dec. 31, 2016	Dec. 31, 2017	Dec. 31, 2016	Dec. 31, 2017	Dec. 31, 2016		Dec. 31, 2017		Dec. 31, 2016
								80.6		79.5
								80.6		79.5
								--		-
Traditional lending business	**279.8**	275.8	**1.9**	1.8	**10.2**	18.8	**291.8**	**170.8**	292.9	173.1
								173.6		175.5
								-2.8		-2.4
								40.5		40.3
								64.0		77.2
								8.9		9.3
Securities business	**81.1**	95.5	-	-	**-17.2**	-18.4	**64.0**	0.8	77.2	0.9
								54.3		67.0
								-1.6		-3.9
								1.1		1.5
Derivatives business	**12.7**	13.7	-	-	**-14.4**	-17.5	**-1.6**	17.1	-3.9	23.6
								-3.0		-3.9
								-16.8		-25.1
								51.6		43.6
								39.9		27.7
Money market business	**1.5**	2.6	-	-	**50.1**	37.4	**51.6**	0.8	43.6	1.1
								0.2		0.2
								10.3		14.2
								0.4		0.4
Total	**375.2**	387.7	**2.0**	1.8	**28.8**	20.3	**405.9**		409.8	
								Balance as at Dec. 31, 2017	**30.7**	**8.2 %**
								Balance as at Dec. 31, 2016	22.1	5.7 %

Not relevant

As at December 31, 2017, a significant proportion (35 percent) of the lending volume in the **Bank sector** continued to be concentrated in the financial sector (December 31, 2016: 33 percent). In addition to the local cooperative banks, the borrowers in this customer segment comprised banks from other parts of the banking industry and other financial institutions.

As at December 31, 2017, a significant proportion (59 percent) of **DZ BANK's** lending volume was also concentrated in the financial sector (December 31, 2016: 55 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 declined by €7.2 billion year on year, with a particularly large decrease in Germany.

In its role as a 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, DZ BANK, DG HYP and DVB's direct business with corporate customers in Germany and abroad, the retail real-estate business under the umbrella of BSH, TeamBank's consumer finance business, and WL BANK's real estate lending and local authority loans businesses determine the sectoral breakdown of the remainder of the portfolio.

Lending volume for the consolidated financial statements	Note
Loans and advances to banks	
of which: loans and advances to banks excluding money market placements	50
of which: allowances for losses on loans and advances to banks	52
Loans and advances to customers	
Loans and advances to customers excluding money market placements	51
of which: allowances for losses on loans and advances to customers	52
Financial guarantee contracts and loan commitments	87
Bonds and other securities	
of which: financial assets held for trading/bonds excluding money market placements	54
of which: financial assets held for trading/promissory notes, registered bonds, and loans and advances	54
of which: investments/bonds excluding money market placements	55
Derivatives	
of which: derivatives used for hedging (positive fair values)	53
of which: financial assets held for trading/derivatives (positive fair values)	54
of which: derivatives used for hedging (negative fair values)	65
of which: financial liabilities held for trading/derivatives (negative fair values)	66
Money market placements	
of which: loans and advances to banks/money market placements	50
of which: loans and advances to customers/money market placements	51
of which: financial assets held for trading/money market instruments	54
of which: financial assets held for trading/money market placements	54
of which: investments/money market instruments	55
Total	

8.6.5 Geographical structure of the credit portfolio

Fig. 25 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, 2017, 96 percent of the lending in the **Bank sector** (December 31, 2016: 95 percent) and likewise 96 percent of the total lending by **DZ BANK** (unchanged on the figure as at December 31, 2016) was concentrated in Germany and other industrialized countries.

FIG. 24 – BANK SECTOR: LENDING VOLUME, BY SECTOR

	Traditional lending business		Securities business		Derivatives and money market business		Total	
€ billion	Dec. 31, 2017	Dec. 31, 2016	Dec. 31, 2017	Dec. 31, 2016	Dec. 31, 2017	Dec. 31, 2016	Dec. 31, 2017	Dec. 31, 2016
Financial sector	94.5	88.7	26.1	28.2	10.9	11.5	131.6	128.4
Public sector	10.4	11.1	43.2	54.5	0.5	1.0	54.2	66.6
Corporates	104.5	110.4	7.7	8.6	2.3	2.9	114.4	122.0
Retail	62.9	58.6	2.4	2.8	-	-	65.3	61.4
Industry conglomerates	7.0	6.5	1.6	1.4	0.5	0.9	9.2	8.8
Other	0.5	0.5	-	-	-	-	0.5	0.5
Total	279.8	275.8	81.1	95.5	14.2	16.3	375.2	387.7

FIG. 25 – BANK SECTOR: LENDING VOLUME, BY COUNTRY GROUP

€ billion	Traditional lending business		Securities business		Derivatives and money market business		Total	
	Dec. 31, 2017	Dec. 31, 2016	Dec. 31, 2017	Dec. 31, 2016	Dec. 31, 2017	Dec. 31, 2016	Dec. 31, 2017	Dec. 31, 2016
Germany	243.6	232.9	50.6	60.3	8.9	10.7	303.1	303.8
Other industrialized countries	25.2	29.5	27.2	31.3	4.7	5.1	57.2	65.8
Advanced economies	2.9	3.5	0.6	0.5	0.1	0.1	3.6	4.1
Emerging markets	8.1	9.9	0.9	0.8	0.2	0.1	9.1	10.9
Supranational institutions	-	-	1.9	2.7	0.3	0.4	2.2	3.0
Total	**279.8**	**275.8**	**81.1**	**95.5**	**14.2**	**16.3**	**375.2**	**387.7**

8.6.6 Residual maturity structure of the credit portfolio

Residual maturities in the overall credit portfolio

The breakdown of the credit portfolio by residual maturity presented in Fig. 26 for the **Bank sector** as at December 31, 2017 shows that the lending volume had decreased by €3.0 billion in the short-term maturity band compared with December 31, 2016, which was largely attributable to the ending of transactions at DVB and to maturities of German public-sector bonds held by DG HYP. The decrease in the medium-term maturity band amounted to €11.8 billion and was mainly accounted for by DZ BANK. By contrast, the lending volume in the longer-term maturity band went up by a total of €2.4 billion, primarily attributable to BSH.

Lending volume past due but not impaired

Fig. 27 and Fig. 28 show the portion of the lending volume that is past due but not impaired. The disclosures largely relate to traditional lending business.

No valuation allowances are recognized for these loans because it can generally be assumed that the amounts past due will be repaid promptly. Recoverable collateral is also available. Because of the conservative risk provisioning policy of the entities in the Bank sector, past-due loans only account for a relatively small proportion of the overall credit portfolio.

In the **Bank sector**, the fall in loans in the corporates sector that were past due but not impaired, which went down from €1,134 million as at December 31, 2016 to €338 million as at December 31, 2017, was largely attributable to DVB's shipping and offshore businesses. Most of the loans in this category were past due by more than 3 months and corresponding specific loan loss allowances have now been recognized. The past-due loans in arrears by more than 3 months amounting to €207 million (December 31, 2016: €812 million) were predominantly loans secured by mortgages.

At **DZ BANK**, the volume of loans that were past due but not impaired went up slightly from €61 million as at December 31, 2016 to €86 million as at December 31, 2017.

8.6.7 Rating structure of the credit portfolio

Rating structure of the total lending volume

Fig. 29 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, 2017 was unchanged year on year at 78 percent. Rating classes 3B to 4E (non-investment grade) represented 20 percent of the total lending volume as at the reporting date, which was also unchanged compared with the end of 2016. Defaults in rating classes 5A to 5E accounted for 2 percent of the Bank sector's total lending volume as at December 31, 2017, remaining at a low level similar to that at the end of 2016 (1 percent).

Rating classes 1A to 3A (investment grade) also dominated lending at **DZ BANK**, where they accounted for 88 percent of the total lending volume (December 31, 2016: 89 percent). Rating classes 3B to 4E (non-investment grade) represented 10 percent of the total lending volume as at the reporting date, which was unchanged compared with the end of 2016.

FIG. 26 – BANK SECTOR: LENDING VOLUME, BY RESIDUAL MATURITY

	Traditional lending business		Securities business		Derivatives and money market business		Total	
€ billion	Dec. 31, 2017	Dec. 31, 2016	Dec. 31, 2017	Dec. 31, 2016	Dec. 31, 2017	Dec. 31, 2016	Dec. 31, 2017	Dec. 31, 2016
≤ 1 year	49.4	49.9	13.6	15.0	9.8	11.0	72.8	75.9
> 1 year to ≤ 5 years	53.1	55.2	29.1	38.5	1.8	2.1	84.0	95.8
> 5 years	177.3	170.7	38.4	42.1	2.7	3.3	218.4	216.0
Total	**279.8**	**275.8**	**81.1**	**95.5**	**14.2**	**16.3**	**375.2**	**387.7**

FIG. 27 – BANK SECTOR: LENDING VOLUME PAST DUE BUT NOT IMPAIRED, BY SECTOR

	Past due up to 5 days		Past due > 5 days to 1 month		Past due > 1 month to 2 months		Past due > 2 months to 3 months		Past due > 3 months		Total	
€ million	Dec. 31, 2017	Dec. 31, 2016	Dec. 31, 2017	Dec. 31, 2016	Dec. 31, 2017	Dec. 31, 2016	Dec. 31, 2017	Dec. 31, 2016	Dec. 31, 2017	Dec. 31, 2016	Dec. 31, 2017	Dec. 31, 2016
Financial sector	25	13	-	1	3	-	-	-	-	-	28	14
Public sector	-	-	-	-	-	-	-	-	-	-	-	-
Corporates	44	18	94	301	65	127	68	5	67	684	338	1,134
Retail	34	37	141	123	65	63	37	38	140	128	417	388
Industry conglomerates	2	9	-	-	-	-	-	-	-	-	2	9
Other	-	-	-	-	-	-	-	-	-	-	-	-
Total	**105**	**76**	**236**	**425**	**133**	**190**	**105**	**42**	**207**	**812**	**785**	**1,545**

FIG. 28 – BANK SECTOR: LENDING VOLUME PAST DUE BUT NOT IMPAIRED, BY COUNTRY GROUP

	Past due up to 5 days		Past due > 5 days to 1 month		Past due > 1 month to 2 months		Past due > 2 months to 3 months		Past due > 3 months		Total	
€ million	Dec. 31, 2017	Dec. 31, 2016	Dec. 31, 2017	Dec. 31, 2016	Dec. 31, 2017	Dec. 31, 2016	Dec. 31, 2017	Dec. 31, 2016	Dec. 31, 2017	Dec. 31, 2016	Dec. 31, 2017	Dec. 31, 2016
Germany	77	64	145	201	72	91	43	42	171	188	508	585
Other industrialized countries	25	10	89	224	52	1	59	1	34	175	259	410
Advanced economies	-	3	1	-	-	29	-	-	-	217	1	248
Emerging markets	3	-	1	-	8	69	3	-	2	233	17	302
Supranational institutions	-	-	-	-	-	-	-	-	-	-	-	-
Total	**105**	**76**	**236**	**425**	**133**	**190**	**105**	**42**	**207**	**812**	**785**	**1,545**

Defaults (rating classes 5A to 5E) accounted for 1 percent of the total lending volume as at December 31, 2017, which was again largely unchanged year on year.

Single borrower concentrations

As at December 31, 2017, the 10 counterparties associated with the largest lending volumes accounted for 8 percent of total lending in the **Bank sector** (December 31, 2016: 9 percent). The equivalent proportion for **DZ BANK** was 8 percent (December 31, 2016: 9 percent). These counterparties largely comprised financial-sector and public-sector borrowers domiciled in Germany with an upper investment-grade rating.

Investment-grade lending volume

Fig. 30 and Fig. 31 show the lending volume that is neither impaired nor past due, i.e. the investment-grade proportion of the total credit portfolio.

In the **Bank sector**, the proportion of the total lending volume represented by this portfolio as at December 31, 2017 was 98 percent, unchanged on December 31, 2016.

FIG. 29 – BANK SECTOR: LENDING VOLUME, BY RATING CLASS

		Traditional lending business		Securities business		Derivatives and money market business		Total	
€ billion		Dec. 31, 2017	Dec. 31, 2016	Dec. 31, 2017	Dec. 31, 2016	Dec. 31, 2017	Dec. 31, 2016	Dec. 31, 2017	Dec. 31, 2016
Investment grade	1A	6.3	6.1	30.1	38.4	1.0	1.4	37.4	45.9
	1B	2.0	2.5	8.1	10.1	1.6	1.9	11.8	14.5
	1C	87.7	82.5	8.6	9.2	3.6	4.3	99.9	96.0
	1D	5.1	4.8	2.2	2.4	0.2	0.2	7.5	7.5
	1E	7.9	7.0	1.9	2.2	1.8	1.9	11.5	11.1
	2A	12.3	12.7	3.2	2.5	0.9	0.7	16.5	16.0
	2B	11.4	11.7	10.1	10.4	1.7	1.9	23.2	24.0
	2C	14.3	14.5	2.5	4.8	0.6	0.9	17.4	20.2
	2D	15.0	15.6	3.4	2.5	0.5	0.7	19.0	18.8
	2E	18.7	21.4	5.1	7.2	0.9	1.0	24.8	29.6
	3A	20.1	17.3	1.8	1.4	0.6	0.7	22.5	19.3
Non-investment grade	3B	19.9	17.5	1.4	0.6	0.2	0.2	21.5	18.3
	3C	17.8	16.4	0.3	1.3	0.1	0.1	18.2	17.8
	3D	13.9	13.9	0.5	0.8	0.1	0.1	14.5	14.8
	3E	4.5	4.6	0.6	0.2	-	-	5.2	4.9
	4A	2.5	2.3	0.0	0.1	-	-	2.6	2.4
	4B	5.3	7.2	0.0	0.2	-	-	5.3	7.4
	4C	3.5	6.2	0.1	0.1	-	-	3.5	6.3
	4D	0.7	0.6	-	-	-	-	0.7	0.6
	4E	3.0	3.8	0.1	0.1	-	-	3.1	3.9
Default		6.0	5.6	0.2	0.2	-	-	6.2	5.8
Not rated		2.0	1.7	0.8	0.8	0.3	0.4	3.1	2.8
Total		**279.8**	**275.8**	**81.1**	**95.5**	**14.2**	**16.3**	**375.2**	**387.7**

FIG. 30 – BANK SECTOR: LENDING VOLUME NEITHER IMPAIRED NOR PAST DUE, BY SECTOR

	Total portfolio		Portfolio neither impaired nor past due	
€ billion	Dec. 31, 2017	Dec. 31, 2016	Dec. 31, 2017	Dec. 31, 2016
Financial sector	131.6	128.4	131.5	128.3
Public sector	54.2	66.6	54.2	66.6
Corporates	114.4	122.0	109.8	117.3
Retail	65.3	61.4	64.0	60.2
Industry conglomerates	9.2	8.8	9.2	8.8
Other	0.5	0.5	0.5	0.5
Total	**375.2**	**387.7**	**369.1**	**381.7**

FIG. 31 – BANK SECTOR: LENDING VOLUME NEITHER IMPAIRED NOR PAST DUE, BY COUNTRY GROUP

	Total portfolio		Portfolio neither impaired nor past due	
€ billion	Dec. 31, 2017	Dec. 31, 2016	Dec. 31, 2017	Dec. 31, 2016
Germany	303.1	303.8	300.2	300.7
Other industrialized countries	57.2	65.8	55.1	64.2
Advanced economies	3.6	4.1	3.2	3.7
Emerging markets	9.1	10.9	8.4	10.1
Supranational institutions	2.2	3.0	2.2	3.0
Total	**375.2**	**387.7**	**369.1**	**381.7**

The situation was similar at **DZ BANK**, where the proportion of the total lending volume with an investment-grade rating was unchanged year on year at 99 percent as at December 31, 2017.

As in previous years, the large proportion of investment-grade business is attributable to the risk-conscious lending policy pursued by the entities in the Bank sector.

8.6.8 Collateralized lending volume

Fig. 32 shows the breakdown of the collateralized lending volume at overall portfolio level by type of collateral and class of risk-bearing instrument. In the case of traditional lending business, figures are generally reported before the application of any offsetting agreements, whereas the collateralized exposure in the securities business and derivatives and money market business is shown net.

As at December 31, 2017, the collateralized lending volume in the **Bank sector** had declined marginally to €116.1 billion from €116.2 billion as at December 31, 2016. The collateralization rate was 30.9 percent at the reporting date (December 31, 2016: 30.0 percent).

In the Bank sector's **traditional lending business**, most of the collateralized lending volume – 85 percent as at December 31, 2017 – remained accounted for by lending secured by charges over physical assets such as land charges, mortgages, and registered ship mortgages.

These types of collateral are particularly important for BSH, DG HYP, DVB, and WL BANK. 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.

In **securities transactions**, there is generally no further collateralization to supplement the hedging activities 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 €12.3 billion, **DZ BANK's** collateralized lending volume at December 31, 2017 was marginally down year on year (December 31, 2016: €12.4 billion). The collateralization rate of 6 percent at the reporting date was the same as it had been a year earlier.

In terms of traditional collateral, **securities transactions** are generally concluded on an unsecured basis. A low level of personal collateral (guarantees and indemnity agreements) and financial collateral is used to mitigate risk in **derivatives and money market business**.

8.6.9 Securitizations

The asset-backed securities (ABS) portfolio in the Bank sector is predominantly held by DZ BANK and DG HYP. This portfolio at **Bank sector** level had a fair value of €2,796 million as at the reporting date (December 31, 2016: €3,430 million). The fair value for **DZ BANK** as at December 31, 2017 came to €2,048 million (December 31, 2016: €2,013 million).

These figures included the ABS wind-down portfolio from the period before the financial crisis with a fair value of €1,854 million (December 31, 2016: €2,474 million) at **Bank sector** level and €1,106 million (December 31, 2016: €1,182 million) in respect of **DZ BANK**. The changes in the wind-down portfolio in 2017 were largely within expectations, both in terms of the contraction of the portfolio as a result of redemptions and in terms of the overall performance of the portfolio.

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, 2017, the fair value of the securitization exposures arising from **DZ BANK's** activities in which it acts as a sponsor amounted to €1,022 million (December 31 2016: €996 million). The year-on-year increase in the exposures was largely due to fluctuations in the drawdown of liquidity lines.

8.7 Credit portfolios with increased risk content

The following disclosures relating to exposures in subportfolios also form part of the above analyses of the entire credit portfolio. However, these subportfolios have been analyzed separately because of their significance for the risk position.

8.7.1 European sovereign debt portfolio

As at December 31, 2017, loans and advances to borrowers in the countries directly affected by the **European sovereign debt crisis** attributable to the **Bank sector** and to **DZ BANK** amounted to €7,982 million (December 31, 2016: €8,721 million) and €2,302 million (December 31, 2016: €2,670 million) respectively.

Fig. 33 shows the borrower structures of the entities in the Bank sector for the eurozone periphery countries by credit-risk-bearing instrument.

FIG. 32 – BANK SECTOR: COLLATERALIZED LENDING VOLUME, BY TYPE OF COLLATERAL

	Traditional lending business		Securities business		Derivatives and money market business		Total	
	Dec. 31, 2017	Dec. 31, 2016	Dec. 31, 2017	Dec. 31, 2016	Dec. 31, 2017	Dec. 31, 2016	Dec. 31, 2017	Dec. 31, 2016
Guarantees, indemnities, risk subparticipation (€ billion)	6.7	7.0	-	-	0.2	0.3	6.9	7.3
Credit insurance (€ billion)	3.1	3.1	-	-	-	-	3.1	3.1
Land charges, mortgages, ship mortgages (€ billion)	98.7	98.0	-	-	-	-	98.8	98.0
Pledged loans and advances, assignments, other pledged assets (€ billion)	5.3	5.8	-	-	-	-	5.4	5.8
Financial collateral (€ billion)	1.4	1.5	-	-	0.2	0.1	1.6	1.6
Other collateral (€ billion)	0.3	0.4	-	-	-	-	0.3	0.4
Collateralized lending volume (€ billion)	**115.6**	**115.7**	**-**	**-**	**0.5**	**0.5**	**116.1**	**116.2**
Gross lending volume (€ billion)	279.8	275.8	81.1	95.5	14.2	16.3	375.2	387.7
Uncollateralized lending volume (€ billion)	**164.2**	**160.1**	**81.1**	**95.5**	**13.7**	**15.8**	**259.1**	**271.5**
Collateralization rate (%)	**41.3**	**41.9**	**-**	**-**	**3.4**	**3.0**	**30.9**	**30.0**

FIG. 33 – 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, 2017	Dec. 31, 2016	Dec. 31, 2017	Dec. 31, 2016	Dec. 31, 2017	Dec. 31, 2016	Dec. 31, 2017	Dec. 31, 2016
Portugal	**80**	**117**	**1,035**	**1,017**	**-**	**-**	**1,115**	**1,134**
of which: public sector	-	-	919	894	-	-	919	894
of which: non-public sector	80	117	116	122	-	-	196	240
of which: financial sector	-	25	-	3	-	-	-	28
Italy	**158**	**190**	**3,158**	**3,468**	**19**	**15**	**3,336**	**3,673**
of which: public sector	-	-	2,809	2,920	-	-	2,809	2,920
of which: non-public sector	158	190	349	548	19	15	526	753
of which: financial sector	32	33	121	144	19	14	172	192
Greece	**20**	**13**	**13**	**-**	**-**	**-**	**33**	**13**
of which: public sector	-	-	-	-	-	-	-	-
of which: non-public sector	20	13	13	-	-	-	33	13
of which: financial sector	-	-	-	-	-	-	-	-
Spain	**232**	**319**	**3,200**	**3,555**	**67**	**26**	**3,499**	**3,901**
of which: public sector	19	26	2,094	2,132	-	-	2,113	2,158
of which: non-public sector	212	293	1,106	1,423	67	26	1,386	1,742
of which: financial sector	31	39	380	575	65	21	477	636
Total	**490**	**639**	**7,406**	**8,040**	**87**	**41**	**7,982**	**8,721**
of which: public sector	19	26	5,821	5,947	-	-	5,841	5,973
of which: non-public sector	470	613	1,584	2,093	87	41	2,141	2,748
of which: financial sector	63	98	502	722	84	36	649	855

1 Unlike the other presentations of lending volume, traditional lending business in this case includes long-term equity investments.

8.7.2 Shipping finance and offshore finance portfolio

Against the backdrop of the crisis in shipping and offshore markets in the year under review, the disclosures presented in this report have been extended in comparison with the 2016 opportunity and risk report. In addition to shipping finance, offshore finance is now shown as a separate segment.

Business background

Within the DZ BANK Group's **Bank sector**, the shipping finance business is mainly operated by DVB. DZ BANK also has shipping finance in its credit portfolio, but the proportion is significantly lower than at DVB. DVB is also involved in offshore finance business.

At **DVB**, the criteria for granting **shipping loans** include the credit standing of the ship owner and operator, the quality and recoverability of the shipping asset itself, the cash flow that the borrower can generate with the ship concerned to repay the debt, and the extent to which the ship involved can be remarketed. DVB generally only enters into shipping finance arrangements for which the financed ship can be used as collateral.

DVB's offshore credit portfolio 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.

DVB initiated various corrective measures in response to the crisis. For example, the lending policy for shipping finance was considerably tightened, the impact of which was to reduce new business activity to a low level, well below budget. In addition, DVB no longer takes on any new business in the offshore segment. Existing finance is to be scaled back, preserving as much value as possible. In view of the tough market conditions, strategic options are being reviewed in relation to DVB.

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, the finance 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.

At DVB and DZ BANK, the lending volume associated with shipping finance comprises loans and advances to customers, guarantees and indemnities, irrevocable loan commitments, securities, and derivatives.

Shipping finance lending volume

As at December 31, 2017, the **Bank sector's** shipping finance portfolio had a value of €10,180 million (December 31, 2016: €12,763 million). The breakdown of the shipping finance portfolio by country group is set out in Fig. 34.

FIG. 34 – BANK SECTOR: SHIPPING FINANCE LENDING VOLUME, BY COUNTRY GROUP

	Traditional lending business		Securities business		Derivatives business		Total	
€ million	Dec. 31, 2017	Dec. 31, 2016	Dec. 31, 2017	Dec. 31, 2016	Dec. 31, 2017	Dec. 31, 2016	Dec. 31, 2017	Dec. 31, 2016
Germany	1,421	1,504	-	-	3	3	1,424	1,507
Other industrialized countries	6,122	7,453	-	-	1	5	6,124	7,458
Advanced economies	1,336	1,907	-	-	-	-	1,336	1,907
Emerging markets	1,294	1,885	-	-	2	5	1,296	1,890
Total	**10,174**	**12,749**	**-**	**-**	**6**	**14**	**10,180**	**12,763**

As at December 31, 2017, **DVB's** shipping finance portfolio comprised finance provided for 1,427 vessels and 0.3 million containers (December 31, 2016: 1,328 vessels and 0.5 million containers). The average exposure as at the reporting date was €32 million (December 31, 2016: €40 million) and the largest single exposure was €189 million (December 31, 2016: €237 million).

DVB's exposure fell significantly from €11,948 million as at December 31, 2016 to €9,523 million as at December 31 2017. As at the reporting date, the shipping finance portfolio was broadly diversified in terms of geographical region, type of vessel, borrower, charterer, and shipping activity. The largest proportion of the volume lent was attributable to the financing of tankers. As at December 31, 2017, this proportion had risen slightly by 0.8 percentage points to 48.8 percent of DVB's total volume of shipping finance. This relative increase related mainly to the product tanker segment (and to a very small extent, the gas tanker segment) of the shipping market, whereas the proportion of the portfolio attributable to crude oil tankers and chemical tankers declined. The portfolio was almost fully collateralized in compliance with DVB strategy.

The ongoing overcapacity in some shipping sectors continued to be the source of downward pressure on ship asset values and charter rates. A further overall rise in default rates was evident in the shipping industry because liquidity reserves have been exhausted.

DZ BANK's shipping finance exposures amounted to €657 million as at December 31, 2017 (December 31, 2016: €815 million). Broken down by type of ship, the portfolio was focused mainly on multifunctional merchant vessels and, in terms of carrying capacity, comprised almost exclusively small- to medium-sized vessels. As in 2016, DZ BANK's shipping finance portfolio in 2017 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, 2017, the Bank sector's lending volume in the offshore finance business attributable exclusively to **DVB** amounted to €1,767 million (December 31, 2016: €2,358 million). Fig. 35 shows the breakdown of the offshore finance portfolio by country group.

8.8 Non-performing lending volume

8.8.1 Impaired lending volume

Fig. 36 and Fig. 37 show the impaired lending volume. The collateral shown is available for securing the lending volume after specific loan loss allowances. The disclosures largely relate to traditional lending business.

In the **Bank sector**, the lending volume after loan loss allowances rose slightly from €2,622 million as at December 31, 2016 to €3,030 million as at December 31, 2017.

At **DZ BANK**, the lending volume after specific loan loss allowances rose from €835 million as at December 31, 2016 to €894 million as at December 31, 2017. This increase was almost entirely the result of a higher volume of impaired loans to corporates.

FIG. 35 – BANK SECTOR: OFFSHORE FINANCE LENDING VOLUME, BY COUNTRY GROUP

	Traditional lending business		Securities business		Derivatives business		Total	
€ million	Dec. 31, 2017	Dec. 31, 2016	Dec. 31, 2017	Dec. 31, 2016	Dec. 31, 2017	Dec. 31, 2016	Dec. 31, 2017	Dec. 31, 2016
Germany	60	35	-	-	-	-	60	35
Other industrialized countries	1,041	1,360	-	-	-	3	1,041	1,364
Advanced economies	96	91	-	-	-	-	96	91
Emerging markets	570	866	-	-	-	2	570	868
Total	**1,766**	**2,352**	**-**	**-**	**-**	**5**	**1,767**	**2,358**

FIG. 36 – BANK SECTOR: IMPAIRED LENDING VOLUME AND COLLATERAL, BY SECTOR

	Amount before specific loan loss allowances		Specific loan loss allowances		Amount after specific loan loss allowances		Collateral	
€ million	Dec. 31, 2017	Dec. 31, 2016	Dec. 31, 2017	Dec. 31, 2016	Dec. 31, 2017	Dec. 31, 2016	Dec. 31, 2017	Dec. 31, 2016
Financial sector	54	81	26	41	28	40	21	31
Public sector	-	-	-	-	-	-	-	-
Corporates	4,327	3,517	1,837	1,436	2,490	2,081	1,845	1,237
Retail	923	859	411	358	512	501	496	491
Industry conglomerates	-	2	-	1	-	1	-	-
Other	-	-	-	-	-	-	-	-
Total	**5,304**	**4,458**	**2,274**	**1,836**	**3,030**	**2,622**	**2,361**	**1,758**

FIG. 37 – BANK SECTOR: IMPAIRED LENDING VOLUME AND COLLATERAL, BY COUNTRY GROUP

	Amount before specific loan loss allowances		Specific loan loss allowances		Amount after specific loan loss allowances		Collateral	
€ million	Dec. 31, 2017	Dec. 31, 2016	Dec. 31, 2017	Dec. 31, 2016	Dec. 31, 2017	Dec. 31, 2016	Dec. 31, 2017	Dec. 31, 2016
Germany	2,403	2,521	1,131	1,221	1,272	1,300	937	913
Other industrialized countries	1,900	1,226	656	365	1,244	861	910	459
Advanced economies	370	219	268	132	102	87	165	101
Emerging markets	630	492	219	118	411	374	350	285
Supranational institutions	-	-	-	-	-	-	-	-
Total	**5,304**	**4,458**	**2,274**	**1,836**	**3,030**	**2,622**	**2,361**	**1,758**

8.8.2 Volume of non-performing loans

The rise in the volume of non-performing loans reported for the **Bank sector** from €5.8 billion to €6.2 billion in conjunction with the decrease in the total lending volume from €387.7 billion to €375.2 billion caused the NPL ratio to go up year on year to 1.7 percent at the end of 2017 (December 31, 2016: 1.5 percent).

At **DZ BANK**, there was a marginal fall in the volume of non-performing loans, which declined from €2.3 billion as at December 31, 2016 to €2.2 billion as at the 2017 balance sheet date. As this change was accompanied by a contraction in the overall lending volume from €205.8 billion to €197.2 billion, the NPL ratio remained at the prior-year level of 1.1 percent.

Fig. 38 shows key figures relating to the volume of non-performing loans.

FIG. 38 – BANK SECTOR: KEY FIGURES FOR THE VOLUME OF NON-PERFORMING LOANS

	Bank sector		DZ BANK	
€ billion	Dec. 31, 2017	Dec. 31, 2016	Dec. 31, 2017	Dec. 31, 2016
Total lending volume (€ billion)	375.2	387.7	197.2	205.8
Volume of non-performing loans (€ billion)[1]	6.2	5.8	2.2	2.3
Balance of allowances for losses on loans and advances (€ billion)[2]	3.1	2.7	1.3	1.3
Loan loss allowance ratio (%)[3]	0.8	0.7	0.6	0.6
Risk cover ratio (%)[4]	50.1	47.0	59.1	57.4
NPL ratio (%)[5]	1.7	1.5	1.1	1.1

1 Volume of non-performing loans excluding collateral.
2 Total of specific loan loss allowances (including specific loan loss allowances evaluated on a group basis), portfolio loan loss allowances, provisions for loan commitments, and liabilities under financial guarantee contracts.
3 Balance of allowances for losses on loans and advances as a proportion of total lending volume.
4 Balance of allowances for losses on loans and advances as a proportion of the volume of non-performing loans.
5 Volume of non-performing loans as a proportion of total lending volume.

8.9 Allowances for losses on loans and advances

The disclosures in this section relate to the level of allowances for losses on loans and advances. Details of allowances for losses on loans and advances in the income statement are presented in sections 3.1 and 3.2 of the business report in this group management report.

8.9.1 Allowances for losses on loans and advances in the total portfolio

Fig 39 and Fig. 40 show the change in the volume of allowances (specific loan loss allowances, including the specific loan loss allowances evaluated on a group basis, and portfolio loan loss allowances), the provisions for loan commitments, and liabilities under financial guarantee contracts in 2017 and 2016 for the entire credit portfolio of the Bank sector and DZ BANK.

These items are disclosed for the Bank sector in the notes to the consolidated financial statements as follows:

- Loan loss allowances: note 52 (allowances for losses on loans and advances)
- Provisions for loan commitments: note 67 (provisions)
- Liabilities under financial guarantee contracts: note 69 (other liabilities).

Over the course of the reporting period, the **volume of specific loan loss allowances** in the **Bank sector** rose by €438 million. This increase was primarily attributable to DVB's shipping and offshore businesses. The volume of specific loan loss allowances at DZ BANK rose by €27 million in the year under review to €813 million. As at December 31, 2016, there had been a year-on-year increase in the volume of specific loan loss allowances of €229 million in the Bank sector and €39 million at DZ BANK.

The **volume of portfolio loan loss allowances** in the **Bank sector** decreased by €38 million during the reporting year (2016: increase of €92 million) and totaled €520 million at the end of 2017. The equivalent figure at **DZ BANK** also declined, by €14 million to €165 million (2016: increase of €60 million).

The volume of **provisions for loan commitments and liabilities under financial guarantee contracts** went down in 2017, in the **Bank sector** by €20 million to €234 million (December 31, 2016: up by €106 million) and at **DZ BANK** by €37 million to €205 million (December 31, 2016: up by €104 million).

FIG 39 – BANK SECTOR: ALLOWANCES FOR LOSSES ON LOANS AND ADVANCES IN THE TOTAL PORTFOLIO

	Specific loan loss allowances[1]		Portfolio loan loss allowances		Total loan loss allowances		Provisions for loan commitments[2] and liabilities under financial guarantee contracts	
€ million	2017	2016	2017	2016	2017	2016	2017	2016
Balance as at Jan. 1	1,836	1,607	558	466	2,394	2,073	254	148
Additions	1,363	908	207	218	1,570	1,126	116	117
Utilizations	-354	-244	-	-	-354	-244	-	-
Reversals	-442	-416	-244	-139	-686	-555	-133	-71
Interest income	-40	-31	-	-	-40	-31	2	2
Other changes	-89	12	-1	13	-90	25	-5	58
Balance as at Dec. 31	2,274	1,836	520	558	2,794	2,394	234	254
Directly recognized impairment losses	47	48	-	-	47	48		
Recoveries on loans and advances previously impaired	-127	-116	-	-	-127	-116		

1 Including specific loan loss allowances evaluated on a group basis.
2 Excluding other provisions for loans and advances.

Not relevant

FIG. 40 – BANK SECTOR: ALLOWANCES FOR LOSSES ON LOANS AND ADVANCES IN DZ BANK'S TOTAL PORTFOLIO

	Specific loan loss allowances		Portfolio loan loss allowances		Total loan loss allowances		Provisions for loan commitments and liabilities under financial guarantee contracts	
€ million	2017	2016	2017	2016	2017	2016	2017	2016
Balance as at Jan. 1	**786**	825	**179**	119	**965**	944	**242**	138
Additions	340	256	43	92	383	348	97	114
Utilizations	-47	-103	-	-	-47	-103	-	-
Reversals	-234	-192	-57	-32	-291	-224	-134	-66
Interest income	-13	-10	-	-	-13	-10	4	3
Other changes	-19	10	-	-	-19	10	-4	53
Balance as at Dec. 31	**813**	786	**165**	179	**978**	965	**205**	242
Directly recognized impairment losses	1	-	-	-	1	-		
Recoveries on loans and advances previously impaired	-81	-59	-	-	-81	-59		

Not relevant

8.9.2 Allowances for losses on loans and advances in portfolios with increased risk content

Allowances for losses on loans and advances in the European sovereign debt portfolio

The level of specific loan loss allowances for the Bank sector's exposure in the peripheral countries of the eurozone increased marginally in the year under review.

Portfolio loan loss allowances in this subportfolio amounted to a total of €12 million as at December 31, 2017 (December 31, 2016: €11 million).

Allowances for losses on loans and advances in the shipping finance and offshore finance portfolio

The challenging market conditions in the international shipping and offshore markets persisted throughout the year under review, with a further sharp deterioration in some parts of the market compared with 2016. As also happened at the other banks operating in this market segment, the shipping finance and offshore finance portfolios in the Bank sector of the DZ BANK Group were subjected to a detailed examination by the banking supervisor in 2017. One of the consequences at DVB was a significantly more conservative approach in the parameters used for measuring allowances for losses on loans and advances. Compounded by the protracted crisis in shipping markets and a deterioration in offshore markets, this led to a significant rise in the level of allowances for losses on loans and advances at DVB in the second half of 2017.

The level of specific loan loss allowances for DVB's **shipping finance portfolio** had risen by €202 million year on year to €552 million at the end of 2017, although the level of portfolio loan loss allowances had fallen by €12 million. The specific and portfolio loan loss allowances for the shipping finance portfolio at DZ BANK rose by €41 million to €201 million and by €2 million to €20 million respectively.

The level of specific loan loss allowances in DVB's **offshore finance portfolio** as at December 31, 2017 had gone up by €331 million year on year. However, the level of portfolio loan loss allowances for this market segment declined by €11 million.

Changes in the individual components of the allowances for losses on loans and advances for portfolios with increased risk content for 2017 and 2016 are shown in Fig. 41 (Bank sector) and in Fig. 42 (DZ BANK).

FIG. 41 – BANK SECTOR: ALLOWANCES FOR LOSSES ON LOANS AND ADVANCES FOR PORTFOLIOS WITH INCREASED RISK CONTENT

	Specific loan loss allowances[1]		Portfolio loan loss allowances		Total loan loss allowances		Provisions for loan commitments[2] and liabilities under financial guarantee contracts	
€ million	2017	2016	2017	2016	2017	2016	2017	2016
Eurozone periphery countries portfolio								
Balance as at Jan. 1	10	13	10	14	20	27	-	-
Balance as at Dec. 31	11	10	12	10	24	20	-	-
Shipping finance portfolio								
Balance as at Jan. 1	510	327	46	43	556	369	-	2
Balance as at Dec. 31	753	510	36	46	789	556	-	-
Offshore finance portfolio								
Balance as at Jan. 1	61	20	14	3	75	23	-	-
Balance as at Dec. 31	392	61	3	14	395	75	13	-

1 Including specific loan loss allowances evaluated on a group basis.
2 Excluding other provisions for loans and advances.

FIG. 42 – BANK SECTOR: ALLOWANCES FOR LOSSES ON LOANS AND ADVANCES FOR PORTFOLIOS WITH INCREASED RISK CONTENT, DZ BANK

	Specific loan loss allowances		Portfolio loan loss allowances		Total loan loss allowances		Provisions for loan commitments and liabilities under financial guarantee contracts	
€ million	2017	2016	2017	2016	2017	2016	2017	2016
Eurozone periphery countries								
Balance as at Jan. 1	5	5	2	3	7	8	-	-
Balance as at Dec. 31	7	5	2	2	9	7	-	-
Shipping finance portfolio								
Balance as at Jan. 1	160	184	18	20	178	204	-	2
Balance as at Dec. 31	201	160	20	18	221	178	-	-

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, 2017, the **Bank sector's** risk capital requirement amounted to €4,245 million (December 31, 2016: €4,472 million). The risk capital requirement (including capital buffer requirement) at the end of 2017 amounted to €5,772 million with an upper loss limit of €7,628 million (December 31, 2016: €6,606 million).

Most of the fall in the risk capital requirement is explained by the lower lending volume and the migration of shipping finance and offshore finance to default ratings at DVB.

As at December 31, 2017, the risk capital requirement for **DZ BANK** was calculated at €1,515 million (December 31, 2016: €1,577 million). The risk capital requirement (including capital buffer requirement) at the end of 2017 amounted to €2,152 million with an upper loss limit of €2,700 million (December 31, 2016: €2,200 million).

The risk capital requirements (including capital buffer requirements) for the Bank sector and for DZ BANK were within the applicable upper loss limits at all times during the course of 2017.

Fig. 43 shows the credit value-at-risk together with the average probability of default and expected loss.

The risk capital required in the **Bank sector** and at **DZ BANK** for credit portfolios exposed to increased credit risk is shown in Fig. 44.

FIG. 43 – 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, 2017	Dec. 31, 2016	Dec. 31, 2017	Dec. 31, 2016	Dec. 31, 2017	Dec. 31, 2016	Dec. 31, 2017	Dec. 31, 2016	Dec. 31, 2017	Dec. 31, 2016	Dec. 31, 2017	Dec. 31, 2016
Traditional lending business	0.6%	0.7%	0.2%	0.2%	426	503	113	112	2,282	2,566	926	974
Securities business	0.2%	0.2%	0.2%	0.2%	66	70	37	38	1,636	1,571	345	325
Derivatives and money market business	0.1%	0.2%	0.1%	0.1%	10	12	9	10	327	335	245	278
Total					501	585	159	161	4,245	4,472	1,515	1,577
Average	0.5%	0.5%	0.2%	0.2%								

1 Excluding decentralized capital buffer requirement.

Not relevant

FIG. 44 – BANK SECTOR: CREDIT VALUE-AT-RISK FOR CREDIT PORTFOLIOS WITH INCREASED RISK CONTENT

	Bank sector		DZ BANK	
€ million	Dec. 31, 2017	Dec. 31, 2016	Dec. 31, 2017	Dec. 31, 2016
Eurozone periphery countries portfolio	1,090	946	13	16
Shipping finance portfolio	206	361	48	58
Offshore finance portfolio	99	176		

Not relevant

The year-on-year increase of 15 percent in the risk capital requirement for exposures held by entities in the Bank sector to **European periphery countries** was caused by changes to some of the model-based parameters for calculating the loss given default for countries.

The risk capital requirement in the Bank sector for **shipping finance and offshore finance** stemmed primarily from DVB. The significant year-on-year decrease was to a large degree due to the lower lending volume and the migration of shipping finance and offshore finance to default ratings, which was accompanied by higher allowances for losses on loans and advances in relation to these exposures.

8.11 Summary and outlook

All internal **rating systems** approved by the banking supervisor for solvency reporting were validated in 2017. The supervisory review of material model changes in IRB approaches relating to VR rating banks is scheduled for 2018.

A portfolio-based approach (**portfolio simulation**) for measuring replacement risk at DZ BANK was introduced in 2017 for the bulk of the derivatives portfolio (simple interest-rate swaps).

EMIR requires the exchange of an initial margin in OTC derivatives transactions in addition to the variation margin. This **initial margin exchange** is expected to be mandatory for the entities in the Bank sector from September 2019. In addition, there are plans to initiate further measures in the coming year as part of the continuous optimization of the internal credit risk measurement system. In 2018, the entities in the Bank sector will continue to apply their existing **risk-strategy approach** to lending. At DZ BANK, this will involve further stepping up business with the cooperative financial network and selected customers. The Bank sector also plans to further increase its market share in SME business and strengthen its positioning in this segment in Germany, especially in the medium-sized company subsegment.

Given the predictions for economic growth, the Bank sector and DZ BANK are both likely to make additions to **specific loan loss allowances** in 2018, but within the expected level of allowances for losses on loans and advances.

DVB is aiming to significantly reduce its shipping finance portfolio and completely eliminate its offshore finance portfolio over the course of 2018 and subsequent years. This will be accompanied by greater concentration on the aviation finance and land transport finance segments. DVB has put in place a separate strategy and new structures to help it manage the portfolio wind-down while at the same time preserving value as far as possible.

9 Equity investment risk

9.1 Definition and business background

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.

In the Bank sector, equity investment risk arises primarily at DZ BANK, BSH, and DVB.

The long-term equity investments in the banking book are held largely for strategic reasons and normally cover markets, market segments, or parts of the value chain in which the entities of the Bank sector 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.

9.2 Risk strategy and responsibility

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 upper loss 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 Group Strategy and Controlling division is responsible for **supporting these investments**, whereas at BSH the task falls within the scope of the International Markets division and the Controlling and Investment Management division. At DVB, the investments are the responsibility of the Accounting and Legal Affairs departments.

The **monitoring and measurement** of equity investment risk is the responsibility of the relevant planning and control units, which must then submit quarterly reports on the results of their activities to the Supervisory Board, the Board of Managing Directors, and the division responsible for supporting the investments.

9.3 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.

Since the first quarter of 2017, the risk capital requirement for the vast majority of the long-term equity investments in the **Bank sector** including **DZ BANK** has been 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 has been determined using an earnings-at-risk approach since the second quarter of 2017.

The measurement of equity investment risk takes into account both the equity-accounted investments and 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.

9.4 Specific risk factors

If a future impairment test determines that the carrying amount of long-term equity investments reported on the balance sheet is significantly impaired, this could have an adverse impact on the financial performance and financial position of the DZ BANK Group and DZ BANK.

In the case of non-controlling interests, there is 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; this would lead to an increase in the impairment 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 €2,714 million as at December 31, 2017 (December 31, 2016: €2,786 million). As at December 31, 2017, the carrying amounts of the long-term equity investments of **DZ BANK** totaled €1,588 million (December 31, 2016: €1,709 million). This contraction was primarily attributable to the sale of one long-term equity investment.

As at the reporting date, the **economic capital requirement** for equity investment risk in the **Bank sector** was measured at €1,093 million, which was lower than the corresponding figure at the end of 2016 of €1,263 million. This decrease was mainly accounted for by the sale of one long-term equity investment at DZ BANK and by changes in the risk modeling. The upper loss limit was €1,422 million (December 31, 2016: €1,468 million). The upper loss limit was not exceeded at any time in 2017.

As at December 31, 2017, the economic capital requirement for equity investment risk at **DZ BANK** amounted to €618 million (December 31, 2016: €722 million). The upper loss limit at December 31, 2017 was €650 million (December 31, 2016: €760 million). The upper loss limit was not exceeded at any point during 2017.

10 Market risk

10.1 Definition and business background

Market risk in the Bank sector including DZ BANK 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 on financial instruments or other assets arising from changes in market prices or in the parameters that influence prices. Depending on the underlying influences, market risk can be broken down for the most part into interest-rate risk, spread risk and migration risk, equity risk, fund price risk, currency risk, and asset-management risk. Commodity risk is not material for the entities in the Bank sector. This type of market risk is therefore not covered below.

Market risks arise in particular from DZ BANK's customer-account trading activities, DZ BANK's cash-pooling function for the cooperative financial network, and from the lending business, real-estate finance business, building society operations, funds business, capital markets business, investments, and issuing activities of the various management units. Spread risk, including migration risk, is the most significant type of market risk for the Bank sector. Market risk also arises from the assets and liabilities in connection with direct pension commitments.

Market liquidity risk is the risk of loss arising from adverse changes in market liquidity, for example as a result of a reduction in market depth or of market disruption. The consequences are that assets can only be liquidated in markets if they are discounted and that it is only possible to carry out active risk management on a limited basis. Market liquidity risk arises primarily in connection with securities already held in the portfolio as well as funding and money market business.

10.2 Risk strategy

10.2.1 General market risk strategy in the Bank sector

The following principles for managing market risk apply to DZ BANK and its subsidiaries in the Bank sector:

- 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.
- Market liquidity risk is consciously assumed following an analysis that takes into account the prevailing market liquidity.

10.2.2 Market risk strategy at DZ BANK
For regulatory purposes, DZ BANK is classed as a trading book institution. It conducts trading activities as part of its role as a central institution in the cooperative financial network and – on this basis – as a corporate bank for customers outside the cooperative financial network. As part of a range of services for the cooperative financial network, DZ BANK provides investment and risk management products, platforms, research, and expertise, and acts as an intermediary transforming small deposits into larger-scale lending. DZ BANK also provides facilities ensuring risk transfer from the cooperative financial network and cash pooling within the cooperative financial network. DZ BANK's trading strategy is aimed at generating profits primarily from customer margins and structuring margins.

Unmatched market-risk positions from primary business activities arise principally in connection with customer business and from holding securities portfolios for trading on behalf of customers. The risks predominantly comprise **spread risk and migration risk**. To support its liquidity management function as a central institution and corporate bank, and on behalf of the DZ BANK Group, DZ BANK also maintains liquidity portfolios in which it holds – within the relevant limits – bonds eligible for central bank borrowing. It also holds portfolios of bonds and credit derivatives for the purposes of managing credit risk.

DZ BANK manages market risk arising from its lending business, own issues, and from holding issues from the cooperative banks and subsidiaries.

The risks arising in connection with the assets and liabilities associated with direct **pension commitments** form part of the daily risk management process and are also regularly assessed by a DZ BANK investment committee. Corrective action to eliminate risk is taken where necessary. Changes in legislation, decisions by the courts, or accounting standards may make it necessary to adjust existing provisions for pensions and other post-employment benefits.

10.2.3 Market risk strategy at BSH
For regulatory purposes, BSH is classed as an institution with a banking book and is exposed to market risk primarily in the form of interest-rate risk, spread risk, and migration risk.

Interest-rate risk arises mainly from its customer business (in particular building society operations). Interest-rate risk comprises traditional interest-rate risk, for example as a result of interest rates in building society operations for which BSH has given a firm commitment, and the risk from customer rights enshrined in home savings contracts, the exercise of which may partly depend on interest rates. Traditional interest-rate risk is managed mainly through the maturities in the investment portfolio. The risk from customer rights is controlled through the design of home savings rates. The objective is to manage the interest-rate risk within the existing limits, which will rise slightly over the medium term as a result of the small increase in new business.

Spread risk and migration risk arise at BSH from investing surplus home savings deposits in securities. These risks are consciously assumed within the framework of a conservative investment policy and it is planned to keep them at a similar level, even following further diversification in the range of investments.

10.2.4 Market risk strategy at DG HYP
For regulatory purposes, DG HYP is also classed as an institution with a banking book. DG HYP's business model means that the main risks relevant to its management of market risk are spread risk and migration risk.

DG HYP consciously takes on **spread risk and migration risk**. As DG HYP is classed as a banking book institution, it does not engage in own-account trading in the sense of exploiting short-term fluctuations in interest rates and prices.

10.2.5 Market risk strategy at UMH
The main market risks faced by UMH are fund price risk and asset-management risk.

Fund price risk arises if UMH or its subsidiaries acquire their own investment funds for investment purposes. UMH and its subsidiaries also acquire units in their own newly launched funds in order to provide initial funding for the funds, but not with the intention of generating short-term trading profits. In addition, pledged employee investments are invested in Union Investment funds in order to cover pension entitlements. Fund price risk is not broken down into other subtypes of market risk for management purposes.

Asset-management risk occurs if UMH enters into obligations to pay additional capital in connection with products offering long-term guarantees. Any shortfall in a contractually agreed minimum capital value on a maturity date triggers a payment obligation on the part of the fund provider, giving rise to these obligations to pay additional capital.

10.2.6 Market risk strategy at WL BANK

For regulatory purposes, WL BANK is classed as an institution with a banking book. Because of WL BANK's strategic focus, it is exposed to market risks, primarily in the form of spread risk and migration risk.

Spread risk and migration risk at WL BANK mainly result from holding securities as Pfandbrief cover assets. These risks are consciously assumed for the purposes of managing liquidity. WL BANK is aiming to further reduce spread risk and migration risk, primarily by scaling back its holdings of government bonds. New business is also limited to issuers with a minimum rating A- in order to keep the impact from a deterioration in credit ratings as low as possible.

10.3 Organization, responsibility, and risk reporting

10.3.1 Organization and responsibility

As a trading book institution, **DZ BANK** generally manages market risk on a decentralized, portfolio basis. The traders responsible for managing a portfolio bear responsibility for its risk and performance.

Market risk arising at **BSH** is managed at overall bank level and exclusively in the banking book. Market risk arising at **DG HYP** and **UMH** is managed centrally by specialist committees at each institution. The committees provide guidance for treasury activities based on market risk reporting. Committee decisions are implemented operationally by the portfolio managers and treasury departments at each entity. **WL BANK's** market risk is largely managed by the treasury for Pfandbriefe within the limits decided by the Board of Managing Directors of WL BANK.

10.3.2 Risk reporting

Market risk reporting

Key figures for **market risk** are submitted at **sector level** to the Group Risk and Finance Committee within the overall risk report for the DZ BANK Group. DZ BANK is informed of any limit overruns at management unit level by means of an ad-hoc reporting system.

At **DZ BANK**, **BSH**, **DG HYP**, and **WL BANK**, Risk Controlling uses the internal reporting system to provide the portfolio managers and the senior managers responsible for risk management and risk control with daily, weekly, or monthly market risk updates. Twice a month, **UMH** calculates the risk attaching to its own-account investing activities and reports this risk to its Board of Managing Directors and the committee responsible for managing own-account investing. The other key figures relating to market risk are reported in UMH's quarterly risk report.

Market liquidity risk reporting

The economic stress test report for the DZ BANK Group is used to inform the Board of Managing Directors of DZ BANK of the results of the market liquidity risk stress test carried out for the **Bank sector** and **DZ BANK**.

At **DG HYP**, the daily market risk report sent to the members of the Board of Managing Directors and portfolio managers also includes reports on market liquidity risk. The results of the market liquidity risk stress test for **WL BANK** are included in the economic stress test report for the DZ BANK Group. This report is also received by the Board of Managing Directors and selected heads of division at WL BANK.

10.4 Management of market risk

10.4.1 Measurement of market risk

DZ BANK, BSH, DG HYP, UMH, and WL BANK determine market risk from the short-term (operating) perspective using the **value-at-risk** method.

Value-at-risk is a key performance indicator that describes the maximum expected loss for a given probability (confidence level) and within a specified holding period for the positions under normal market conditions. The model does not reflect the maximum potential loss that could be incurred in extreme market situations, but is based on observed historical market scenarios over periods of 250 trading days (DZ BANK, DG HYP, WL BANK), 1,500 trading days (BSH), and 1 year (own-account investments of UMH).

DZ BANK, **BSH**, **DG HYP**, and **WL BANK** generate market scenarios using a **historical simulation**. Holding periods of 1 day and 10 days are used.

UMH uses **Monte Carlo simulation** to determine the market risk arising from its own-account investing. This measurement method provides a 'look through' to the individual securities in the funds and it is also used when quantifying the asset-management risk for most product types. The measurement of risk in each case is based on a unilateral confidence level of 99.90 percent and a holding period of 1 year.

For **DZ BANK**, **BSH**, **DG HYP**, and **WL BANK**, calculations are carried out to determine an overall value-at-risk and – where relevant – separate values-at-risk for interest-rate risk, spread risk, equity risk, and currency risk, broken down into trading portfolios and non-trading portfolios. The risk in the banking book is included in the value-at-risk for the non-trading portfolios. Migration risk does not represent a separate type of risk in the short-term perspective. The risk arising from changes in credit ratings is covered by spread risk in this case. An overall value-at-risk is calculated for the own-account investing activities carried out by **UMH**. To determine risk values at the level of the Bank sector, DZ BANK also uses a central, sector-wide risk model, which quantifies market risk for the Bank sector taking into account the effects of concentration and diversification.

To quantify market risk from a longer-term (strategic) perspective, the credit institutions in the Bank sector regularly calculate the **capital requirement** for **market risk** and compare it with the associated upper loss limit.

The risk measurements from both the operating and strategic perspectives for the credit institutions in the Bank sector are linked to each other by a consistent **system of limits**, whereas the market risk incurred by UMH is managed directly at the level of its risk capital requirement. Consequently, it does not require a limit system for linking the operating and strategic perspectives.

10.4.2 Backtesting and stress tests

The methods used by the entities in the Bank sector to quantify market risk on a continuous basis are subjected to **backtesting**, the purpose of which is to check the predictive quality of these methods. 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.

10.4.3 Management of limits for market risk

Market risk is managed at **DZ BANK**, **BSH**, **DG HYP**, and **WL BANK** using a limit system appropriate to the portfolio structure. This system limits the risks assumed in parts of the group as well as any losses arising during the course of the year.

Within the trading divisions of **DZ BANK** and the treasury at **DG HYP**, the management of risk based on value-at-risk is supported by a limit system structured around sensitivities and scenarios, and by stress test limits. At DG HYP, the treasury's system of limits is based on value-at-risk and sensitivities.

The limit system used at **UMH** is based on the value-at-risk or risk capital required at the highest portfolio level.

WL BANK manages interest-rate risk, together with spread risk and migration risk, at overall bank level within the sector-related limits specified by DZ BANK.

10.4.4 Mitigating market risk

Market risk hedging

As part of the decentralized management of portfolios, market risk at **DZ BANK** is hedged by portfolio managers. At **DG HYP**, it is hedged by treasury. At **WL BANK**, this responsibility lies with Pfandbrief treasury. In the case of the latter, market risk is hedged mainly by using OTC transactions with suitable counterparties.

Risks are hedged at **DZ BANK** either through internal transactions with the front-office trading unit responsible for the relevant product or through external exchange-based and OTC transactions.

DG HYP exclusively uses external exchange-based and OTC transactions to hedge against market risk,

although the OTC transactions used for hedging are primarily with counterparties within the Bank sector.

At **BSH**, the asset-liability committee decides whether to hedge market risk via OTC transactions.

As soon as action is required to reduce the market risk arising from own-account investing at **UMH**, changes are made to the composition of the fund positions in its own-account investments. For this reason, UMH is only exposed to fund price risk.

Hedge effectiveness

The measurement of market risk at **DZ BANK** is based on the inclusion of the individual positions subject to market risk. There is therefore no need to monitor the economic effectiveness of hedges.

At **DG HYP**, the effectiveness of any hedging is reviewed and reported daily in terms of both risk and performance. The report covers the entire DG HYP book. Derivatives in various forms are used to mitigate market risk. These are predominantly plain vanilla products.

Market risk is measured at **WL BANK** in the Finance division, which reports the value-at-risk in the overall interest-rate book daily. Interest-rate derivatives are the main instrument used to hedge this risk.

10.4.5 Managing the different types of market risk

Management of interest-rate risk

At **DZ BANK**, interest-rate risk arises from trading in interest-rate-sensitive products on behalf of customers, from structuring its own issues for trading on behalf of customers, and from exposures in connection with liquidity management. The risks arising from trading on behalf of customers are dynamically hedged within the set limits and the risks from liquidity management are generally minimized. At DZ BANK, interest-rate risk also arises from the assets and liabilities in connection with direct pension commitments.

BSH is subject to particular interest-rate risks arising from its collective home savings business since it gives customers a binding interest-rate guarantee both for savings and for the loan element that may be drawn down in the future. BSH uses a simulation model based on the behavior of building society customers to measure interest-rate risk. The model forecasts the volume of collective assets held, taking into consideration planned new business and different customer options.

Management of spread risk and migration risk

Spread risk and migration risk on all financial instruments subject to credit spread risk are incorporated into risk capital management. An upper loss limit and operational limits together with a process for monitoring them were introduced in order to ensure that the risk capital for these two forms of market risk is managed effectively.

At **DZ BANK**, spread risk and migration risk arise from holding securities portfolios for trading on behalf of customers, from trading in its own issues on behalf of customers, and from the liquidity management function that the bank carries out for the Bank sector. The risk incurred in connection with trading on behalf of customers is actively managed. In liquidity management, the risk tends to be limited to that which is absolutely necessary to allow DZ BANK to carry out its responsibilities as a central institution and in connection with the liquidity management function.

Spread risk and migration risk arise at **BSH** from investing surplus home savings deposits in securities. The resulting risk is managed in accordance with a conservative investment policy.

Spread risk and migration risk at **DG HYP** largely result from holding securities as Pfandbrief cover assets. The risks are included in an active internal reporting system and are monitored on a daily basis. Migration risk is not covered by this daily monitoring. Since the switch in DG HYP's business model, the entity has only taken on new spread risk or migration risk if it is necessary as part of the management of cover assets.

Spread risk and migration risk at **WL BANK** result from holding securities as Pfandbrief cover assets and for liquidity purposes. The risk associated with these exposures is monitored as part of regular risk monitoring.

Management of equity risk

Equity risk is only of minor significance at **DZ BANK**. It essentially arises from transactions on behalf of customers involving equities, equity and equity-index derivatives, investment funds and alternative investments, warrants, and investment certificates. It is managed by using equities, exchange-traded futures and options, and OTC derivatives.

Management of fund price risk

Fund price risk largely arises at **DZ BANK** in connection with business conducted on behalf of customers. Funds are also used to cover defined benefit obligations, but these funds are broken down into their constituent parts for the purposes of calculating risk and therefore no longer treated as fund exposures. The risk determined for the constituent parts is actively managed within existing limits.

Fund price risk arises at **BSH** from investing surplus home savings deposits in special funds. Funds are also used to cover defined benefit obligations. In both cases, the funds are broken down into their constituent parts for risk management purposes and not treated as fund exposures. The determined risk is managed within existing limits in the same way as other types of risk.

UMH is exposed to fund price risk because it invests its own resources in funds and also invests pledged employee investments in order to cover pension entitlements. While market risk arising from the funds it holds is measured by 'looking through' to individual-security level, the risk incurred by own-account investing is measured at fund level. For this reason, UMH is only exposed to fund price risk. The management of fund price risk focuses on the liquidity requirements of UMH's subsidiaries and the need to acquire fund units when providing initial funding for investment funds. The requirements for a conservative investment policy are also observed.

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 arising from these guarantee products are managed conservatively.

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.

10.5 Management of market liquidity risk

At **Bank sector** level, excluding DZ BANK, market liquidity effects are taken into account centrally when determining the risk capital requirement for spread risk and migration risk. A market liquidity risk stress test is also carried out for the Bank sector using special stress scenarios as part of the calculation of the risk capital requirement for market risk. The economic capital requirement calculated in the stress scenarios is compared against the available cover assets in order to obtain an indication of capital adequacy during periods of adverse trends in market liquidity.

At **DZ BANK**, the market liquidity risk associated with interest-rate risk, spread risk, equity risk, and currency risk is measured as part of the planning of upper loss limits. Market risk including market liquidity risk is limited at strategic level by the upper loss limit for market risk. At operational level, the limits are determined in a manner that is consistent with the assumptions made in the planning of the upper loss limit.

BSH takes market liquidity risk into account in its day-to-day calculation of liquidity by means of changes in interest rates and credit spreads. At **DG HYP**, market liquidity risk is factored into the calculation of the risk capital requirement and limited via the risk model used at the level of the Bank sector in the DZ BANK Group. It is managed operationally as part of the management of market risk and liquidity. **UMH** could be exposed to market liquidity risk in rare extreme situations as a result of its own-account investing in funds. Market liquidity risk is measured at individual fund level and by carrying out additional stress tests. Market liquidity risk at **WL BANK** is reflected in credit spreads and volatility, and is taken into account centrally by DZ BANK when determining the risk capital requirement for spread risk and migration risk.

10.6 Specific risk factors

Interest-rate risk, spread risk, 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.

Some credit risk premiums for bank bonds and corporate bonds continued to decline significantly over the course of 2017. In the case of European government bonds, especially those issued by France,

some **narrowing of credit spreads** was also evident. This trend was accompanied by a corresponding increase in the fair values of bonds. If credit spreads on bank and corporate bonds or other investments, particularly government bonds, were to widen again, this would lead to a drop in fair values. Present value losses of this nature could have a temporary or permanent adverse impact on the profits generated by the entities in the Bank sector.

A market-wide liquidity squeeze could be detrimental to the business activities of the entities in the Bank sector and therefore also to the financial position and financial performance of the DZ BANK Group and DZ BANK. **Tighter market liquidity** arises particularly in stressed market conditions, as it did, for example, during the financial crisis.

10.7 Risk position

10.7.1 Risk capital requirement

As at December 31, 2017, the risk capital requirement (including capital buffer requirement) for market risk used to determine the risk-bearing capacity of the **Bank sector** amounted to €4,097 million (December 31, 2016: €4,347 million) with an upper loss limit of €6,863 million (December 31, 2016: €7,582 million). The decrease in the risk was largely due to capital market and merger effects.

The Bank sector's risk capital requirement (including capital buffer requirement) encompasses the **asset-management risk** of UMH. The asset-management risk for guarantee funds was measured at €36 million as at December 31, 2017 (December 31, 2016: €50 million). The asset-management risk for UniProfiRente as at the reporting date amounted to €34 million (December 31, 2016: €28 million).

As at December 31, 2017, **DZ BANK's** risk capital requirement (including capital buffer requirement) for market risk amounted to €1,059 million (December 31, 2016: €1,200 million) with an upper loss limit of €2,270 million (December 31, 2016: €2,400 million). DZ BANK is not exposed to any asset-management risk.

Throughout the year under review, the risk capital requirement remained below the upper loss limit at the levels of both the Bank sector and DZ BANK.

10.7.2 Value-at-risk

Fig. 45 shows the change in the value-at-risk in the trading and non-trading portfolios and the change in the aggregate risk for the Bank sector in the year under review.

In addition, Fig. 46 shows the daily changes in risk and the results of daily backtesting of trading portfolios.

As the Bank sector's trading portfolios consist exclusively of the trading portfolios of DZ BANK, the associated figures for the Bank sector are the same as those for DZ BANK.

As at December 31, 2017, the **aggregate risk** in the **Bank sector** was measured at €51 million (December 31, 2016: €119 million). The aggregate risk for **DZ BANK** as at December 31, 2017 was calculated at €14 million (December 31, 2016: €33 million). The main reason for the significant drop in risk was the fall in the volatility of credit spreads over time. There were no fundamental changes in the portfolio structure.

The value-at-risk for the **trading portfolios** in the Bank sector as at December 29, 2017 was €2 million (December 31, 2016: €4 million) and therefore remained at the low prior-year level.

In the year under review, the hypothetical changes in fair value exceeded the forecast risk value on 6 trading days. Of this total, 4 overruns arose from market movements, which was within the tolerance for model-related overruns, and 2 were attributable to valuation adjustments.

As at December 31, 2017, the value-at-risk for the **Bank sector's non-trading portfolios** was calculated at €49 million (December 31, 2016: €119 million). Once again, the fall in the volatility of credit spreads was the principal reason behind the decrease in risk.

10.8 Summary and outlook

DZ BANK fine-tuned the central, sector-wide market-risk model in the year under review as planned and then put it into operation in February 2018. From the beginning of 2019, the model is expected to become relevant for the management of market risk in the Bank sector in relation to economic capital adequacy.

As in previous years, the focus of DZ BANK's trading business will be on customer business in 2018.

11 Technical risk of a home savings and loan company

11.1 Definition and business background

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.

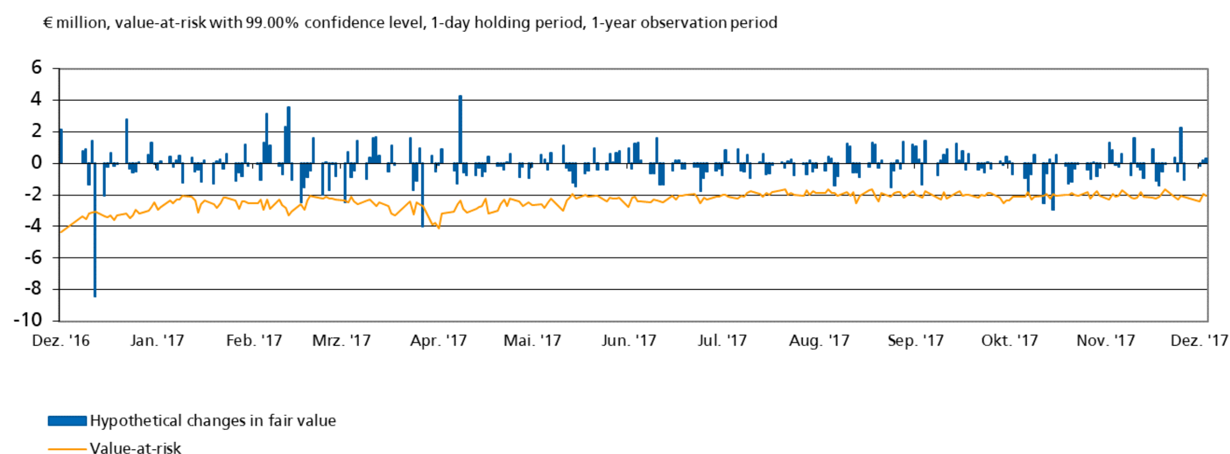
Collective risk refers to the risk of a negative impact that could arise from variances between the actual and forecast performance of the collective building society operations caused by significant long-term changes in customer behavior unrelated to changes in interest rates.

FIG. 45 – BANK SECTOR: VALUE-AT-RISK FOR MARKET RISK IN THE TRADING AND NON-TRADING PORTFOLIOS[1 2]

€ million	Interest-rate risk		Spread risk and migration risk		Equity risk[3]		Currency 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
Aggregate risk[5]												
Dec. 31, 2017	**22**	**6**	**43**	**13**	**5**	**2**	**4**	**3**	**-23**	**-11**	**51**	**14**
Dec. 31, 2016	**18**	**17**	**108**	**20**	**7**	**3**	**2**	**4**	**-15**	**-12**	**119**	**33**
Trading portfolios												
Dec. 31, 2017	**2**	**2**	**1**	**1**	**1**	**1**	**-**	**-**	**-2**	**-2**	**2**	**2**
Average	2	2	2	2	1	1	1	1	-3	-3	2	2
Maximum	2	2	3	3	1	1	1	1	-2	-2	3	3
Minimum	1	1	1	1	-	-	-	-	-3	-3	2	2
Dec. 31, 2016	**2**	**2**	**4**	**4**	**1**	**1**	**1**	**1**	**-4**	**-4**	**4**	**4**
Non-trading portfolios												
Dec. 31, 2017	**22**	**5**	**42**	**12**	**5**	**1**	**4**	**3**	**-23**	**-9**	**49**	**13**
Average	22	12	68	15	5	2	3	4	-26	-15	72	18
Maximum	33	17	75	16	6	2	5	5	-15	-9	80	22
Minimum	9	5	42	12	4	1	1	3	-36	-19	49	13
Dec. 31, 2016	**19**	**17**	**104**	**17**	**7**	**3**	**2**	**4**	**-13**	**-9**	**119**	**32**

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.
5 Owing to the effects of diversification between trading portfolios and non-trading portfolios, the mathematical total of the risks for these two parts of the overall portfolio are different from the figure for aggregate risk.

FIG. 46 – BANK SECTOR: VALUE-AT-RISK FOR MARKET RISK AND HYPOTHETICAL CHANGES IN FAIR VALUE IN THE TRADING PORTFOLIOS



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.

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 at a later point – following a savings phase (around 6 to 10 years in a standard savings arrangement) – he/she can be granted a low-interest home savings loan (with a maturity of 6 to 14 years) when payout is approved. A home savings agreement is therefore a combined asset/liability product with a very long maturity.

11.2 Risk strategy and responsibility

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. 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.

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.

11.3 Risk management

A special collective simulation, which includes the 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**. 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.

In order to determine the technical risk of a home savings and loan company in a **stress scenario**, the stress parameters, particularly the assumptions about customer behavior, 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.

For the present value perspective in the liquidation approach within BSH's **overall bank limit system**, the technical risk of a home savings and loan company is backed by risk capital.

11.4 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 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 with an adverse impact on the financial position and financial performance of the DZ BANK Group. There is also a risk that the financial position could deteriorate, in particular as a consequence of the drop in deposits from banks and customers.

11.5 Risk position

As at December 31, 2017, the capital requirement for the technical risk of a home savings and loan company amounted to €558 million (December 31, 2016: €541 million) with an upper loss limit of the same amount (December 31, 2016: €600 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 risk capital requirement for the financial year is calculated on November 30 of the previous year and, due to the nature of building society operations, remains constant throughout the financial year. This is why the upper loss limit is deliberately set so close to the risk capital requirement. Its utilization does not fluctuate during the year. Full utilization of the upper loss limit is acceptable.

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.

The key entities incurring business risk in the Bank sector in addition to DZ BANK are the management units DVB and DZ PRIVATBANK.

12.2 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 Group Strategy and Controlling division supports the Board of Managing Directors as part of its role in supervising the activities of the subsidiaries.

The **Financial Services Advisory Council** increased the involvement of the cooperative banks in the joint development and marketing of the DZ BANK Group's products and services and it worked closely with the BVR and its Special Committees. The Financial Services Advisory Council therefore acted as a recommendation committee on product and sales issues arising from the partnership between the cooperative banks and the DZ BANK Group. This approach endeavored to engender a high degree of mutual commitment while at the same time fully maintaining the decentralized structure to the benefit of the cooperative banks. The Financial Services Advisory Council formed the nucleus of the Central Advisory Council introduced in 2018.

The purpose of the **Central Advisory Council** is to facilitate 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 core questions relating to the design of new products and services, and their marketing to cooperative banks and their customers. The Central Advisory Council commenced its activities with a constituent meeting in March 2018, at which point the work of the Financial Services Advisory Council came to an end.

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. **Risk is quantified** using a risk model based on an earnings-at-risk approach.

To identify strategic regulatory initiatives with an impact on the DZ BANK Group and the individual 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.

12.3 Specific risk factors

Costs of regulation

Over the next few years, the DZ BANK Group is likely to face **increased costs**, and thus reduced profits, in connection with implementing the requirements resulting from the commercial-law and regulatory initiatives currently being planned by legislators (see sections 5.1.1 and 5.1.2).

Competition based on pricing and terms

One of the features of the German banking sector is the fierce competition, frequently centered on pricing and terms. This can lead to margins that are not attractive from an economic perspective or are inadequate given the risk involved. The earnings situation is under particular pressure in the **retail banking business**. Since competitors are giving greater focus to retail banking – increasingly with new, digital business models – than to their core businesses, this situation could become even tougher in the future.

Corporate banking is also subject to competition that is becoming increasingly international in nature. A number of foreign providers have already expanded their presence in the German market. The intensity of the competition could therefore continue to increase in the future, with the result that it could be difficult to generate attractive margins, fees and commissions in individual segments or subsegments of the market.

In the event of a renewed economic downturn, this trend could become even worse. For example, a contraction in capital spending by businesses, and an associated drop in demand for bank finance, would add to the competitive pressure. Again, this could give rise to margins that are economically unattractive 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.

Moreover, the reorganization of the customer business in line with the **MiFID II** provisions will tighten the squeeze on margins because of the greater transparency requirements.

In DZ BANK's **own-account investing activities with the local cooperative banks**, it is exposed to rising price sensitivity caused by a contraction in operating profits and increases in the size of the banks resulting from mergers.

In addition, DZ BANK increasingly offers its customers the option of conducting transactions in selected financial instruments using **electronic trading platforms**. Depending also on product demand from market players, European regulation relating to the trading and settlement of financial instruments is expected to lead to a transfer of the trading volume in certain products to electronic 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.

The trends referred to above could have an adverse impact on future financial performance at both DZ BANK Group and DZ BANK levels.

Digitalization and new competitors in transaction banking

The prevalence of mobile devices and internet-based services (**digitalization**) is encouraging the intermediation of new competitors at the interface between customers and banking services. No more so than in **transaction banking**, where banks are frequently finding themselves up against new unregulated competitors, often from outside the banking sector and offering innovative solutions to meet the changes in customer needs. The situation will become even tougher with the implementation of the requirements under Directive (EU) 2015/2366, the revised Payment Services Directive (PSD2), as a result of which third-party providers will have to be granted access to account data. These developments are increasingly changing the role played by banks as product providers and are likely to reduce fee and commission income from transaction banking, thereby diminishing the income prospects for entities in the Bank sector.

The **opportunities** presented by digitalization are described in section 4.2.2.

12.4 Risk position

As at December 31, 2017, the **Bank sector's** risk capital requirement (including capital buffer requirement) for business risk (including reputational risk) amounted to €781 million (December 31, 2016: €912 million). The decrease is primarily attributable to the adjustment of cost time series at DZ BANK to remove non-recurring items. The upper loss limit as at the reporting date was €1,040 million (December 31, 2016: €1,024 million). The upper loss limit was not exceeded at any point during 2017.

As at December 31, 2017, the economic capital requirement for **DZ BANK** was calculated at €579 million (December 31, 2016: €717 million).

The upper loss limit as at December 31, 2017 was €790 million (December 31 2016: €750 million).

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 local cooperative banks), shareholders, employees, the labor market, the general public, and the supervisory authority, in the entities in the Bank sector or in the products and services that they offer.

Reputational risk can arise from any operating process or business activity in the entities within the Bank sector. 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 business risk, liquidity risk, and operational risk (secondary reputational risk).

13.2 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, business continuity management, and compliance.

13.3 Risk management

Reputational risk is generally taken into account within business risk and is therefore implicitly included in the measurement of risk and risk capital adequacy in the Bank sector. At BSH, reputational risk mainly is measured and the capital requirement determined 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.

13.4 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.

14 Operational risk

14.1 Definition and business background

DZ BANK defines operational risk 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. It follows then that operational risk could arise in any division of the entities in the Bank sector. The activities of DZ BANK and those of BSH, DG HYP, DVB, DZ PRIVATBANK, and UMH have a particularly significant impact on operational risk for the Bank sector.

14.2 Risk strategy

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, such as IT risk.

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

The calculation of the risk capital requirement for operational risk in the Bank sector is based on an economic portfolio model, in which losses are monitored on the basis of the expected loss calculated by the model. The results from the model, combined with the tools used to identify risk, enable the efficient, centralized management of operational risk.

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 loss data related to risks that have been incurred, for example in connection with the risk factors specified in section 14.5. The assembled data history also forms the basis for the calculation of economic capital using a portfolio model. Losses are recorded if they are above a threshold value of €1,000.

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 findings are fed into the internal portfolio model for operational risk that is used to calculate any capital buffer requirement. 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 upper loss limit for operational risk is 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 upper loss limits for each management unit.

14.4.4 Mitigating and avoiding operational risk

Continuous 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 Management of special risks

Risks that affect specific matters or areas are called special risks. Special risks primarily impact operational risk but also affect business risk and reputational risk. This particularly applies to aspects of HR risk, IT risk, outsourcing risk, and tax risk. The scope and level of detail for the risk management system described below varies between the management units because of their different business and risk profiles.

Special risks are mostly, but not always, managed and monitored by the generally eponymous specialist divisions. This applies to the majority of the management units in the Bank sector, including DZ BANK.

14.5.1 HR risk

Risk management

The entities in the Bank sector have developed a mechanism known as a **Human Resources KPI cockpit** with standardized key performance indicators (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 key performance indicators (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 suitable corrective action. HR risk is monitored using the following four risk factors: exit risk, availability risk, skills and qualifications risk, motivational risk.

Compliance functions and a comprehensive internal control system are used to counter fraud. 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.

Specific risk factors

The majority of employees at the German offices of the entities in the Bank sector fall within the scope of collective pay agreements or other collective arrangements, such as company agreements. The

entities in the Bank sector could be hit by strikes called by labor unions.

Other HR measures, such as job cuts in response to a permanent fall in demand or to increase efficiency, could lead to industrial disputes between the workforce (or the employee representatives/labor unions) and the entities in the Bank sector.

In accordance with their contingency and crisis management systems, the entities in the Bank sector have initiated a range of measures to maintain business continuity in the event of **strikes and other business interruptions**. However, 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.

The future success of the entities in the Bank sector is dependent upon **capable managers and employees with the necessary skills and qualifications**. Given the current challenges presented by the regulatory environment, this particularly applies in the areas of regulatory reporting, external (consolidated) financial reporting, and risk control. In the labor market, there is fierce competition for managers and employees in these areas of activity driven by high demand and insufficient numbers of suitable individuals.

Unless the necessary number of suitable managers and employees can be attracted to the entities in the Bank sector within the required timeframe, and/or existing managers and employees can be retained by the entities in the sector, there will be a heightened risk that the sector will be unable or insufficiently able to satisfy the statutory requirements regarding regulatory reporting, external (consolidated) financial reporting, and risk control 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 would impact negatively on the reputation of the DZ BANK Group overall and of individual entities in the Bank sector.

14.5.2 IT risk

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. A particular risk would be a partial or total breakdown in data processing systems. The Bank sector counters this risk by using 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.

The central risk assessment method used by the IT division at **DZ BANK** is the assessment of risk events in the IT risk profile report. Risk events are deemed to be specific scenarios for which the level of loss and the probability of occurrence are assessed. The assessment carried out by IT division managers takes into account the results of the self-assessment report on the internal control system, the report on control points, and the report on findings and incidents.

The results of the assessment of IT risk events conducted at **DZ BANK** are used to prepare the risk self-assessment scenarios for the IT division. 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.

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 temporary or permanent loss of data, or cause additional costs because the original capability would need to be restored and/or preventive measures introduced to provide protection against similar events in the future.

Events outside the control of the entities of the Bank sector could also disrupt operational procedures. For example, when executing forward, currency, or commodities trades a risk arises that a system breakdown at a clearing agent, exchange, clearing house, or other financial intermediary could prevent the transactions in question from being settled at the agreed time and thus could also prevent the entities of the Bank sector from meeting their obligations. This could result in the withdrawal of counterparties from agreements entered into with entities in the Bank sector or lead to claims for damages against those entities.

14.5.3 Outsourcing risk

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 risk analysis for the outsourcing arrangement by the division responsible for the outsourcing with the involvement of a number of corporate and functional units, including internal audit, legal affairs, business continuity management, and compliance, and in consultation with the local coordinators for operational risk.

The Central Outsourcing Management (COM) unit has been set up at DZ BANK to coordinate outsourcing 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 outsourcing partners.

At DZ BANK, outsourcing partners are managed by the department responsible for the outsourcing in accordance with the currently applicable guidelines for insourcing and outsourcing. 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 outsourcing partners submit annual audit reports in which they evaluate and confirm the effectiveness of the general controls and procedures.

Specific risk factors

The risk arising in connection with the outsourcing of business activities is limited to the extent required by the supervisory authority. Nevertheless, 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. There are contingency plans, explicit liability provisions in contracts, and exit strategies for this eventuality, including action to reduce this risk.

14.5.4 Risks in connection with the (consolidated) financial reporting process

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 3.4.7.

Specific risk factors

An internal control system relating to the (consolidated) financial reporting process needs to provide reasonable assurance that the financial statements are free from misstatements. The main risks in the (consolidated) financial reporting process are that, as a result of unintended misstatements or deliberate action, the consolidated financial statements and group management report of the DZ BANK Group as well as the consolidated financial statements, group management reports, separate 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. These risks could then have an adverse impact on investors' confidence in the DZ BANK Group and the individual entities in the Bank sector or on their reputation. Furthermore, sanctions could be imposed, for example by the banking supervisor.

The (consolidated) financial statements do not provide a true and fair view of financial position and financial performance if the disclosures in the statements are materially different from what they should be. Differences are classified as material if, individually or as a whole, they could influence economic decisions made by the users of the financial statements on the basis of the financial statements. The internal control system related to the (consolidated) financial reporting process aims to reduce these risks.

14.5.5 Legal risk

Risk management

Tax risk with legal risk implications is not included in this section; it is described in section 14.5.6 below.

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 provisions or similar allowances for losses on loans and advances.

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.

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.

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.

Specific risk factors

Legal risk could arise, in particular, from changes in the legal environment, changes in official interpretations of relevant regulations, government interventions, court or arbitration proceedings, and changes in the business environment.

14.5.6 Tax risk

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.

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.

Specific risk factors

Tax risk can arise, in particular, 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 changes in non-tax regulations.

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.

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 the allowances for losses on loans and advances. Further risks could arise as a result of **changes in tax law or in decisions by the courts**, which could also have retroactive implications.

14.5.7 Compliance risk

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 3.4.4.

Specific risk factors

The compliance and risk management systems in the Bank sector are generally appropriate. Nevertheless, there is a risk that these 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.

The entities in the Bank sector cannot rule out the possibility of the existing compliance system proving to be inadequate, or of their employees violating domestic or foreign legal provisions regardless of the existing legal requirements, internal compliance guidelines and organizational requirements, and despite appropriate training and reviews, or of such activities remaining undiscovered.

A violation of legal provisions may have legal implications for the entity concerned, for the members of its decision-making bodies, or for its employees. It may give rise, for example, to fines, penalties, retrospective tax payments, or claims for damages by third parties. The reputation of the DZ BANK Group as a whole and of the individual entities in the Bank sector may also suffer as a result.

14.6 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.

Fig. 47 shows the losses for the **Bank sector** reported in 2017, classified by loss event category. 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. The losses are selected on the date on which the expense results in a cash outflow, thus ensuring consistency with the internal reporting.

FIG. 47 – BANK SECTOR: NET LOSSES BY EVENT CATEGORY IN 2017[1]

- Execution, delivery, and process management
- External fraud
- Clients, products, and business practices

1 In accordance with the CRR, losses caused by operational risks that are associated with risks such as credit risk are also shown.

In the **Bank sector**, the 'Clients, products, and business practices' event category accounted for the majority (77 percent) of net losses. The net loss in the event category was attributable to 7 loss events. Of the total, 3 loss events resulted from changes arising from court decisions and legal interpretation. A further 3 loss events related to potential legal disputes and 1 event was in connection with tax matters.

Accounting for 81 percent of total net losses, the largest loss event category at **DZ BANK** was also 'Clients, products, and business practices'. 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 2017 either in the Bank sector or at DZ BANK.

14.7 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, 2017 was calculated at €821 million (December 31, 2016: €892 million) with an upper loss limit of €1,147 million (December 31, 2016: €1,152 million).

As at December 31, 2017, the corresponding requirement at **DZ BANK** was €390 million (December 31, 2016: €439 million). The upper loss limit as at December 31, 2017 was €565 million (December 31, 2016: €479 million). The risk capital requirements (including capital buffer requirement) both for the Bank sector and for DZ BANK were within the applicable upper loss limit and alert threshold at all times during the course of 2017.

14.8 Summary and outlook

The methodology for managing operational risk remained fundamentally unchanged in 2017. The results from the portfolio model used to calculate the economic capital requirement for operational risk and the materiality thresholds specified for the loss database, scenario-based risk self-assessment, and risk indicators ensure that operational risk is efficiently managed.

In 2018, it is planned to carry out more analysis using the portfolio model. Efforts will also focus on improving the qualitative management of operational risk and the management of risk-mitigating measures.

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 Board of Managing Directors at its spring meeting.

Life actuarial risk is managed with the objectives of holding a broadly diversified product portfolio and of developing existing products while structuring new, innovative products. In order to diversify the life insurance and pension provision portfolios, pension,

endowment and risk insurance, working life and semi-retirement products, and index-linked products are underwritten in a way that achieves a balance within the product portfolio. The actuarial assumptions are designed so as to build in adequate 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. Policyholder participation is set appropriately. 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, rigorous cost/benefit management, the development of existing products, and the structuring of new, innovative products. In this case too, the actuarial assumptions are designed so as to build in adequate 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 ensure that insurance contract benefit obligations on the balance sheet are matched 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 upper loss 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 hidden asset level sufficient 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, the setting of an appropriate discount rate, 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.

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. In addition, the risk management system incorporates a business continuity management (BCM) 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 subsequently evaluated each quarter by the Risk Committee.

The central **reporting of risk** at R+V is intended to provide transparent reporting. 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, both regularly 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, actuarial risk arises from the business activities of the insurance subsidiary R+V and its subsidiaries. The risk arises from the direct life insurance and health insurance business, the direct non-life insurance business, and the inward reinsurance business.

Actuarial risk arises in the form of variances from the expected level of losses resulting from the random nature of the timing, frequency, and amount of claims. The risk may also arise from unpredictable changes in insured risks, claim distributions, expected values and mean variations due, for example, to changes in climatic and geological conditions or technological, economic or social changes. Incomplete information about the true degree of regularity in the distribution of claims due to incorrect statistical analysis, or incomplete information about the future validity of the degree of regularity in the distribution of claims in the past could be other causes.

The actuarial risk situation in life insurance companies is also characterized to a large extent by fixed premiums and the long-term nature of the guaranteed benefits in the event of a claim.

The actuarial risk situation of a health insurance company is characterized to a large extent by a rise in the cost of claims, caused both by the performance of its portfolio and by the behavior of policyholders and service providers.

16.2 Management of life actuarial risk

16.2.1 Risk measurement

The risk for insurance contracts subject to **mortality risk** is modeled as a 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.

16.2.2 Risk management in direct life insurance business

Actuarial risk is minimized by carrying out a careful, prudent cost calculation while products are still in development. This applies to the development of existing products as well as the design of innovative new types of insurance and is carried out by incorporating adequate safety margins into actuarial assumptions in compliance with legislation. The assumptions are structured in such a way that they not only withstand the current risk situation, but also accommodate potential changes in the risk position. Actuarial control systems are used on a regular basis 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 an appropriate degree of reinsurance.

In principle, the broad diversification of insured risks within R+V has the effect of mitigating risk. 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. **Life expense risk** is mitigated by cutting costs as far as possible and operating sustainably.

Lapse risk is mitigated by structuring life insurance contracts to provide maximum flexibility should policyholders' circumstances change. A range of different options enables customers to maintain their contract instead of canceling it. Designing policyholder participation with an attractive final bonus also counteracts lapse risk.

Advance notice of **policyholder participation** in the form of declarations of future bonuses is also an important instrument with which to reduce actuarial risk relating to life insurance.

16.3 Management of health actuarial risk

16.3.1 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.

16.3.2 Risk management in health and casualty insurance

Risk management in health insurance business

In the health insurance business, actuarial risk is managed by means of a **risk-conscious underwriting policy**, the features of which are binding underwriting guidelines, careful selection of risk, and targeted management of benefits and costs. In many of the health insurance rate scales, deductibles are one of the specific mechanisms 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 supervises the appropriateness of the actuarial assumptions used in the calculations.

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. An independent trustee is consulted to ensure that the actuarial assumptions are sufficiently sound. A safety margin factored into premiums also ensures 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 regularly 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, 2017, R+V used the new PKV mortality table valid for 2017 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-conscious underwriting policy is adopted for casualty insurance. Premiums are reviewed on an ongoing basis to ensure that they remain appropriate. Claims are assessed on a case-by-case basis. Experts and assessors are selected very carefully in order to obtain assessments that are realistic and appropriate.

16.4 Management of non-life actuarial risk

16.4.1 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 volume measures take account of geographical diversification. 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 parameterization of the distributions taken into account uses historical portfolio data and their planning data and reflects the entity's actual risk position.

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. To this end, catastrophe claims are used 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 risk 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.

16.4.2 Risk management in direct non-life insurance business

Premium and reserve risk is managed through targeted 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 adequate 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 precise calculation with the help of mathematical/statistical modeling.

Market monitoring and ongoing checks on the action taken provide further options for managing the business at an early stage, taking into account the prevailing risk appetite.

The measurement of the overall solvency requirement for **natural catastrophe risk** is supplemented by regular 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 regularly 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.

Estimating obligations arising from loss events that have occurred is subject to uncertainty. 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.

16.4.3 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. Risk management is conducted via a clearly structured and 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 regularly 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 key 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 European natural events, R+V entered into a retrocession agreement on July 1, 2017 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.

16.5 Specific risk factors

In the case of products with long-term guarantees, which constitute the bulk of the **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.

In **health insurance**, 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.

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. In any one year, the actual impact from the size and frequency of losses could therefore substantially exceed the forecast impact.

16.6 Claims rate trend in non-life insurance

In the reporting period, the claims rate trend in the **direct non-life insurance business** was within expectations. The only items worth highlighting were the summer hail storm Paul, which caused losses of €25 million, and an individual fire loss amounting to €11 million. As a result, the claims rate for major and cumulative claims was below that in previous financial years. By contrast, the underlying cost of claims (excluding major and cumulative claims) exceeded the 5-year average in 2017. Overall, this resulted in an annual claims rate that was slightly lower than the average rate for previous years.

In the **inward reinsurance business** R+V, together with other reinsurers, was hit by a number of major loss events in the year under review, notably Hurricane Harvey, Hurricane Irma, Hurricane Maria, and the earthquake in Mexico. The claims from these exceptional events were expected to amount to around €200 million. As a consequence, the claims incurred in the inward reinsurance business were higher than forecast in the year under review. This also included the impact of the lowering of the discount rate used for personal injury claims in motor insurance in the United Kingdom (known as the Ogden rate).

Changes in claims rates and settlements (net of reinsurance) in direct non-life insurance and inward non-life reinsurance business are shown in Fig. 48.

16.7 Risk position

As at December 31, 2017, the **overall solvency requirement** for **life actuarial risk** amounted to €697 million (December 31, 2016: €574 million). The increase was predominantly attributable to the change in interest rates and new business. The **upper loss limit** was set at €1,200 million as at the balance sheet date (December 31, 2016: €1,200 million). The upper loss limit was not exceeded at any time during 2017.

As at December 31, 2017, the **overall solvency requirement for health actuarial risk** was measured at €165 million (December 31, 2016: €214 million) with an **upper loss limit** of €370 million (December 31, 2016: €330 million). Again, the risk capital requirement was below the upper loss limit at all times during the course of 2017.

As at December 31, 2017, the **overall solvency requirement** for **non-life actuarial risk** amounted to €3,094 million (December 31, 2016: €2,835 million). The increase was primarily the result of the growth in the volume of business. The **upper loss limit** was set at €3,580 million as at the balance sheet date (December 31, 2016: €3,250 million). It was not exceeded at any time in the year under review.

The overall solvency requirement for the various types of non-life actuarial risk is shown in Fig. 49.

FIG. 48 – INSURANCE SECTOR: CLAIMS RATE AND SETTLEMENTS (NET OF REINSURANCE)[1]

	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008
Claims rate (net) as percentage of premiums earned										
Including major/natural disaster claims	76.6	76.1	76.2	75.5	78.2	75.6	77.7	77.3	73.0	72.6
Excluding major/natural disaster claims	72.8	72.3	74.0	73.8	69.1	72.7	71.4	75.0	73.0	70.6
Settlements (net) as percentage of provision for incoming claims										
Non-life	3.1	3.6	1.6	2.1	0.5	0.3	1.9	4.8	4.8	8.4

1 Direct non-life insurance business and inward non-life reinsurance.

FIG. 49 – INSURANCE SECTOR: OVERALL SOLVENCY REQUIREMENT FOR NON-LIFE ACTUARIAL RISK

€ million	Dec. 31, 2017	Dec. 31, 2016
Premium and reserve risk	1,891	1,671
Non-life catastrophe risk	2,020	1,909
Lapse risk	69	57
Total (after diversification)	**3,094**	**2,835**

16.8 Summary and outlook

R+V possesses a number of tools for effectively controlling actuarial risks that have been identified and for identifying new risks at an early stage. The capital it holds, its well-diversified product portfolio, strong distribution channels, and cost-conscious business operations generally enable R+V to manage these risks and benefit from opportunities that arise.

The changes in actuarial risk in direct non-life insurance in 2018 will continue to be shaped by the strategy of achieving long-term 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.

R+V is currently examining the implications of the UK's exit from the EU (Brexit) in a working group and in consultation with consultants in the UK. As things stand at the moment, any necessary action will not have an impact on the continuation of the inward reinsurance business in its current form.

17 Market risk

17.1 Definition and business background

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 suitably reflects the structural mismatch between assets and liabilities, in particular with respect to their maturities.

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.

According to the Solvency II definition, 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.

17.2 Risk management

17.2.1 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 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.

17.2.2 Principles of market risk management

The management of market risk is a significant element in the management of overall risk at R+V. Market risk at R+V is limited in part by the upper loss limits that are set at the level of the DZ BANK Group.

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). Compliance with the internal provisions in the risk management guidelines for investment risk and with other regulatory investment principles and regulations at R+V is ensured by means of highly

skilled investment management, appropriate internal control procedures, a forward-looking investment policy, and other 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 ensuring liquidity at all times. By maintaining an appropriate mix and diversification of investments, the investment policy of R+V takes particular account of the objective of risk reduction.

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.

Regular 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, a systematic review is 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.

17.2.3 Management of individual market risk categories

In the management of **interest-rate risk**, R+V adheres to the principle of a broad mixture 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 55 in section 17.6). A significant proportion of the portfolio is also backed by further collateral. 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 strict 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 its 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. The prudent investment strategy means that these risks are of secondary importance for R+V.

Concentration risk is of minor relevance to R+V and is reduced by maintaining an appropriate mixture and diversification of investments. This is particularly apparent from the granular structure of the issuers in the portfolio.

17.2.4 Distinctive features of managing market risk in personal insurance business

Due to the persistently low level of interest rates, there is a heightened 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 underwriting 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 2017, R+V added a total of €827 million to these supplementary reserves in its life insurance business, bringing the overall amount to €2,967 million. The addition to these reserves for casualty insurance with premium refund was €9 million, bringing the total to €32 million. R+V expects to make further additions in 2018 and these additions have been included in the budget accounts.

Policyholder participation in the form of future declarations of bonuses is also an important instrument with which 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. 50.

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.

FIG. 50 – INSURANCE SECTOR: BENEFIT RESERVES BY DISCOUNT RATE FOR THE MAIN INSURANCE PORTFOLIOS[1]

Discount rate	Proportion of total benefit reserve in 2017[2]		Proportion of total benefit reserve in 2016[2]	
	(€ million)	(%)	(€ million)	(%)
0.00 %	5,213	8.9	4,532	8.2
0.25 %	729	1.2	607	1.1
0.50 %	17	0.0	-	-
0.75 %	58	0.1	66	0.1
0.90 %	1,088	1.9	-	-
1.00 %	12	-	18	-
1.25 %	2,119	3.6	1,892	3.4
1.50 %	41	0.1	55	0.1
1.75 %	5,067	8.6	4,798	8.7
1.80 %	15	-	-	-
2.00 %	352	0.6	258	0.5
2.25 %	9,837	16.8	9,319	16.9
2.50 %	88	0.1	91	0.2
2.75 %	7,510	12.8	6,888	12.5
3.00 %	3,213	5.5	3,690	6.7
3.25 %	6,940	11.8	6,716	12.2
3.50 %	4,122	7.0	4,325	7.8
3.75 %	293	0.5	305	0.6
4.00 %	7,476	12.7	7,373	13.4

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.

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, the discount rate was reduced in 2017 for observation units with a premium adjustment effective January 1, 2017. The reason for this action was the persistently low level of interest rates.

17.2.5 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.

17.3 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. Compared with actuarial risk, interest-rate risk plays a fairly minor role in non-life insurance business. A rise in interest rates or widening of credit spreads on bonds in the market would lead to a drop in fair values. Falls in fair value of this nature could have a temporary impact on operating profit, or a permanent impact if bonds have to be sold. Given that cash flows in connection with insurance liabilities in the area of life insurance can be readily forecast and the fact that R+V's investments are well diversified, the risk that bonds might have to be sold at a loss before their maturity date is reduced.

Default risk arises if there is a deterioration in the financial circumstances of issuers or borrowers, resulting in the risk of partial or complete default on receivables or in ratings-related impairment losses. The credit quality of R+V's investments is generally high with a sound collateralization structure. In the dominant public and financial sectors, they are largely loans and advances in the form of government bonds and German and European Pfandbriefe with collateral backed by statute.

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.

In the Insurance sector, counterparty default risk is of secondary importance compared with market risk and actuarial risk.

Fig. 51 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, 2017, the total lending volume of R+V had increased by 4 percent to €84.8 billion (December 31, 2016: €81.7 billion). This increase was attributable to the expansion of the investment portfolios in connection with the growth in the insurance business.

The volume of lending in the home finance business stood at €9.5 billion as at December 31, 2017. This was the same as the figure at the end of 2016. Of this amount, 91 percent was accounted for by loans for less than 60 percent of the value of the property, a situation that was unchanged compared with December 31, 2016. The volume of home finance was broken down by finance type as at the reporting date as follows (figures as at December 31, 2016 shown in parentheses):

- Consumer home finance: €9.1 billion (€9.1 billion)
- Commercial home finance: €0.1 billion (€0.2 billion)
- Commercial finance: €0.3 billion (€0.3 billion).

In the home finance business, the entire volume disbursed is usually backed by traditional **loan collateral**.

FIG. 51 – INSURANCE SECTOR: RECONCILIATION OF THE LENDING VOLUME

€ billion

Lending volume 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, 2017	Dec. 31, 2016	Dec. 31, 2017	Dec. 31, 2016	Dec. 31, 2017	Dec. 31, 2016	Dec. 31, 2017	Dec. 31, 2016	Dec. 31, 2017	Dec. 31, 2016	Investments held by insurance companies (note 56 to the consolidated financial statements)
								9.1	9.0	of which: mortgage loans
								7.8	8.2	of which: promissory notes and loans
								9.1	9.3	of which: registered bonds
								0.6	0.4	of which: other loans
								9.3	8.4	of which: variable-yield securities
								44.6	40.6	of which: fixed-income securities
								0.3	0.4	of which: derivatives (positive fair values)
								0.2	0.2	of which: deposits with ceding insurers
84.8	81.7	-0.9	-0.7	0.2	-	-3.2	-4.5	81.0	76.6	Total
				Balance as at Dec. 31, 2017				-3.8	-4.5 %	
				Balance as at Dec. 31, 2016				-2.6	-3.2 %	

Not relevant (grey cells)

The financial sector and the public sector, which are the dominant **sectors**, together accounted for 72 percent of the total lending volume as at December 31, 2017, as was also the case at the end of 2016. This lending mainly comprised loans and advances in the form of German and European Pfandbriefe with collateral backed by statute. Loans and advances to the public sector and consumer home finance (retail) highlight the safety of this investment.

Fig. 52 shows the sectoral breakdown of the lending volume in the Insurance sector.

An analysis of the **geographical breakdown** of the lending volume in Fig. 53 reveals that Germany and other industrialized countries accounted for the lion's share – 91 percent – of the lending volume as at the balance sheet date (December 31, 2016: 92 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. 54.

As at December 31, 2017, 81 percent of the total lending volume had a residual maturity of more than 5 years, a situation that was unchanged compared to the end of 2016. By contrast, 4 percent of the total

FIG. 52 – INSURANCE SECTOR: LENDING VOLUME, BY SECTOR

€ billion	Dec. 31, 2017	Dec. 31, 2016
Financial sector	39.2	37.5
Public sector	21.9	21.5
Corporates	14.4	12.9
Retail	9.0	9.1
Industry conglomerates	0.4	0.7
Other	-	-
Total	84.8	81.7

FIG. 53 – INSURANCE SECTOR: LENDING VOLUME, BY COUNTRY GROUP

€ billion	Dec. 31, 2017	Dec. 31, 2016
Germany	32.1	32.5
Other industrialized countries	44.8	42.4
Advanced economies	1.1	1.1
Emerging markets	3.7	3.6
Supranational institutions	3.1	2.1
Total	84.8	81.7

FIG. 54 – INSURANCE SECTOR: LENDING VOLUME, BY RESIDUAL MATURITY

€ billion	Dec. 31, 2017	Dec. 31, 2016
≤ 1 year	3.0	2.9
> 1 year to ≤ 5 years	13.1	12.9
> 5 years	68.7	65.9
Total	84.8	81.7

lending volume was due to mature within 1 year as at December 31, 2017, which was also unchanged on the previous year. The increase in long residual maturities was mainly the result of investments in bonds.

The **rating structure** of the lending volume in the Insurance sector is shown in Fig 55. Of the total lending volume as at December 31, 2017, 80 percent was attributable to investment-grade borrowers, the same percentage as at the end of 2016. This reflects the regulatory requirements and the safety-oriented risk strategy of R+V. The lending volume that is not rated, which made up 17 percent of the total lending volume (December 31, 2016: 18 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. 22 (section 8.4.1).

As at the reporting date, the 10 counterparties associated with the largest lending volumes accounted for 22 percent of R+V's total lending volume (December 31, 2016: 23 percent).

17.5 Credit portfolios with increased risk content

The following disclosures form part of the above analyses of the entire credit portfolio. However, a separate analysis of R+V's exposure in credit portfolios with increased risk content has been included because of its significance for the risk position in the Insurance sector.

R+V continuously reviews its credit portfolio with regard to emerging crises. The risks identified are observed, analyzed, and managed with the aid of a regular reporting system and discussions in the operational decision-making committees at R+V. Adjustments are made to the portfolio if necessary.

Investments in **European periphery countries** totaled €7,576 million as at December 31, 2017 (December 31, 2016: €7,687 million), which constituted a year-on-year decrease of 1 percent. Fig. 56 shows the country breakdown of the exposure.

17.6 Risk position

As at December 31, 2017, the **overall solvency requirement for market risk** amounted to €2,966 million (December 31, 2016: €2,802 million). The **upper loss limit** was €3,800 million (December 31, 2016: €3,540 million). The changes in market risk resulted first and foremost from the trend in interest rates and business growth. The risk figure also increased as a result of the inclusion of the decentralized capital buffer, which has been calculated since June 30, 2017 for the spread and migration risk arising from sub-portfolios of Italian government bonds. As at December 31, 2017, the decentralized capital buffer amounted to €257 million.

FIG 55 – INSURANCE SECTOR: LENDING VOLUME, BY RATING CLASS

€ billion		Dec. 31, 2017	Dec. 31, 2016
Investment grade	1A	22.5	23.2
	1B	8.9	5.8
	1C	-	-
	1D	10.1	8.9
	1E	-	-
	2A	5.7	6.1
	2B	5.1	5.2
	2C	5.4	6.3
	2D	8.3	8.5
	2E	-	-
	3A	2.2	1.3
Non-investment grade	3B	0.6	0.5
	3C	0.3	0.3
	3D	-	-
	3E	0.5	0.5
	4A	0.1	0.2
	4B	0.1	0.2
	4C	0.2	0.2
	4D	-	-
	4E	-	-
Default		-	0.1
Not rated		14.7	14.8
Total		**84.8**	**81.7**

FIG. 56 – INSURANCE SECTOR: EXPOSURE IN EUROZONE PERIPHERY COUNTRIES

€ million	Dec. 31, 2017	Dec. 31, 2016
Portugal	**2**	7
of which: public sector	-	-
of which: non-public sector	2	7
of which: financial sector	1	1
Italy	**5,569**	5,763
of which: public sector	4,174	4,257
of which: non-public sector	1,395	1,506
of which: financial sector	896	986
Spain	**2,005**	1,917
of which: public sector	1,322	1,239
of which: non-public sector	682	678
of which: financial sector	431	429
Total	**7,576**	7,687
of which: public sector	5,496	5,496
of which: non-public sector	2,080	2,190
of which: financial sector	1,328	1,415

Fig. 57 shows the overall solvency requirement for the various types of market risk.

17.7 Summary and outlook

As in prior years, market risks were manageable in 2017 and did not have any detrimental impact on the risk position or financial performance of the DZ BANK Group.

However, the persistently low level of interest rates, combined with a possible resurgence of the crisis in Europe, does represent a potential risk. This is being countered, particularly with regard to interest-rate risk, by proactive and rigorous asset/liability management and by careful management of risks and investments.

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.

FIG. 57 – INSURANCE SECTOR: OVERALL SOLVENCY REQUIREMENT FOR MARKET RISK

€ million	Dec. 31, 2017	Dec. 31, 2016
Interest-rate risk	1,140	960
Spread risk	1,334	1,184
Equity risk	1,361	1,320
Currency risk	230	203
Real-estate risk	270	374
Total (after diversification)	**2,966**	2,802

Counterparty default risk takes account of collateral or other security that is held by or for the insurance or reinsurance company and any associated risks.

At R+V, risks of this nature particularly relate to counterparties in derivatives transactions, reinsurance counterparties, and defaults on receivables from policyholders and insurance brokers.

18.2 Risk management

18.2.1 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 explicit internal guidelines, particularly those regarding volume and counterparty limits. A comprehensive, real-time reporting system enables the various risks to be monitored regularly and presented transparently. 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 regular checks on limit utilization and compliance with investment guidelines.

18.2.2 Mitigating counterparty default risk

Effective 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 that are deemed to be adequate 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, 2016.

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 2016, virtually all receivables arising from ceded reinsurance, which amounted to €10 million as at December 31, 2017 (December 31, 2016: €30 million), were due from entities with a rating of A or higher. In 2017, 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 2017 or in previous years.

Receivables more than 90 days past due as at the balance sheet date amounted to €31 million as at December 31, 2017 (December 31, 2016: €34 million).

18.3 Specific risk factors
Risk factors in connection with counterparty default risk include unexpected defaults or deterioration in the credit quality of mortgage borrowers, counterparties of derivatives, reinsurance counterparties or policyholders, or insurance brokers.

18.4 Risk position
As at December 31, 2017, the **overall solvency requirement for counterparty default risk** amounted to €51 million (December 31, 2016: €65 million) with an **upper loss limit** of €130 million (December 31, 2016: €110 million). The upper loss limit was not exceeded at any point during 2017.

19 Operational risk

19.1 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. Legal risk could arise, in particular, from changes in the legal environment (legislation and decisions by the courts), changes in official interpretations, and changes in the business environment. It follows then that operational risk could arise in any division of R+V.

19.2 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 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. Risk indicators are collected systematically and regularly.

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 specialist division and reviews of the use and effectiveness of the internal control system carried out by Group Internal Audit 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, provide additional security. Manual payments are always approved by a second member of staff.

To ensure that it is operational at all times, R+V has a fully integrated **business continuity management 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 helps to 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.

BCM ensures 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 regularly 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. The entire BCM system is subject to ongoing further development in a process of continuous improvement.

For information on the management of significant special operational risks, i.e. HR risk, IT risk, legal risk, and tax risk, please refer to the details on the management of these special risks in the Bank sector, which also apply to the Insurance sector (sections 14.5.1, 14.5.2, 14.5.5, and 14.5.6).

19.3 Specific risk factors

19.3.1 HR risk

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 heightened 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.

R+V provides long-term professional development and enhanced talent-management activities to ensure that staff members undergo the continuous 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, systematic 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, such as corporate health management, support for achieving a work-life balance, and regular staff surveys.

R+V counters operational risk in sales and distribution by providing continuous 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.

19.3.2 IT risk

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 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, or cause additional costs because the original capability would need to be restored and/or preventive measures introduced to provide protection against similar events in the future.

Quality assurance in IT is based on well-established processes that follow 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 and system response times) are decided upon at monthly meetings attended by the IT divisional managers.

Comprehensive physical and logical precautionary measures guarantee the security of data and applications and 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. Regular 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. This means that data will still be available, even if all of the data processing centers in Wiesbaden are completely destroyed.

As part of contingency and crisis management systems, R+V has initiated a range of measures to cope with business interruptions. However, the possibility cannot be ruled out that disruption to processes and workflows could be sustained over several days. Moreover, sensitive internal and external interfaces could be jeopardized by long-term business interruptions.

19.3.3 Legal risk

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. In the year under review, no significant operational risks from non-underwriting legal disputes arose at R+V.

Legal risk could arise, in particular, from changes in the legal environment, changes in official interpretations of relevant regulations, government interventions, court or arbitration proceedings, and changes in the business environment.

19.3.4 Tax risk

Tax risk can arise, in particular, 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 changes in non-tax regulations.

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.

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 the allowances for losses on loans and advances. Further risks could arise as a result of **changes in tax law or in decisions by the courts**, which could also have retroactive implications.

19.4 Risk position

As at December 31, 2017, the **overall solvency requirement for operational risk** amounted to €531 million (December 31, 2016: €509 million). The **upper loss limit** applicable at the reporting date was set at €650 million (December 31, 2016: €640 million). The upper loss limit was not exceeded at any time during 2017.

20 Risks from non-controlling interests in insurance companies and from entities in other financial sectors

R+V includes in its measurement of risk a long-term equity investment in a Spanish insurance company, in which the investment is a non-controlling interest. The proportionate risk capital and proportionate own funds for the company concerned are added into R+V's calculations in accordance with Solvency II.

At R+V, the non-controlling interests in insurance companies and the entities in other financial sectors mainly consist of pension funds and occupational pension schemes.

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 as a factor of 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. In particular, the relevant activities within risk management apply as described in the sections on life actuarial risk, market risk, counterparty default risk, and operational risk.

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. Here too, the relevant activities within risk management apply as described in the sections on life actuarial risk, market risk, counterparty default risk, and operational risk. 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, 2017, the overall solvency requirement for risks in connection with non-controlling interests in insurance companies and entities in other financial sectors stood at €115 million (December 31, 2016: €110 million) with an **upper loss limit** of €140 million (December 31, 2016: €120 million). The upper loss limit was not exceeded at any point during 2017.

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Balance sheet as at December 31, 2017

ASSETS

€ million	(Notes)				Dec. 31, 2017	Dec. 31, 2016
1. Cash and cash equivalents						
a) Cash on hand				195		133
b) Balances with central banks				1,604		1,923
of which: with Deutsche Bundesbank		1,416				(1,742)
					1,799	**2,056**
2. Debt instruments from public-sector entities and bills of exchange eligible for refinancing by central banks						
a) Treasury bills, non-interest-bearing treasury notes and similar debt instruments from public-sector entities				269		236
					269	**236**
3. Loans and advances to banks	(02, 04, 05, 06, 07)					
a) Repayable on demand				38,290		22,954
b) Other loans and advances				97,859		95,141
					136,149	**118,095**
4. Loans and advances to customers	(02, 04, 05, 07)				**33,007**	**33,744**
of which: secured by mortgages		311				(2,587)
local authority loans		1,095				(1,317)
5. Bonds and other fixed-income securities	(02, 04, 05, 07, 12, 14)					
a) Money market instruments				165		139
ab) from other issuers			165			139
b) Bonds				34,888		45,452
ba) from public-sector issuers			11,706			16,224
of which: eligible as collateral at Deutsche Bundesbank		11,293				(15,789)
bb) from other issuers			23,182			29,228
of which: eligible as collateral at Deutsche Bundesbank		14,510				(16,876)
c) Own bonds				21		–
Nominal value		20				(–)
					35,074	**45,591**
6. Shares and other variable-yield securities	(02, 07, 12, 14)				**60**	**68**
6a. Trading assets	(02, 07, 13)				**29,813**	**38,187**
7. Long-term equity investments	(02, 12, 14)				**386**	**380**
of which: in banks		223				(213)
8. Shares in affiliated companies	(02, 12, 14)				**11,414**	**11,534**
of which: in banks		6,665				(6,737)
in financial services institutions		211				(211)
9. Trust assets	(08)				**978**	**1,025**
of which: trust loans		66				(82)
10. Intangible assets	(02, 14)					
b) Purchased concessions, industrial and similar rights and assets, including licenses for such rights and assets				48		45
d) Payments in advance				29		21
					77	**66**
11. Property, plant and equipment	(02, 14)				**440**	**439**
12. Other assets	(15)				**1,206**	**918**
13. Prepaid expenses and accrued income	(16)					
a) In connection with issuing and lending business				64		47
b) Other				33		38
					97	**85**
14. Deferred tax assets	(02, 17)				**1,061**	**891**
15. Excess of plan assets over pension liabilities	(18)				**168**	**0**
Total assets					**251,998**	**253,315**

EQUITY AND LIABILITIES

€ million	(Notes)				Dec. 31, 2017	Dec. 31, 2016
1. Deposits from banks	(02, 04, 05, 06)					
a) Repayable on demand				43,894		39,163
b) With agreed maturity or notice period				83,697		80,987
					127,591	**120,150**
2. Deposits from customers	(02, 04, 05)					
b) Other deposits				31,489		27,938
ba) Repayable on demand			17,885			14,113
bb) With agreed maturity or notice period			13,604			13,825
					31,489	**27,938**
3. Debt certificates issued including bonds	(02, 04, 05)					
a) Bonds issued				25,962		31,326
b) Other debt certificates issued				10,569		16,847
of which: commercial paper		10,569				(16,847)
					36,531	**48,173**
3a. Trading liabilities	(02, 13)				**33,164**	**31,966**
4. Trust liabilities	(08)				**978**	**1,025**
of which: trust loans		66				(82)
5. Other liabilities	(03, 19)				**694**	**1,428**
6. Deferred income and accrued expenses	(16)					
a) In connection with issuing and lending business				74		74
b) Other				8		3
					82	**77**
7. Provisions	(02)					
a) Provisions for pensions and other post-employment benefits				34		294
b) Provisions for taxes				91		141
c) Other provisions				918		940
					1,043	**1,376**
8. Subordinated liabilities	(02, 05, 20)				**5,358**	**6,119**
9. Profit-sharing rights	(21)				**292**	**292**
of which: maturing within two years		229				(229)
10. Fund for general banking risks	(02)				**4,272**	**4,515**
of which: special item in accordance with section 340e (4) HGB		275				(268)
11. Equity	(22, 23, 24)					
a) Subscribed capital				4,926		4,900
less the imputed par value of treasury shares				–		-243
				4,926		4,657
Contingent capital: €50 million (Dec. 31, 2016: €50 million)						
b) Capital reserve				3,784		3,810
c) Revenue reserves				1,470		1,463
ca) Statutory reserve			105			105
cd) Other revenue reserves			1,365			1,358
d) Distributable profit				324		326
					10,504	**10,256**
Total equity and liabilities					**251,998**	**253,315**

1. Contingent liabilities	(35)					
b) Liabilities under guarantees and indemnity agreements*				8,551		8,700
c) Liability arising from assets pledged as security for third-party liabilities				–		105
					8,551	**8,805**
2. Other obligations	(35)					
c) Irrevocable loan commitments				21,664		21,917
					21,664	**21,917**

* See also details under 'Other disclosures' in Notes 36 and 37.

Income statement for the period from January 1 to December 31, 2017

€ million	(Notes)				2017	2016
1. Interest income from	(02, 30)					
a) Lending and money market business			1,881			2,115
of which: negative interest rates on financial assets		123				(74)
b) Fixed-income securities and book-entry securities			712			880
of which: negative interest rates on financial assets		0				(0)
				2,593		2,995
2. Interest expense	(02)			1,990		2,385
					603	610
of which: positive interest rates on financial liabilities		135				(70)
expenses incurred by the unwinding of discounts on provisions		4				(3)
3. Current income from	(02, 30)					
a) Shares and other variable-yield securities				0		0
b) Long-term equity investments				13		77
c) Shares in affiliated companies				400		318
					413	395
4. Income from profit-pooling, profit-transfer and partial profit-transfer agreements					**324**	346
5. Fee and commission income	(30, 31)			757		816
6. Fee and commission expenses				381		410
					376	406
7. Net trading income	(02, 30)				**424**	563
of which: amounts added in accordance with section 340e (4) HGB		7				(–)
income from the discounting of provisions		0				(–)
expenses incurred by the unwinding of discounts on provisions		0				(2)
8. Other operating income	(02, 30, 32)				**152**	147
of which: income from the discounting of provisions		4				(3)
9. General and administrative expenses						
a) Staff expenses				643		677
aa) Wages and salaries			550			586
ab) Social security, post-employment and other employee benefit expenses			93			91
of which: post-employment benefit expenses		26				(24)
b) Other administrative expenses				834		781
					1,477	1,458
10. Amortization and write-downs on intangible assets, and depreciation and write-downs on property, plant and equipment					**52**	56
11. Other operating expenses	(02, 32)				**179**	126
of which: expenses incurred by the unwinding of discounts on provisions		77				(6)
12. Write-downs on and allowances for losses on loans and advances and certain securities, and additions to provisions for losses on loans and advances	(02)				**–**	313
13. Income from the reversal of write-downs on loans and advances and certain securities, and from the reversal of provisions for losses on loans and advances	(02)				**14**	–
14. Income from the reversal of write-downs on long-term equity investments, shares in affiliated companies, and securities treated as fixed assets	(02)				**225**	117
15. Income from reversal of the fund for general banking risks	(02)				**250**	–
16. Expenses from the transfer of losses					**351**	20
17. Result from ordinary activities					**722**	611

€ million	(Notes)				2017	2016
18. Extraordinary income	(33)				**107**	1
19. Extraordinary expenses	(33)				**509**	343
20. Extraordinary result					**-402**	-342
21. Income taxes				-251		-55
of which: from deferred taxes		-170				(-47)
22. Other taxes not included under 'Other operating expenses'				1		1
					-250	-54
23. Net income for the year	(34)				**570**	323
24. Profit brought forward from 2016					**4**	3
25. Additions to revenue reserves					**250**	–
d) To other revenue reserves				250		–
26. Distributable profit					**324**	326

Notes

A. General disclosures

» 01
Basis of preparation

DZ BANK AG Deutsche Zentral-Genossenschaftsbank (DZ BANK), headquartered in Frankfurt am Main, is entered in the commercial register at the Frankfurt am Main local court under the number HRB 45651.

The annual financial statements of DZ BANK for the year ended December 31, 2017 have been prepared in accordance with the requirements of the German Commercial Code (HGB) and the Statutory Order on the Accounts of Banks and Financial Services Institutions (RechKredV). At the same time, the annual financial statements comply with the provisions of the German Stock Corporation Act (AktG), the DG BANK Transformation Act, and the Articles of Association of DZ BANK.

DZ BANK has made use of available options to include disclosures in the notes to the financial statements rather than on the balance sheet and income statement. 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 accounting policies applied in 2017 were essentially the same as those used in 2016. Any changes compared with 2016 are set forth in Note 02 'Accounting policies'.

» 02
Accounting policies

Assets and liabilities are measured in accordance with the general provisions in sections 252 et seq. HGB, taking account of the special provisions in sections 340 et seq. HGB applicable to banks.

Loans and advances to banks and customers

Loans and advances to banks and customers are carried at their principal amounts or at cost. The difference between the principal amount and the amount disbursed is recognized under deferred income and apportioned pro rata over the term of the loan. Promissory notes, registered bonds, and lease receivables acquired from third parties are recognized at cost. Loans and advances, which are classified as current assets, are measured strictly at the lower of cost and market.

Provisions for lending risks comprise valuation allowances and provisions for credit risk and latent credit risk for all portfolios of loans and advances on the balance sheet and off-balance-sheet transactions at individual transaction level and/or on a portfolio basis. Based on specific measurement of each risk, provisions are recognized for all identifiable credit risks in the amount of the expected loss as dictated by prudent business practice. Latent credit risk is accounted for through the recognition of portfolio loan loss allowances. The calculation of the portfolio loan loss allowance is based on the incurred loss model as defined by IAS 39.

The method used for regulatory purposes is the method that is generally applied. Other measurement factors are determined on the basis of internal parameters. DZ BANK also recognizes allowances for general banking risks as permitted by section 340f HGB.

Bonds and other fixed-income securities, and shares and other variable-yield securities

These line items on the balance sheet comprise long-term securities and securities in the liquidity reserve. Securities in the liquidity reserve are measured strictly in accordance with the principle of lower of cost and market. Long-term securities that are permanently impaired are written down to the lower of cost and market. In 2017, as in the previous year, temporarily impaired long-term securities were optionally measured at the lower of cost and market or their carrying amount was retained in accordance with section 340e (1) HGB. Under the item 'Bonds and other fixed-income securities', the carrying amount of marketable securities not measured at the lower of cost and market was €3,151 million. For further information on the impact on net assets, financial position, and results of operations, please refer to Note 14 'Statement of changes in fixed assets'.

The fair value of securities is largely determined by reference to current market prices or by using generally accepted valuation methods on the basis of parameters that are broadly observable in the market, such as yield curves, spreads, volatility, or exchange rates. If specific parameters relevant to the measurement cannot be observed or cannot be determined directly from market data, the bank's own internal estimated parameters are used.

DZ BANK individually measures securities that are held either as long-term investments or in the liquidity reserve.

Premiums and discounts on the fixed-income securities in the banking book are recognized in accordance with the effective interest method. This resulted in interest expense of €76 million in 2017.

Dividend income from shares and other variable-yield securities that are held either as long-term investments or in the liquidity reserve is reported as current income from shares and other variable-yield securities.

Trading assets and trading liabilities

Trading assets and trading liabilities comprise bonds and other fixed-income securities, shares and other variable-yield securities, promissory notes, registered bonds, sale and repurchase agreements, and derivatives (interest-rate, currency, credit, and equity derivatives). DZ BANK reports its own structured issues of credit-linked notes and share certificates – because they are held for trading purposes – as trading liabilities in accordance with the criteria specified in accounting guidance statement 2 issued by the banking committee of the Institut der Wirtschaftsprüfer in Deutschland e.V. (IDW) [Institute of Public Auditors in Germany].

Over-the-counter (OTC) derivatives held for trading purposes, for which variation margins have been agreed on the basis of bilateral master agreements in the Collateralization Annex and for which the variation margins have been paid daily, are netted and shown on the balance sheet on a net basis. For each master agreement, the netting covers the fair values of the OTC derivatives and the variation margin. As at December 31, 2017, this netting reduced loans and

advances to banks by €3,225 million (December 31, 2016: €5,690 million), loans and advances to customers by €252 million (December 31, 2016: €428 million), the carrying amount of trading assets by €11,157 million (December 31, 2016: €15,341 million), deposits from banks by €1,493 million (December 31, 2016: €2,527 million), deposits from customers by €297 million (December 31, 2016: €373 million), and the carrying amount of trading liabilities by €12,844 million (December 31, 2016: €18,559 million). The amounts are presented on a gross basis in Note 26 'List of derivatives recognized at fair value by product area' and in Note 27 'List of derivatives recognized at fair value by counterparty structure'.

The fair values of OTC interest-rate derivatives that are traded through a central counterparty have also been netted with the carrying amounts of the underlying derivatives positions contained in the trading assets and trading liabilities line items on the balance sheet. As at December 31, 2017, this netting reduced the carrying amount of trading assets by €6,412 million (December 31, 2016: loans and advances to banks by €105 million, loans and advances to customers by €335 million, carrying amount of trading assets by €6,948 million), the carrying amount of other assets by €1,590 million (December 31, 2016: €1,729 million), and the carrying amount of trading liabilities by €8,002 million (December 31, 2016: €9,117 million). The amounts are presented on a net basis in Note 26 'List of derivatives recognized at fair value by product area' and in Note 27 'List of derivatives recognized at fair value by counterparty structure'.

As part of the clearing service for customers of DZ BANK, the fair values of OTC interest-rate derivatives that are traded through a central counterparty are recognized and netted with the carrying amounts of the underlying derivatives positions contained in the trading assets and trading liabilities line items on the balance sheet.

Financial instruments held for trading purposes are measured at their fair value in accordance with section 340e (3) HGB in conjunction with section 255 (4) HGB, minus any risk adjustments and/or plus any risk premiums. To ensure that the income statement only includes unrealized gains from positions that are substantially closed, a risk adjustment is applied to the net gains and losses. This adjustment comprises a value-at-risk adjustment, a mathematical calculation that describes the maximum potential loss that is considered to be highly probable. An internal model is used to calculate the value-at-risk adjustment based on regulatory requirements. It applies the 10-day value-at-risk adjustment required by the regulator. The calculation of the value-at-risk adjustment was based on an observation period of 250 trading days and a confidence level of 99 percent. The value-at-risk adjustment amounted to €5 million.

Where markets are inactive, generally accepted discounted cash flow methods are 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. In order to determine fair value reliably, measurement adjustments are also made for uncertain measurements.

Fair value gains and losses, current interest payments and dividend income from securities held for trading purposes, current payments arising from derivatives and from sale and repurchase agreements and securities lending transactions entered into for trading purposes, promissory notes and other receivables, foreign exchange, and precious metals – including any deferrals carried out – are all recognized as part of the net trading result. In addition, the

funding costs attributable to trading assets and trading liabilities in the form of internal fixed-term deposits and imputed overnight rates are also reported as part of the net trading result.

Securities lending

For securities involved in securities lending transactions, the accounting treatment of securities lending is the same as the accounting treatment for genuine sale and repurchase agreements (i.e. agreements in which the buyer is under an obligation to sell back the securities) in accordance with section 340b HGB. The securities remain on the balance sheet. Borrowed securities are not recognized on the balance sheet.

Long-term equity investments and shares in affiliated companies

Long-term equity investments and shares in affiliated companies are measured at amortized cost or, if expected to be permanently impaired, at the lower of cost and fair value. If the reasons for a previous write-down no longer exist, the write-down is reversed so that the asset is measured at fair value. However, the reversal must not result in a carrying amount higher than the original cost.

Property, plant and equipment, and intangible assets

Property, plant and equipment is measured at cost and reduced by depreciation over its estimated useful life. Useful life is based on the depreciation tables published by the German tax authorities.

Low-value assets with an individual net value of up to €150 are written off in full in the year of acquisition and expensed. In the case of assets with an individual net value between €150 and €1,000, the aggregate item that needs to be recognized on an annual basis for tax purposes has been included in the HGB financial statements to simplify matters. In accordance with tax rules, annual aggregate items with overall carrying amounts that are not material are depreciated at a flat rate of 20 percent in the year of recognition and then in each of the 4 subsequent years.

Office furniture and equipment including operating equipment is depreciated on a straight-line basis.

Assets are written down if they are considered to be impaired on a permanent basis. If the reasons for a previous write-down no longer exist, the write-down is reversed.

Intangible fixed assets are measured at cost and amortized on a straight-line basis. A useful life of 3 to 10 years is used as the basis for the amortization.

Deferred taxes

Using the option to recognize deferred tax assets provided for in section 274 (1) sentence 2 HGB, the bank recognized the excess of deferred tax assets after they had been offset against deferred tax liabilities. Deferred taxes are measured using the national and entity-specific tax rates expected to apply at the time of realization. The income tax group was subject to a standard tax rate of 31.155 percent (trade tax of 15.33 percent and corporation tax/solidarity surcharge of 15.825 percent). Deferred taxes at branches outside Germany were measured at the statutory rates applicable in the countries concerned, which range from 19.00 percent to 24.05 percent. The carrying amounts also included the deferred taxes from measurement differences at subsidiaries that form a tax group with the bank. Overall, this resulted in an excess of deferred tax assets recognized on DZ BANK's balance sheet, the bulk of which is attributable to subsidiaries. For its measurement of the excess of deferred tax assets, the bank assumes that the profit-and-loss transfer agreements with its subsidiaries will continue and bases its income planning on a 5-year planning horizon. In accordance with IAS 12.29(a), when calculating the expected future tax benefits from the measurement differences in existence at the balance sheet date, only those measurement differences are recognized that are likely to disappear again in this period and will not be replaced with new measurement differences. The calculation of deferred tax assets takes account of tax loss carryforwards in the amount of the losses expected to be offset within the next 5 years.

Liabilities

Liabilities are carried at the settlement amount. The difference between the notional amount and the amount disbursed is recognized under prepaid expenses and apportioned pro rata over the term of the loan. Capital-related bonds, in which interest payments or repayments of principal are not solely subject to interest-rate risk, are recognized at their nominal amounts, with any related options being recognized and measured separately.

Provisions

Defined benefit obligations are calculated in accordance with actuarial principles. Their computation is based on the projected unit credit method. The discount rate used was forecast on the basis of the interest rate published by Deutsche Bundesbank as at October 31, 2017. It corresponds to the average market interest rate over the past 10 years as at December 31, 2017 (3.68 percent) for a residual maturity of 15 years. In Germany, the biometric tables used in these calculations are the 2005 G mortality tables published by Professor Dr. Klaus Heubeck, Cologne. Measurement is based on anticipated annual rates of increase of 1.8 percent for salaries and 1.75 percent for pensions. In order to provide cover for its defined benefit obligations, DZ BANK has transferred assets to DZ BANK Pension Trust e.V., Frankfurt am Main, which acts as a trustee on behalf of the pension beneficiaries. The valuation of defined benefit obligations outside Germany is based on the applicable country-specific biometric factors and parameters. Pension plans and the bank's early-retirement obligations gave rise to provisions for pensions and other post-employment benefits of €32 million.

DZ BANK recognizes provisions for current taxes in accordance with German tax law.

It recognizes its other provisions at the amounts needed to settle contingent liabilities and/or anticipated losses as dictated by prudent business practice.

Provisions that are recognized for more than 1 year are discounted at the average market interest rate for the past 7 years that corresponds to their residual maturity. It is calculated and published by Deutsche Bundesbank.

Income from the discounting of provisions for banking business and expenses incurred by the unwinding of discounts on such provisions are reported as interest income and interest expenses respectively. If the provisions are related to trading activities, the income resulting from discounting and expenses incurred by the unwinding of discounts are shown in the net trading result. Income from the discounting of residual provisions and expenses incurred by the unwinding of discounts on such provisions are reported as other operating income and other operating expenses respectively.

Additional regulatory Tier 1 capital instruments

Owing to their structure, the additional Tier 1 instruments (AT1 bonds) that have been issued are classified as debt. They are recognized at their settlement value under the subordinated liabilities line item on the balance sheet. The interest cost is accrued on the basis of the expected interest payments to the bond holders. The accrued interest is also recognized under the subordinated liabilities line item on the balance sheet.

Interest-linked contracts of the banking book

In accordance with the principles of write-downs to anticipate identifiable expected losses, evidence was provided for all on-balance-sheet and off-balance-sheet interest-linked financial instruments of the banking book to show that no losses will be incurred on contracted interest-linked items in the future. This was done using the present value/carrying amount method. In this method, the carrying amounts of the interest-bearing transactions of the banking book are offset against the interest-rate-related present values, taking account of the associated costs of managing the risk and the portfolio. Any remaining shortfall after offsetting would require a corresponding provision to be recognized. As at December 31, 2017, there was no need to recognize a provision for anticipated losses pursuant to section 340a HGB in conjunction with section 249 (1) sentence 1 HGB.

Miscellaneous

Expenses in connection with investments are offset against investment income in accordance with section 33 RechKredV in conjunction with section 340c (2) HGB. Fair value gains and losses on the measurement of loans and advances and the securities in the liquidity reserve are reported as a net figure in accordance with section 32 RechKredV in conjunction with section 340f (3) HGB.

The fund for general banking risks amounted to €4,272 million as at December 31, 2017 (December 31, 2016: €4,515 million). This fund for general banking risks includes a special item in accordance with section 340e (4) HGB, to which €7 million was added in the reporting year. The reversal of reserves pursuant to section 340g HGB resulted in income of €250 million.

The methods used to recognize and measure internal transactions are the same as those applied to external transactions. These transactions are shown as netted amounts in the respective line items on the balance sheet.

Non-trading credit derivatives in which DZ BANK is the protection buyer and for which hedge accounting is not applied, along with non-trading protection-seller transactions, are measured individually and in accordance with the HGB imparity principle as required by accounting guidance statement 1 issued by the banking committee of IDW. Like guarantees, non-trading protection-seller transactions for individual exposures are subject to an evaluation of the necessity for loss allowances. The transactions are shown under contingent liabilities or, in the case of loss allowances being recognized, under other provisions.

» 03 Currency translation

Assets and liabilities denominated in foreign currencies as well as claims and delivery obligations under currency transactions are translated in compliance with section 256a HGB in conjunction with section 340h HGB. This legislation requires that foreign currencies be translated at the middle spot exchange rate on the balance sheet date.

All currency exposures arising in connection with trading assets and trading liabilities are recognized and measured in accordance with the rules governing trading assets and trading liabilities. The corresponding exchange gains and losses on foreign-currency transactions designated as trading assets and trading liabilities are reported as net trading income on the income statement.

Under the strategy for managing currency risk, DZ BANK's foreign currency exposures and foreign-currency transactions are deemed to be specifically covered in the same currency. Assets are deemed to be specifically covered in the same currency if they are matched by liability items, forward transactions, or options. The excess fair value measurement of these derivatives is reported as an offsetting item for currency translation under 'Other liabilities'. The fair value gains and losses on non-trading transactions that are specifically covered in the same currency are shown on a net basis under other operating income. Where DZ BANK has entered into currency swaps in connection with the hedging of interest-bearing balance sheet items, the swap income and expenses are treated as interest income and expense in the financial year, reflecting the nature of the income and expense involved.

Measurement in respect of transactions and exposures that are not specifically covered in the same currency is based on the HGB imparity principle, i.e. unrealized losses are recognized, but any unrealized gains are not recognized. The resulting fair value gains and losses are reported as other operating expenses.

B. Balance sheet disclosures

ASSET ITEMS

» 04
Maturity structure

€ million	Dec. 31, 2017	Dec. 31, 2016
Other loans and advances to banks	**97,859**	**95,141**
up to 3 months	8,938	10,403
between 3 months and 1 year	11,959	11,146
between 1 year and 5 years	35,533	36,067
more than 5 years	41,429	37,525
Loans and advances to customers	**33,007**	**33,744**
up to 3 months	6,523	6,524
between 3 months and 1 year	3,443	3,157
between 1 year and 5 years	11,956	13,222
more than 5 years	8,421	8,331
no fixed maturity	2,664	2,510
Bonds and other fixed-income securities	**35,074**	**45,591**
of which: maturing in subsequent year	5,787	8,301

LIABILITY ITEMS

€ million	Dec. 31, 2017	Dec. 31, 2016
Deposits from banks with agreed maturity or notice period	**83,697**	**80,987**
up to 3 months	15,079	11,526
between 3 months and 1 year	6,848	7,484
between 1 year and 5 years	24,092	25,694
more than 5 years	37,678	36,283
Deposits from customers		
Other deposits from customers with agreed maturity or notice period	**13,604**	**13,825**
up to 3 months	5,364	3,658
between 3 months and 1 year	1,095	3,029
between 1 year and 5 years	1,673	1,764
more than 5 years	5,472	5,374
Debt certificates issued including bonds		
Bonds issued	**25,962**	**31,326**
of which: maturing in subsequent year	7,089	11,260
Other debt certificates issued	**10,569**	**16,847**
up to 3 months	8,708	10,574
between 3 months and 1 year	1,842	6,273
between 1 year and 5 years	19	–

» 05 Affiliated companies and other long-term investees and investors

Loans and advances to and deposits from affiliated companies:

€ million	Dec. 31, 2017	Dec. 31, 2016
Loans and advances to banks	27,838	28,659
Loans and advances to customers	4,777	5,061
Bonds and other fixed-income securities	6,610	9,906
Deposits from banks	7,460	8,686
Deposits from customers	2,677	1,957
Debt certificates issued including bonds	1,231	1,334
Subordinated liabilities	1,450	1,433

Loans and advances to and deposits from other long-term investees and investors:

€ million	Dec. 31, 2017	Dec. 31, 2016
Loans and advances to banks	57,142	55,032
Loans and advances to customers	1,065	577
Bonds and other fixed-income securities	3,013	3,300
Deposits from banks	47,275	43,176
Deposits from customers	656	562
Debt certificates issued including bonds	17,777	20,186
Subordinated liabilities	1,185	1,184

The prior-year figures for loans and advances to and deposits from banks and for subordinated liabilities have been restated. The changes resulted from migrating the data of WGZ BANK AG Westdeutsche Genossenschafts-Zentralbank (WGZ BANK), Düsseldorf, to the systems of DZ BANK.

The list of shareholdings compiled in accordance with section 285 no. 11 HGB is shown in Note 47.

» 06 Loans and advances to and deposits from affiliated banks

Loans and advances to and deposits from banks include the following amounts:

€ million	Dec. 31, 2017	Dec. 31, 2016
Loans and advances to affiliated banks	71,253	68,057
Deposits from affiliated banks	52,090	49,186

The following balance sheet items include subordinated assets in the amounts stated:

» 07 Subordinated assets

€ million	Dec. 31, 2017	Dec. 31, 2016
Loans and advances to banks	**1,114**	1,433
of which: to affiliated companies	897	1,175
to investees	15	1
Loans and advances to customers	**111**	119
Bonds and other fixed-income securities	**406**	573
of which: to affiliated companies	230	431
Shares and other variable-yield securities	**2**	2
Trading assets	**121**	158
of which: to affiliated companies	5	4
to investees	–	14
Total	**1,754**	**2,285**

Total trust assets and trust liabilities are broken down as follows:

» 08 Trust activities

€ million	Dec. 31, 2017	Dec. 31, 2016
Trust assets		
Loans and advances to banks	66	82
Loans and advances to customers	0	0
Long-term equity investments	912	943
Total	**978**	**1,025**

€ million	Dec. 31, 2017	Dec. 31, 2016
Trust liabilities		
Deposits from banks	66	82
Deposits from customers	912	943
Total	**978**	**1,025**

» 09 Foreign currency

Assets and liabilities denominated in foreign currency are as follows:

€ million	Dec. 31, 2017	Dec. 31, 2016
Assets	17,987	25,888
Liabilities	32,120	39,696

»10 Sale and repurchase agreements

The carrying amount of assets subject to sale and repurchase agreements as at December 31, 2017 was €2,100 million (December 31, 2016: €5,246 million).

» 11 Assets assigned as collateral

The following table lists liabilities for which assets in the amount shown have been pledged as collateral:

€ million	Dec. 31, 2017	Dec. 31, 2016
Deposits from banks	54,242	50,957
Deposits from customers	–	115
Debt certificates issued including bonds	547	520
Trading liabilities	2,100	5,261
Total	**56,889**	**56,853**

The amount pledged as collateral for exchange-traded forward transactions, in connection with collateral agreements as part of OTC trading business, and for securities lending transactions was €11,531 million (December 31, 2016: €13,633 million).

» 12 Marketable securities

The following asset items include marketable securities in the amounts shown:

€ million	Dec. 31, 2017	Dec. 31, 2016
Bonds and other fixed-income securities	**35,074**	**45,591**
of which: listed on a stock exchange	28,888	39,768
Shares and other variable-yield securities	**2**	**10**
of which: listed on a stock exchange	2	10
Long-term equity investments	**32**	**32**
of which: listed on a stock exchange	–	–
Shares in affiliated companies	**3,669**	**3,624**
of which: listed on a stock exchange	–	537

» 13
Trading assets and trading liabilities

The table below shows a breakdown of trading assets and trading liabilities:

€ million	Dec. 31, 2017	Dec. 31, 2016
Trading assets		
Derivatives	7,325	11,414
Receivables	11,181	15,390
Bonds and other fixed-income securities	10,203	10,687
Shares and other variable-yield securities	1,412	1,046
Other (risk adjustments)	-308	-350
Total	**29,813**	**38,187**

€ million	Dec. 31, 2017	Dec. 31, 2016
Trading liabilities		
Derivatives	4,817	5,649
Liabilities	28,347	26,317
Total	**33,164**	**31,966**

» 14
Statement of changes in fixed assets

The changes in fixed assets were as follows:

INTANGIBLE ASSETS AND PROPERTY, PLANT AND EQUIPMENT

€ million	Intangible assets	Land and buildings	Office furniture and equipment
Cost as at Jan. 1, 2017	438	459	205
Additions	37	–	27
Disposals	1	0	9
Reclassifications	–	–	–
Cost as at Dec. 31, 2017	**474**	**459**	**223**
Reversals of write-downs	–	–	–
Depreciation, amortization and write-downs as at Jan. 1, 2017	372	86	139
Additions	26	8	18
Disposals/reclassifications	1	–	9
Depreciation, amortization and write-downs as at Dec. 31, 2017	**397**	**94**	**148**
Carrying amount as at Dec. 31, 2017	**77**	**365**	**75**
Carrying amount as at Dec. 31, 2016	**66**	**373**	**66**

The carrying amount of the land and buildings used by DZ BANK for its own operations as at December 31, 2017 was €206 million (December 31, 2016: €211 million).

INVESTMENTS

€ million	Long-term securities	Long-term equity investments	Shares in affiliated companies
Change	-8,421	6	-120
Carrying amount as at Dec. 31, 2017	**28,413**	**386**	**11,414**
Carrying amount as at Dec. 31, 2016	**36,834**	**380**	**11,534**

The fair value of financial instruments reported under investments and reported at a carrying amount exceeding their fair value because write-downs have not been recognized in accordance with section 253 (3) sentence 4 HGB was €3,058 million (carrying amount: €3,151 million) for bonds and other fixed-income securities. For these securities, the present value of the estimated future cash flows was compared with the carrying amount to ascertain whether they are actually impaired. In the case of asset-backed securities (ABSs), DZ BANK carried out detailed cash flow analyses related to the receivables in the securitization pool taking into account the waterfall structure of each ABS tranche. The assessment of impairment was also based on previous experience with the issuers in question and on the relevant economic forecasts.

» 15 Other assets

The other assets of €1,206 million (December 31, 2016: €918 million) largely include initial and variation margin payments arising from derivatives and repos of €560 million (December 31, 2016: €361 million) and tax credits of €515 million (December 31, 2016: €451 million).

» 16 Prepaid expenses/accrued income and deferred income/accrued expenses

€ million	Dec. 31, 2017	Dec. 31, 2016
Prepaid expenses/accrued income		
Discount on deposits	27	13
Premium on loans and advances	37	34
Other prepaid expenses/accrued income	33	38
Total	**97**	**85**

€ million	Dec. 31, 2017	Dec. 31, 2016
Deferred income/accrued expenses		
Discount on loans and advances	10	11
Premium on issues business	64	63
Other deferred income/accrued expenses	8	3
Total	**82**	**77**

» 17 Deferred tax assets

This line item included deferred tax assets in accordance with section 274 HGB amounting to €1,061 million as at December 31, 2017 (December 31, 2016: €891 million). Deferred tax assets were recognized primarily in respect of the fund for home savings risk at Bausparkasse Schwäbisch Hall AG, Schwäbisch Hall, in respect of insurance liabilities of the companies R+V Versicherung AG, Wiesbaden, and R+V Allgemeine Versicherung AG, Wiesbaden, and in respect of other temporary balance sheet differences at DZ BANK and the subsidiaries that form a tax group with it.

» 18 Netting of assets and liabilities

The table below shows the cost and the fair value of netted assets that are protected from the claims of all other creditors and are used solely to settle liabilities arising from defined benefit obligations; it also shows the amount needed to settle these netted liabilities. It also shows the pertinent netted income and expenses resulting from discounting and from the netted assets.

€ million	Dec. 31, 2017	Dec. 31, 2016
Cost of netted assets	1,179	714
Fair value of netted assets	1,264	801
Amount needed to settle the netted liabilities	1,096	1,054
Netted expenses	86	25
Netted income	17	47

As at December 31, 2017, there were surplus assets resulting from excess pension plan cover of €168 million and provisions for pensions of €31 million recognized for unfunded pension plans.

» 19 Other liabilities

The other liabilities of €694 million (December 31, 2016: €1,428 million) include, in particular, initial and variation margins received arising from derivatives and repos of €330 million (December 31, 2016: €223 million) and currency translation liabilities of €173 million (December 31, 2016: €1,064 million).

» 20 Subordinated liabilities

There are no early redemption obligations in respect of the subordinated capital. In the event of insolvency or liquidation, all rights in connection with these liabilities, including rights to interest, are subordinated to the claims of all non-subordinated creditors.

The subordinated liabilities carried an average interest rate of 3.66 percent (2016: 3.50 percent) and had initial maturities of between 5 and 30 years.

Subordinated liabilities are issued in the form of fixed-income and variable-yield securities, promissory notes, registered bonds, and a convertible bond.

The interest expense for the liabilities reported under this item amounted to €194 million in 2017 (2016: €211 million).

Accrued interest not yet due for payment amounting to €65 million (December 31, 2016: €81 million) is included within the subordinated liabilities balance sheet item.

To strengthen its regulatory Tier 1 capital, DZ BANK issued AT1 bonds with a total nominal value of €750 million on November 11, 2015. The AT1 bonds are split into four types depending on their interest-rate arrangements (types A to D, with type A having two tranches and the other types each having one tranche) and establish unsecured subordinated liabilities that meet the requirements in the Capital Requirements Regulation (CRR).

The bearer bonds are bound by the terms and conditions in the information memorandum, which include an indefinite term to maturity and a unilateral right of cancellation for the issuer. As a result, DZ BANK may terminate each tranche of the bond in its entirety, but not parts thereof, as it chooses, either at the first possible maturity date (August 1, 2021 / August 1, 2026) or thereafter at any interest payment date. Furthermore, the issuer may exercise its right of cancellation prematurely if certain regulatory or tax reasons arise. In any case, cancellation requires the consent of the regulator.

In the event of cancellation, AT1 bonds are repaid at their nominal value. In some circumstances, the repayment amount may be lower than the original nominal value if the value had been written down due to a trigger event and the write-down had not subsequently been reversed in full. Such a trigger event occurs if the common equity Tier 1 capital ratio of DZ BANK and the DZ BANK Group falls below 7.00 percent. Under certain conditions, the write-downs on the instruments may be reversed to the full original nominal value in subsequent financial years.

Depending on their type, the AT1 bonds have an annual floating or fixed interest rate from the day of issue until August 1, 2021 / August 1, 2026. In subsequent periods, the interest rate will be reset on the basis of 12-month Euribor / the 5-year euro mid-swap rate plus a margin.

Interest payments are generally 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 responsible regulator. Interest payments are not cumulative; canceled or reduced payments will not be made up in subsequent periods. Interest of €34 million was paid on August 1, 2017 (August 1, 2016: €25 million).

The accrued (not yet due) interest for the AT1 bonds amounted to €14 million as at December 31, 2017 (December 31, 2016: €14 million).

In respect of the registered bond with a conversion right that was issued in 2014 with a nominal value of €128 million, there will be an option of voluntary conversion by the creditors or mandatory conversion by the issuer after the end of December 3, 2019. The bond has a coupon of 5.0 percent. Early redemption by the issuer is possible at any time if necessary for regulatory reasons. There are no other plans or agreements to convert these liabilities into equity; there are no other early redemption obligations.

» 21 Profit-sharing rights

Profit-sharing rights also incur a share of losses of up to their full amount. Interest payments are subject to the availability of distributable profit. Claims by holders of profit-sharing rights to the repayment of the capital are subordinated to the claims of other creditors. DZ BANK has issued the following bearer profit-sharing rights:

Year of issue	Nominal amount	Coupon	Maturity
	€ million	%	
2008	139	7.40	2018
2008	72	3.42 [1]	2018

1 Dependent on market interest rate.

DZ BANK has issued registered profit-participation certificates with a volume of €63 million. Total registered profit-participation certificates comprise 6 separate issues with an original maturity of 16 years and a coupon of 7.06 percent each.

The total interest expense in respect of profit-sharing rights in 2017 was €17 million (2016: €17 million).

Accrued interest not yet due for payment amounting to €17 million (December 31, 2016: €18 million) is included within the profit-sharing rights balance sheet item.

» 22 Changes in equity

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. As at December 31, 2016, DZ BANK held 93,247,143 of these shares as treasury shares, reducing the subscribed capital by €243 million.

In 2017, the Annual General Meeting decided to retire the 93,247,143 treasury shares held by DZ BANK without reducing the share capital. As a result of the retirement, the share capital increased by €243 million. The total number of DZ BANK shares decreased by 93,247,143 non-par-value shares from 1,884,591,900 non-par-value shares. Consequently, the imputed value of each remaining non-par-value share of the share capital went up. To smooth out the imputed value per non-par-value share at €2.75, the Annual General Meeting decided to increase the share capital from company funds. This was done by withdrawing €26,259,141.75 from the capital reserve and reclassifying it to the share capital. As a result, the share capital rose from a total of €4,899,938,940.00 to €4,926,198,081.75.

The changes in equity were as follows:

€ million	Jan. 1, 2017	Additions/ (-) Withdrawals	Dec. 31, 2017
Subscribed capital	4,657	269	**4,926**
Capital reserve	3,810	-26	**3,784**
Revenue reserves	1,463	7	**1,470**
Statutory reserve	105	–	105
Other revenue reserves	1,358	7	1,365
Distributable profit	326	-2	**324**
– 2016 appropriation of profits/dividend	326	-322	–
Profit carried forward		-4	
– 2017 distributable profit	–	324	324
Total equity	10,256	248	**10,504**

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

a) issuing new shares to employees of the corporation (employee shares),

b) 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),

c) 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 Board of Managing Directors did not make use of any of this authorized action in 2017.

Contingent capital

The share capital is to be contingently raised by up to €49,976,173.00 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 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.

» 23 Disclosures on shareholders

At the end of 2017, 99.3 percent of shares were held by cooperative enterprises (December 31, 2016: 99.2 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.

» 24 Disclosure pursuant to section 20 AktG

According to a notification pursuant to section 20 (1) AktG, which it submitted in August 2009, DZ Beteiligungs-AG & Co. KG Baden-Württemberg, Stuttgart, now operating under the name DZ Beteiligungs-GmbH & Co. KG Baden-Württemberg, Karlsruhe, holds more than a quarter of the shares in DZ BANK.

In June 2017, WGZ Beteiligungs GmbH & Co. KG, Düsseldorf, reported that it held more than a quarter of the shares in DZ BANK. In October 2017, WGZ Beteiligungs GmbH & Co. KG reported that it held less than a quarter of the shares in DZ BANK.

The table below gives a breakdown of the total amount that is not allowed to be distributed as a dividend pursuant to section 268 (8) and section 253 (6) HGB:

» 25
Amounts not allowed to be distributed as dividends

€ million	Dec. 31, 2017	Dec. 31, 2016
Recognition of deferred taxes	1,061	891
Recognition of assets at fair value	85	87
Difference arising from using the average market interest rates for the past 10 years and the past 7 years to discount provisions for defined benefit obligations	142	120
Total	**1,288**	**1,098**

The total amounts of €1,288 million that were not allowed to be distributed as dividends were offset by sufficient distributable reserves. Consequently, the distributable profit of €324 million was not prohibited from being paid out as a dividend.

The table below shows a list of the derivatives recognized at fair value by product area:

» 26
List of derivatives recognized at fair value by product area

	Nominal amount					Fair value			
	Time to maturity			Total amount		Positive		Negative	
€ million	≤ 1 year	> 1–5 years	> 5 years	Dec. 31, 2017	Dec. 31, 2016	Dec. 31, 2017	Dec. 31, 2016	Dec. 31, 2017	Dec. 31, 2016
INTEREST-LINKED CONTRACTS	111,160	375,097	428,796	915,053	826,385	15,080	21,080	14,100	19,819
OTC products									
Forward rate agreements	4,687	–	–	4,687	8,501	0	0	0	0
Interest-rate swaps (same currency)	93,654	327,144	405,236	826,034	732,724	13,331	18,845	11,313	16,090
Interest-rate options – call	4,117	22,674	9,018	35,809	35,025	1,417	2,099	104	47
Interest-rate options – put	6,269	25,117	14,542	45,928	47,548	332	136	2,683	3,682
Exchange-traded products									
Interest-rate futures	2,433	162	–	2,595	2,587	–	–	–	–
CURRENCY-LINKED CONTRACTS	17,176	2,460	141	19,777	32,038	316	567	351	599
OTC products									
Forward forex transactions	10,308	1,469	118	11,895	21,901	177	446	252	455
Forex options – call	3,015	255	–	3,270	4,224	26	28	16	25
Forex options – put	3,702	729	7	4,438	5,465	70	31	37	52
Exchange-traded products									
Forex futures	80	–	–	80	182	–	–	–	–
Forex options	71	7	16	94	266	43	62	46	67
SHARE/INDEX-LINKED CONTRACTS	13,033	7,532	2,396	22,961	20,649	1,301	820	1,786	1,327
OTC products									
Share/index options – call	575	62	3	640	834	34	59	0	0
Share/index options – put	269	146	1	416	353	0	0	13	22
Other share/index contracts	542	2,755	1,403	4,700	4,335	55	52	98	120
Exchange-traded products									
Share/index futures	402	31	3	436	419	–	–	–	–
Share/index options	11,245	4,538	986	16,769	14,708	1,212	709	1,675	1,185

€ million	Nominal amount					Fair value			
	Time to maturity			Total amount		Positive		Negative	
	≤ 1 year	> 1–5 years	> 5 years	Dec. 31, 2017	Dec. 31, 2016	Dec. 31, 2017	Dec. 31, 2016	Dec. 31, 2017	Dec. 31, 2016
OTHER CONTRACTS	7,483	24,313	11,968	43,764	45,714	943	1,378	1,355	2,393
OTC products									
Cross-currency swaps	6,983	24,244	11,917	43,144	44,673	821	1,265	1,223	2,269
Precious metal contracts	5	–	–	5	7	0	–	0	0
Commodities contracts	54	36	–	90	372	0	0	1	1
Exchange-traded products									
Futures	180	4	–	184	235	2	0	0	1
Options	261	29	51	341	427	120	113	131	122
CREDIT DERIVATIVES	6,959	7,409	4,738	19,106	26,649	316	213	71	98
Protection buyer									
Credit default swaps	2,988	1,950	313	5,251	9,513	0	18	70	72
Total return swaps	–	–	–	–	138	–	5	–	–
Protection seller									
Credit default swaps	3,971	5,459	4,425	13,855	16,998	316	190	1	26
Total	155,811	416,811	448,039	1,020,661	951,435	17,956	24,058	17,663	24,236

A substantial proportion of the transactions listed were entered into for the purposes of hedging interest-rate, exchange-rate, market, or credit risk.

The table below shows a list of the derivatives recognized at fair value by counterparty structure:

» 27
List of derivatives recognized at fair value by counterparty structure

€ million	Fair value			
	Positive		Negative	
	Dec. 31, 2017	Dec. 31, 2016	Dec. 31, 2017	Dec. 31, 2016
OECD central governments	–	310	–	385
OECD banks	14,589	20,087	14,882	21,078
OECD financial services institutions	79	141	148	338
Other companies, private individuals	3,279	3,496	2,524	2,249
Non-OECD central governments	0	0	–	–
Non-OECD banks	9	24	109	186
Total	17,956	24,058	17,663	24,236

The table below shows a list of the derivatives not recognized at fair value by product area:

» 28
List of derivatives not recognized at fair value by product area

€ million	Nominal amount					Fair value			
	Time to maturity			Total amount		Positive		Negative	
	≤ 1 year	> 1–5 years	> 5 years	Dec. 31, 2017	Dec. 31, 2016	Dec. 31, 2017	Dec. 31, 2016	Dec. 31, 2017	Dec. 31, 2016
INTEREST-LINKED CONTRACTS	**2,290**	**2,272**	**2,965**	**7,527**	**8,310**	**657**	**804**	**385**	**541**
OTC products									
Interest-rate swaps (same currency)	295	1,199	2,565	4,059	4,193	656	804	374	520
Interest-rate options – call	–	200	–	200		1		–	
Interest-rate options – put	–	195	400	595	595	–	–	11	21
Exchange-traded products									
Interest-rate futures	1,995	678	–	2,673	3,522	–	–	–	–
CURRENCY-LINKED CONTRACTS	**53,752**	**1,886**	**102**	**55,740**	**50,596**	**358**	**1,107**	**519**	**475**
OTC products									
Forward forex transactions	53,752	1,886	102	55,740	50,596	358	1,107	519	475
OTHER CONTRACTS	**158**	**509**	**319**	**986**	**1,418**	**28**	**87**	**101**	**238**
OTC products									
Cross-currency swaps	158	509	319	986	1,418	28	87	101	238
CREDIT DERIVATIVES	**37**	**638**	**10**	**685**	**656**	**14**	**5**	**6**	**10**
Protection buyer									
Credit default swaps	32	108	10	150	341	0	1	6	10
Protection seller									
Credit default swaps	5	530	–	535	315	14	4	–	–
Total	**56,237**	**5,305**	**3,396**	**64,938**	**60,980**	**1,057**	**2,003**	**1,011**	**1,264**

The transactions listed were entered into for the purposes of hedging interest-rate, exchange-rate, market, or credit risk.

The carrying amounts of non-trading derivatives not recognized at fair value included premiums of €15 million (December 31, 2016: €10 million) under other assets, and premiums of €31 million (December 31, 2016: €31 million) under other liabilities.

Prepaid expenses and accrued income include upfront payments of €0 million (December 31, 2016: €0 million). Deferred income and accrued expenses include upfront payments of €1 million (December 31, 2016: €0 million). Accrued income from non-trading derivatives not recognized at fair value is reported in the amount of €42 million (December 31, 2016: €41 million) under loans and advances to banks and in the amount of €8 million (December 31, 2016: €9 million) under loans and advances to customers, while accrued expenses on non-trading derivatives not recognized at fair value is reported in the amount of €29 million (December 31, 2016: €39 million) under deposits from banks and in the amount of €16 million (December 31, 2016: €8 million) under deposits from customers.

The carrying amounts of non-trading derivatives not recognized at fair value also included a liability of €243 million (December 31, 2016: asset of €505 million) relating to the offsetting item for currency translation.

The table below shows a list of the derivatives not recognized at fair value by counterparty structure:

» 29
List of derivatives not recognized at fair value by counterparty structure

	Fair value			
	Positive		Negative	
€ million	**Dec. 31, 2017**	Dec. 31, 2016	**Dec. 31, 2017**	Dec. 31, 2016
OECD banks	**887**	1,607	**889**	1,183
OECD financial services institutions	**1**	2	**4**	14
Other companies, private individuals	**168**	363	**108**	67
Non-OECD banks	**1**	31	**10**	0
Total	**1,057**	**2,003**	**1,011**	**1,264**

C. Income statement disclosures

» 30 Breakdown of income by geographical market

The table below shows the geographical breakdown of total interest income, current income from shares and other variable-yield securities, long-term equity investments and shares in affiliated companies, fee and commission income, net trading income, and other operating income:

€ million	2017	2016
Germany	3,940	4,663
International	399	253
Total	**4,339**	**4,916**

» 31 Administration and agency services provided for third parties

Administration and agency services provided for third parties relate primarily to custody services, securities brokerage, and the management of trust assets.

» 32 Other operating income and expenses

Other operating income amounted to €152 million. This amount largely comprised income of €45 million from the reversal of provisions, income of €24 million from currency transactions, and rental income of €16 million.

The other operating expenses of €179 million were mainly attributable to net expenses of €69 million in connection with the measurement of occupational pensions and operating costs and rental expenses of €15 million in connection with premises not used for banking operations.

» 33 Extraordinary income and expenses

The extraordinary income of €107 million resulted from winding up the business activities of WGZ FINANCE PUBLIC LIMITED COMPANY (WGZ FINANCE), Dublin, Ireland.

The extraordinary expenses comprised an income subsidy of €500 million paid by DZ BANK to DVB Bank SE, Frankfurt am Main, and expenses of €9 million absorbed for the restructuring of Schwäbisch Hall Kreditservice GmbH, Schwäbisch Hall.

» 34 Proposed appropriation of profits

It will be proposed to the Annual General Meeting that the distributable profit be appropriated for a dividend payment of €0.18 per non-par-value share. This would equate to a total distribution of €322 million.

D. Other disclosures

» 35 Contingent liabilities and other obligations

DZ BANK only assumes liabilities in the form of guarantees and indemnity agreements after it has carefully assessed the risks involved. Having constantly evaluated the risks attaching to the guarantees and indemnity agreements that it has entered into, the bank is currently of the view that the principal debtors concerned will be able to meet the obligations underlying these guarantees and indemnity agreements. DZ BANK believes that these guarantees and indemnity agreements are unlikely to be utilized.

In order to cover acute risks arising from guarantees, indemnity agreements and irrevocable loan commitments, the bank has recognized provisions of an appropriate amount and has reduced the relevant figures reported by a corresponding amount.

The irrevocable loan commitments include unused liquidity lines in connection with securitizations of €2,818 million (December 31, 2016: €3,038 million).

» 36 Other financial obligations

As at December 31, 2017, the total amount of other financial obligations for the following year was €310 million (December 31, 2016: €305 million). Most of these obligations related to follow-up obligations under memoranda and articles of association and to obligations under lease agreements, capital expenditure projects, and pending transactions. This amount includes obligations to affiliated companies of €25 million (December 31, 2016: €25 million).

Other financial obligations will amount to €519 million for years from 2019 onward. This amount includes obligations to affiliated companies of €109 million.

There were also irrevocable payment obligations in connection with the bank levy of €21 million. Collateral of the same amount has been pledged. The pledged collateral is included in other assets.

DZ BANK is a participant in the protection scheme operated by the Bundesverband der Deutschen Volksbanken und Raiffeisenbanken e.V. (BVR) [National Association of German Cooperative Banks], Berlin. This facility comprises a guarantee fund and a guarantee network. Under the terms of its statutes, DZ BANK has lodged a guarantee bond of up to €155 million with the BVR in support of the guarantee network in order to cover any eventualities.

» 37 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 S.A., Strassen, Luxembourg, and in total for Deutsche Genossenschafts-Hypothekenbank AG, Hamburg, and WL BANK AG Westfälische Landschaft Bodenkreditbank, Münster, that these companies are able to meet their contractual obligations. These entities are identified in the list of DZ BANK's shareholdings (Note 47) 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, USA. 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.

The letters of comfort in respect of WGZ FINANCE (until July 3, 2017: DZ BANK IRELAND PUBLIC LIMITED COMPANY, Dublin, Ireland) and VR Equitypartner GmbH, Frankfurt am Main, were ended in 2017.

» 38 Hedge accounting

DZ BANK has recognized a micro-hedge and included it in hedge accounting in accordance with section 254 HGB in order to hedge the currency risk arising from the long-term equity investment in DG Funding LLC, New York, in its banking book. The bank funded the carrying amount of its investment by raising US dollar-denominated fixed-term deposits. These fixed-term deposits are rolled over every 3 months. This perfect hedge ensures that the exchange-rate fluctuations in the hedge over the term of the deposits totally cancel each other out. DZ BANK proves the effectiveness of its hedge both prospectively and retrospectively by reconciling the measurement-related parameters.

» 39 Employees

Average number of employees by employee group:

	2017	2016
Female employees	**2,306**	2,349
Full-time employees	1,407	1,455
Part-time employees	899	894
Male employees	**3,176**	3,324
Full-time employees	3,024	3,152
Part-time employees	152	172
Total employees	**5,482**	**5,673**

» 40 Investment fund assets

DZ BANK owned the following holdings of more than 10 percent of the units in investment fund assets within the meaning of section 285 no. 26 HGB as at December 31, 2017:

INVESTMENT FUND ASSETS BY INVESTMENT OBJECTIVE

€ million	Carrying amount	Fair value	Difference between fair value and carrying amount	Distributions paid for 2017
Mixed fund (pension fund)	1,236	1,236	0	16

The investment fund units held by the pension fund are used to cover and fund DZ BANK's direct defined benefit obligations in Germany over the long term. They were able to be redeemed on any day without restriction.

» 41 Auditor fees

The total fees charged for 2017 by the independent auditors of the financial statements, Ernst & Young GmbH Wirtschaftsprüfungsgesellschaft, Stuttgart, are broken down as follows:

€ million	2017	2016
Auditing services	7.8	6.0
Other attestation services	0.5	0.4
Tax consultancy services	0.2	0.1
Other services	0.7	3.5
Total	**9.2**	**10.0**

The fees for auditing services comprise expenses relating to the audit of the consolidated financial statements and group management report, the audit of the annual financial statements and management report of DZ BANK, and 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 36 of the German Securities Trading Act (WpHG). The fees for other services include fees for project-related audits and consultancy services.

» 42 Cover statement

The following cover is in place for outstanding covered bonds and derivatives:

€ million	Dec. 31, 2017	Dec. 31, 2016
Total cover assets	**22,982**	**21,008**
Ordinary cover	**22,982**	**21,007**
Loans and advances to banks	13,404	11,643
Loans and advances to customers	988	1,050
Bonds and other fixed-income securities	8,590	8,314
Derivatives held as cover	**0**	**1**
Cover requirement	**10,675**	**11,626**
Outstanding covered		
– bearer bonds	2,438	2,991
– registered bonds	8,237	8,635
Excess cover	**12,307**	**9,382**

» 43
Trustees of cover assets

The trustees are appointed by the Bundesanstalt für Finanzdienstleistungsaufsicht (BaFin) [Federal Financial Supervisory Authority] and have a duty under law to ensure that the issuance, administration, and collateralization of DZ BANK's covered bonds comply with statutory requirements, the provisions of the Articles of Association, and the terms and conditions of the bonds.

Trustee

Klaus Schmitz
Presiding Judge at the
Frankfurt am Main regional court (retired)

Deputy trustee

Klaus Wiens
Presiding Judge at the
Frankfurt am Main regional court (retired)

» 44
Related party disclosures

The exercise of DZ BANK's normal business activities involves parties related to DZ BANK. Transactions with related parties within the meaning of section 285 no. 21 HGB are conducted on an arm's-length basis.

» 45
Decision-making bodies

The total remuneration for the members of the Board of Managing Directors of DZ BANK in 2017 was €12,829 thousand (2016: €13,360 thousand). The total remuneration for the Supervisory Board was €742 thousand (2016: €795 thousand). The total remuneration for the Board of Managing Directors in 2017 and 2016 includes the total bonus awarded to the Board of Managing Directors for the year in question. A sum of 20 percent of the total bonus determined on the basis of targets achieved is paid out in the subsequent year immediately after the annual financial statements have been formally adopted. Payment of the remaining 80 percent of the bonus of €1,880 thousand granted for 2017 (2016: €2,248 thousand) depends on the long-term performance of DZ BANK shares and is spread out over a period of up to 4 years in total.

A total amount of €11,150 thousand (2016: €11,197 thousand) was paid to former members of the Board of Managing Directors or their surviving dependants, for whom defined benefit obligations of €126,473 thousand (2016: €122,806 thousand) were also recognized.

Board of Managing Directors of DZ BANK

Wolfgang Kirsch
(Chief Executive Officer)
Responsibilities: Cooperative Banks/Verbund (since January 1, 2018); Communication, Marketing, CR; Group Audit; Legal; Research and Economics

Hans-Bernd Wolberg
(Deputy Chief Executive Officer until December 31, 2017)
Responsibilities: Cooperative Banks/Verbund

Uwe Berghaus
Responsibilities: Corporate Banking Northern and Eastern Germany; Corporate Banking Western Germany; Investment Promotion

Dr. Christian Brauckmann
Responsibilities: IT; Organisation

Lars Hille
(Member of the Board of Managing Directors until June 9, 2017)

Wolfgang Köhler
Responsibilities: Capital Markets Trading; Capital Markets Institutional Clients; Capital Markets Retail Clients; Group Treasury

Karl-Heinz Moll
(Member of the Board of Managing Directors until June 30, 2017)

Dr. Cornelius Riese
Responsibilities: Group Finance; Group Strategy and Controlling

Michael Speth
Responsibilities: Compliance; Group Risk Controlling; Credit; Credit Special

Thomas Ullrich
Responsibilities: Group Human Resources; Operations; Payments & Accounts; Transaction Management

Frank Westhoff
(Member of the Board of Managing Directors until April 30, 2017)

Stefan Zeidler
Responsibilities: Corporate Banking Baden-Württemberg; Corporate Banking Bavaria; Corporate Banking Central Germany; Structured Finance

General Executive Manager of DZ BANK

Uwe Fröhlich
(since November 1, 2017)

Supervisory Board of DZ BANK

Helmut Gottschalk
(Chairman of the Supervisory Board)
Spokesman of the
Board of Managing Directors
Volksbank Herrenberg-Nagold-Rottenburg eG
(until June 30, 2017)

Ulrich Birkenstock
(Deputy Chairman
of the Supervisory Board)
Employee
R+V Allgemeine Versicherung AG

Werner Böhnke
(Deputy Chairman
of the Supervisory Board)
Bank director (ret.)

Heiner Beckmann
Senior manager
R+V Allgemeine Versicherung AG

Hermann Buerstedde
Employee
Union Asset Management Holding AG

Henning Deneke-Jöhrens
Chief Executive Officer
Volksbank eG Hildesheim-Lehrte-Pattensen

Martin Eul
Chief Executive Officer
Dortmunder Volksbank eG

Uwe Fröhlich
(Member of the Supervisory Board
until October 31, 2017)
President
Bundesverband der Deutschen Volksbanken
und Raiffeisenbanken e.V. (BVR)
(until October 31, 2017)

Uwe Goldstein
Spokesman of the
Board of Managing Directors
Raiffeisenbank Frechen-Hürth 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

Gerhard Hofmann
(Member of the Supervisory Board
from November 1 to December 31, 2017)
Member of the Board of Managing Directors
Bundesverband der Deutschen Volksbanken
und Raiffeisenbanken e.V. (BVR)

Marija Kolak
(Member of the Supervisory Board
since January 1, 2018)
President
Bundesverband der Deutschen Volksbanken
und Raiffeisenbanken e.V. (BVR)
(since January 1, 2018)

Renate Mack
Employee
DZ BANK AG
Deutsche Zentral-Genossenschaftsbank

Rainer Mangels
Employee
R+V Rechtsschutz-
Schadenregulierungs-GmbH

Stephan Schack
Spokesman of the
Board of Managing Directors
Volksbank Raiffeisenbank eG, Itzehoe

Gregor Scheller
Chief Executive Officer
Volksbank Forchheim eG

Uwe Spitzbarth
Head of the Financial Services Division
ver.di Bundesverwaltung

Sigrid Stenzel
Regional Group Director
ver.di Bayern

Dr. Wolfgang Thomasberger
Chief Executive Officer
VR Bank Rhein-Neckar eG

As at December 31, 2017, 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 (*).

» 46
Supervisory mandates held by members of the Board of Managing Directors and employees

Members of the Board of Managing Directors

Wolfgang Kirsch (Chief Executive Officer)	Bausparkasse Schwäbisch Hall AG, Schwäbisch Hall, Chairman of the Supervisory Board (*) R+V Versicherung AG, Wiesbaden, Chairman of the Supervisory Board (*) Union Asset Management Holding AG, Frankfurt am Main, Chairman of the Supervisory Board (*)
Hans-Bernd Wolberg (Deputy Chief Executive Officer until December 31, 2017)	WL BANK AG Westfälische Landschaft Bodenkreditbank, Münster, Chairman of the Supervisory Board (*)
Uwe Berghaus	Deutsche Genossenschafts-Hypothekenbank AG, Hamburg, Chairman of the Supervisory Board (*)
Dr. Christian Brauckmann	DZ PRIVATBANK S.A., Strassen, Chairman of the Supervisory Board (*) Fiducia & GAD IT AG, Frankfurt am Main, Member of the Supervisory Board
Wolfgang Köhler	DVB Bank SE, Frankfurt am Main, Chairman of the Supervisory Board (*) DZ PRIVATBANK S.A., Strassen, Deputy Chairman of the Supervisory Board (*) R+V Lebensversicherung AG, Wiesbaden, Member of the Supervisory Board (*)

Dr. Cornelius Riese	Bausparkasse Schwäbisch Hall AG, Schwäbisch Hall, Member of the Supervisory Board (*)
	R+V Versicherung AG, Wiesbaden, Member of the Supervisory Board (*)
	Union Asset Management Holding AG, Frankfurt am Main, Member of the Supervisory Board (*)
	VR-LEASING AG, Eschborn, Member of the Supervisory Board (*)
Michael Speth	BAG Bankaktiengesellschaft, Hamm, Member of the Supervisory Board
	Deutsche Genossenschafts-Hypothekenbank AG, Hamburg, Member of the Supervisory Board (*)
	DVB Bank SE, Frankfurt am Main, Member of the Supervisory Board (*) (since January 1, 2018)
	R+V Allgemeine Versicherung AG, Wiesbaden, Member of the Supervisory Board (*)
	R+V Lebensversicherung AG, Wiesbaden, Member of the Supervisory Board (*)
	TeamBank AG Nürnberg, Nuremberg, Deputy Chairman of the Supervisory Board (*)
	WL BANK AG Westfälische Landschaft Bodenkreditbank, Münster, Member of the Supervisory Board (*)
Thomas Ullrich	Deutsche WertpapierService Bank AG, Frankfurt am Main, Chairman of the Supervisory Board
	TeamBank AG Nürnberg, Nuremberg, Chairman of the Supervisory Board (*)
Stefan Zeidler	EDEKABANK AG, Hamburg, Member of the Supervisory Board
	VR-LEASING AG, Eschborn, Chairman of the Supervisory Board (*)

Employees

Rolf Büscher	ReiseBank AG, Frankfurt am Main, Member of the Supervisory Board (*)
Dr. Thomas Kettern	Raiffeisen Waren GmbH, Kassel, 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 del Nord Est S.p.A., Trento, Member of the Board of Directors
Gregor Roth	Deutsche WertpapierService Bank AG, Frankfurt am Main, Member of the Supervisory Board equensWorldline SE, Utrecht, Deputy Chairman of the Supervisory Board ReiseBank AG, Frankfurt am Main, Chairman of the Supervisory Board (*)
Dr. Kirsten Siersleben	DVB Bank SE, Frankfurt am Main, Member of the Supervisory Board (*) (until December 31, 2017)
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

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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		19	0
Agder Ocean Reefer II DIS 1)	Oslo, Norway	0.00		0	0
Agder Ocean Reefer III DIS 1)	Oslo, Norway	0.00		0	0
Agder Ocean Shipping KS 1)	Oslo, Norway	0.00		0	0
AGIMA Aktiengesellschaft für Immobilien-Anlage 5)	Frankfurt am Main	100.00		84,025	0
Aquila Aircraft Leasing Ltd. 1)	Dublin, Ireland	0.00		30,902	-10,129
ARATOS GmbH 1)	Eschborn	100.00		86	61
ARATOS GmbH & Co. Immobilien KG 1)	Eschborn	6.00	76.00	129	53
ARMIDA GmbH 1)	Eschborn	100.00		46	21
ARMIDA GmbH & Co. Immobilien KG 1)	Eschborn	0.00	52.00	26	25
ASPASIA GmbH 1)	Eschborn	100.00		55	30
ASPASIA GmbH & Co. Immobilien KG 1)	Eschborn	6.00	76.00	740	35
Assimoco S.p.A. 1)	Segrate (Mi), Italy	89.39		135,072	27,917
Assimoco Vita S.p.A. 1)	Segrate (Mi), Italy	82.14		128,230	13,306
attrax S.A. 1)	Luxembourg, Luxembourg	100.00		48,717	21,900
Aufbau und Handelsgesellschaft mbH 1)	Stuttgart	94.90		525	0
AURIGA GmbH 1)	Eschborn	100.00		-947	-16
AXICA Kongress- und Tagungszentrum Pariser Platz 3 GmbH 5)	Berlin	100.00		26	0
Bathgate Trading Opco LLC 1)	Majuro, Marshall Islands	0.00		1,528	293
Bausparkasse Schwäbisch Hall Aktiengesellschaft - Bausparkasse der Volksbanken und Raiffeisenbanken - 5)	Schwäbisch Hall	96.93		1,812,302	0
Berwick Shipping LLC 1)	Majuro, Marshall Islands	0.00		3,890	-3,890
Beteiligungsgesellschaft Westend 1 mbH & Co. KG 1)	Frankfurt am Main	94.90		18,484	999
BFL Gesellschaft des Bürofachhandels mbH & Co. KG 1)	Eschborn	71.79	72.03	13,047	0
BFL Leasing GmbH 1)	Eschborn	100.00		19,823	8,245
Bischoff GmbH & Co. Immobilien KG 1)	Eschborn	6.00	76.00	21	19
Bluebell Aircraft Leasing Ltd. i.L. 1)	Floriana, Malta	100.00		868	-16
Bonham Aircraft Leasing Ltd. 1)	George Town, Cayman Islands	0.00		140	-1,728
Braveheart Shipping Holdco LLC 1)	Majuro, Marshall Islands	0.00		0	0
Braveheart Shipping Opco LLC 1)	Majuro, Marshall Islands	0.00		3,825	-2,263
Bulls Aircraft Leasing (Malta) Ltd. 1)	Floriana, Malta	0.00		-1	0
Buzzard Aircraft Leasing Limited i.L. 1)	Dublin, Ireland	100.00		394	0
BWG Baugesellschaft Württembergischer Genossenschaften mbH 1)	Stuttgart	94.78		9,965	0
CALYPSO GmbH 1)	Eschborn	100.00		-651	-91
Canadian Iron Ore Railcar Leasing LP 1)	Hamilton, Canada	100.00		n/a	n/a
CANOPOS GmbH 1)	Eschborn	100.00		29	2
CANOPOS GmbH & Co. Immobilien KG 1) 6)	Eschborn	100.00		3	27
Capital Lease Limited 1)	Hong Kong, Hong Kong	100.00		65	-386
carexpert Kfz-Sachverständigen GmbH 1)	Walluf	60.00		4,605	273
CATHENA GmbH 1)	Eschborn	100.00		51	26
Centra Leasing Anlagen GmbH 1) 5)	Eschborn	100.00		5,899	0
CHEMIE Pensionsfonds AG 1)	Munich	100.00		24,318	2,000
Chiefs Aircraft Holding (Malta) Limited 1)	Floriana, Malta	100.00		-1,960	239
CI CONDOR Immobilien GmbH 1) 5)	Hamburg	100.00		25,500	0
CIORL Partner Ltd. 1)	Toronto, Canada	100.00		n/a	n/a
compertis Beratungsgesellschaft für betriebliches Vorsorgemanagement mbH 1)	Wiesbaden	100.00		4,039	534
Condor Allgemeine Versicherungs-Aktiengesellschaft 1) 5)	Hamburg	100.00		41,762	0
Condor Dienstleistungs GmbH 1)	Hamburg	100.00		238	29
Condor Lebensversicherungs-Aktiengesellschaft 1) 5)	Hamburg	94.99		48,589	0
Container Investment Fund I LLC 1)	Majuro, Marshall Islands	0.00		64,886	1,357
Cruise Ship InvestCo LLC 1)	Majuro, Marshall Islands	0.00		0	0
DAC Grundstücksverwaltungsgesellschaft mbH 1)	Eschborn	100.00		25	-1
DCAL Aircraft Malta Ltd. 1)	Floriana, Malta	0.00		364	532
DEGEAKZENT Grundstücksverwaltungsgesellschaft mbH 1)	Eschborn	100.00		42	16
DEGEAKZENT Grundstücksverwaltungsgesellschaft mbH & Co. Immobilien-Vermietungs KG 1)	Eschborn	0.00	51.00	19	19

SUBSIDIARIES

Name	Location	Shareholding	Voting rights, if different	Equity in € '000	Profit/loss in € '000
DEGEALPHA Grundstücksverwaltungsgesellschaft mbH 1)	Eschborn	100.00		28	1
DEGEALPHA Grundstücksverwaltungsgesellschaft mbH & Co. Objekt Hamm-Heessen KG 1)	Eschborn	90.00	66.67	3	0
DEGEARKADE Grundstücksverwaltungsgesellschaft mbH 1)	Eschborn	100.00		29	2
DEGEARKADE Grundstücksverwaltungsgesellschaft mbH & Co. Immobilien-Vermietungs KG 1)	Eschborn	100.00		3	62
DEGEASPEKT Grundstücksverwaltungsgesellschaft mbH 1)	Eschborn	100.00		27	2
DEGEASPEKT Grundstücksverwaltungsgesellschaft mbH & Co. Immobilien-Vermietungs KG 1)	Eschborn	100.00		3	35
DEGEASTURA Grundstücksverwaltungsgesellschaft mbH 1)	Eschborn	100.00		62	36
DEGEASTURA Grundstücksverwaltungsgesellschaft mbH & Co. Immobilien-Vermietungs KG 1)	Eschborn	100.00		-913	74
DEGEAVUS Grundstücksverwaltungsgesellschaft mbH 1)	Eschborn	100.00		26	1
DEGEAVUS Grundstücksverwaltungsgesellschaft mbH & Co. Immobilien-Vermietungs KG 1)	Eschborn	100.00		-386	-127
DEGEBALTA Grundstücksverwaltungsgesellschaft mbH 1)	Eschborn	100.00		81	55
DEGEBALTA Grundstücksverwaltungsgesellschaft mbH & Co. Immobilien-Vermietungs KG 1)	Eschborn	94.90	75.00	71	65
DEGECAMPUS Grundstücksverwaltungsgesellschaft mbH 1)	Eschborn	100.00		23	3
DEGECASTELL GmbH 1)	Eschborn	100.00		37	-1
DEGECEBER Grundstücksverwaltungsgesellschaft mbH 1)	Eschborn	100.00		30	2
DEGECEBER Grundstücksverwaltungsgesellschaft mbH & Co. Immobilien-Vermietungs KG 1) 6)	Eschborn	100.00		3	21
DEGECEDO Grundstücksverwaltungsgesellschaft mbH 1)	Eschborn	100.00		850	214
DEGECENSUS Grundstücksverwaltungsgesellschaft mbH 1)	Eschborn	100.00		25	0
DEGECENUM Grundstücksverwaltungsgesellschaft mbH 1) 5)	Eschborn	100.00		26	0
DEGECIVO Grundstücksverwaltungsgesellschaft mbH Berlin 1)	Berlin	100.00		31	2
DEGECOMO Grundstücksverwaltungsgesellschaft mbH 1)	Eschborn	100.00		24	0
DEGECULA Grundstücksverwaltungsgesellschaft mbH 1)	Eschborn	100.00		87	61
DEGECULA Grundstücksverwaltungsgesellschaft mbH & Co. Objekt Sindelfingen KG 1)	Eschborn	6.00	75.50	96	75
DEGEDELTA Vermietungsgesellschaft für Betriebsvorrichtungen mbH 1)	Eschborn	100.00		26	0
DEGEDOMUS Grundstücksverwaltungsgesellschaft mbH 1)	Eschborn	100.00		43	17
DEGEDOMUS Grundstücksverwaltungsgesellschaft mbH & Co. Gewerbeobjekte Süd KG 1) 6)	Eschborn	100.00		22	393
DEGEFULVA Grundstücksverwaltungsgesellschaft mbH 1)	Eschborn	100.00		36	11
DEGEIMPULS Grundstücksverwaltungsgesellschaft Objekt Hattingen mbH 1)	Eschborn	100.00		833	-125
DEGEKONZEPT Grundstücksverwaltungsgesellschaft mbH 1)	Eschborn	100.00		48	14
DEGEMALVA Grundstücksverwaltungsgesellschaft mbH 1)	Eschborn	100.00		26	1
DEGEMALVA Grundstücksverwaltungsgesellschaft mbH & Co. Immobilien-Vermietungs KG 1) 6)	Eschborn	100.00		3	41
DEGEMEDIUS Grundstücksverwaltungsgesellschaft mbH 1)	Eschborn	100.00		27	0
DEGEMENAR Grundstücksverwaltungsgesellschaft mbH 1)	Eschborn	100.00		26	1
DEGEMENAR Grundstücksverwaltungsgesellschaft mbH & Co. Objekt Lauingen KG 1)	Eschborn	2.00	66.67	-370	79
DEGEMINAX Grundstücksverwaltungsgesellschaft mbH 1)	Eschborn	100.00		48	22
DEGEMOBIL Vermietungsgesellschaft für Betriebsvorrichtungen mbH 1)	Eschborn	100.00		68	45
DEGEMOLTO Grundstücksverwaltungsgesellschaft mbH 1)	Eschborn	100.00		168	143
DEGEMOLTO Grundstücksverwaltungsgesellschaft mbH & Co. Immobilien-Vermietungs KG 1)	Eschborn	0.00	51.00	40	267
DEGEMONTES Grundstücksverwaltungsgesellschaft mbH 1)	Eschborn	100.00		221	195
DEGEMONTES Grundstücksverwaltungsgesellschaft mbH & Co. Immobilien-Vermietungs KG 1)	Eschborn	95.00	75.00	227	452
DEGEMOX Grundstücksverwaltungsgesellschaft mbH 1)	Eschborn	100.00		29	1
DEGEMOX Grundstücksverwaltungsgesellschaft mbH & Co. Immobilien-Vermietungs KG 1)	Eschborn	100.00		3	34
DEGENITOR Grundstücksverwaltungsgesellschaft mbH 1) 5)	Eschborn	100.00		26	0
DEGEPALMA Grundstücksverwaltungsgesellschaft mbH 1)	Eschborn	100.00		25	0
DEGEPEXUM Grundstücksverwaltungsgesellschaft mbH 1)	Eschborn	100.00		25	-2
DEGEPRIMUS Grundstücksverwaltungsgesellschaft mbH 1)	Eschborn	100.00		56	31
DEGEPRIMUS Grundstücksverwaltungsgesellschaft mbH & Co. Immobilien-Vermietungs KG 1)	Eschborn	5.00	75.50	37	35

SUBSIDIARIES

Name	Location	Shareholding	Voting rights, if different	Equity in € '000	Profit/loss in € '000
DEGEPROJEKT Grundstücksverwaltungsgesellschaft mbH 1)	Eschborn	100.00		459	100
DEGEPROLOG Grundstücksverwaltungsgesellschaft mbH 1)	Eschborn	100.00		26	0
DEGEPROMO Grundstücksverwaltungsgesellschaft mbH 1)	Eschborn	100.00		33	1
DEGEPROMO Grundstücksverwaltungsgesellschaft mbH & Co. Immobilien-Vermietungs KG 1) 6)	Eschborn	100.00		-29	-1
DEGEREMEX Grundstücksverwaltungsgesellschaft mbH 1)	Eschborn	100.00		26	-1
DEGERIA Beteiligungsgesellschaft mbH 1)	Eschborn	100.00		26	0
DEGERIPA Grundstücksverwaltungsgesellschaft mbH 1)	Eschborn	100.00		41	15
DEGERIPA Grundstücksverwaltungsgesellschaft mbH & Co. Immobilien-Vermietungs KG 1)	Eschborn	6.00	76.00	-602	7
DEGEROTA Grundstücksverwaltungsgesellschaft mbH 1)	Eschborn	100.00		25	-1
DEGERUMEX Grundstücksverwaltungsgesellschaft mbH 1)	Eschborn	100.00		26	0
DEGESAMOS Grundstücksverwaltungsgesellschaft mbH 1)	Eschborn	100.00		26	1
DEGESAMOS Grundstücksverwaltungsgesellschaft mbH & Co. Objekt Neuss KG 1)	Eschborn	90.00	66.67	3	0
DEGESAPOR Grundstücksverwaltungsgesellschaft mbH 1)	Eschborn	100.00		28	1
DEGESAPOR Grundstücksverwaltungsgesellschaft mbH & Co. Immobilien-Vermietungs KG 1)	Eschborn	100.00		3	39
DEGESERA Grundstücksverwaltungsgesellschaft mbH 1)	Eschborn	100.00		26	1
DEGESERA Grundstücksverwaltungsgesellschaft mbH & Co. Immobilien-Vermietungs KG 1)	Eschborn	0.00	51.00	925	78
DEGESERVO Grundstücksverwaltungsgesellschaft mbH 1)	Eschborn	100.00		26	1
DEGESERVO Grundstücksverwaltungsgesellschaft mbH & Co. Immobilien-Vermietungs KG 1)	Eschborn	100.00		-333	151
DEGESIDUX Grundstücksverwaltungsgesellschaft mbH 1)	Eschborn	100.00		67	41
DEGESIDUX Grundstücksverwaltungsgesellschaft mbH & Co. Immobilien-Vermietungs KG 1) 6)	Eschborn	94.91	75.00	1,359	294
DEGESIGNUM Grundstücksverwaltungsgesellschaft mbH 1)	Eschborn	100.00		55	30
DEGESIGNUM Grundstücksverwaltungsgesellschaft mbH & Co. Immobilien-Vermietungs KG 1)	Eschborn	6.00	75.50	37	36
DEGESILEX Grundstücksverwaltungsgesellschaft mbH 1)	Eschborn	100.00		76	50
DEGESILEX Grundstücksverwaltungsgesellschaft mbH & Co. Objekt Karlsfeld KG 1)	Eschborn	5.00	75.50	-1,202	374
DEGESILVA Grundstücksverwaltungsgesellschaft mbH 1)	Eschborn	100.00		29	2
DEGESISTO Grundstücksverwaltungsgesellschaft mbH 1) 5)	Eschborn	100.00		114	0
DEGESOLVO Grundstücksverwaltungsgesellschaft mbH 1)	Eschborn	100.00		26	1
DEGESOLVO Grundstücksverwaltungsgesellschaft mbH & Co. Immobilien-Vermietungs KG 1)	Eschborn	0.00	5.56	-596	687
DEGESTRENA Grundstücksverwaltungsgesellschaft mbH 1)	Eschborn	100.00		25	-6
DEGESUR Grundstücksverwaltungsgesellschaft mbH 1)	Eschborn	100.00		1,122	0
DEGETAMESIS Grundstücksverwaltungsgesellschaft mbH 1)	Eschborn	100.00		52	27
DEGETAMESIS Grundstücksverwaltungsgesellschaft mbH & Co. Immobilien-Vermietungs KG 1)	Eschborn	10.00	75.50	2,170	93
DEGETANTUS Grundstücksverwaltungsgesellschaft mbH 1)	Eschborn	100.00		43	18
DEGETANTUS Grundstücksverwaltungsgesellschaft mbH & Co. Immobilien-Vermietungs KG 2) 6)	Eschborn	100.00		84	358
DEGETERRA Grundstücksverwaltungsgesellschaft mbH 1)	Eschborn	100.00		41	16
DEGETERRA Grundstücksverwaltungsgesellschaft mbH & Co. Immobilien-Vermietungs KG 1)	Eschborn	6.00	75.50	-621	85
DEGETIBUR Grundstücksverwaltungsgesellschaft mbH 1)	Eschborn	100.00		52	26
DEGETIBUR Grundstücksverwaltungsgesellschaft mbH & Co. Immobilien-Vermietungs KG 1)	Eschborn	6.00	67.34	33	31
DEGETRACTUS Grundstücksverwaltungsgesellschaft mbH 1)	Eschborn	100.00		25	0
DEGETRINUM Grundstücksverwaltungsgesellschaft mbH 1)	Eschborn	100.00		50	24
DEGETRINUM Grundstücksverwaltungsgesellschaft mbH & Co. Immobilien-Vermietungs KG 1)	Eschborn	6.00	75.50	24	29
DEGEVIA Grundstücksverwaltungsgesellschaft mbH 1)	Eschborn	100.00		26	1
DEGEVIA Grundstücksverwaltungsgesellschaft mbH & Co. Objekt Rhede Gronauer Strasse 21 KG 1) 6)	Eschborn	90.00	66.67	3	0
DEGEVITRO Grundstücksverwaltungsgesellschaft mbH 1)	Eschborn	100.00		25	0
DESPINA GmbH 1)	Eschborn	100.00		75	20
Deucalion Capital I (UK) Ltd. 1)	London, UK	50.00		5,367	-10,927
Deucalion Capital II (MALTA) Limited 1)	Valletta, Malta	0.00		-794	214
Deucalion Capital II (UK) Ltd. 1)	London, UK	0.00		0	-104

SUBSIDIARIES

Name	Location	Shareholding	Voting rights, if different	Equity in € '000	Profit/loss in € '000
Deucalion Capital II Limited 1)	George Town, Cayman Islands	0.00		4,649	-11,299
Deucalion Capital VI Limited 1)	George Town, Cayman Islands	0.00		263	2,063
Deucalion Capital VII Limited 1)	George Town, Cayman Islands	0.00		997	30
Deucalion Capital VIII Limited 1)	George Town, Cayman Islands	0.00		-11,015	-425
Deucalion Capital XI Limited 1)	George Town, Cayman Islands	0.00		0	0
Deucalion Engine Leasing (Ireland) Ltd. 1)	Dublin, Ireland	0.00		-1,172	-1,170
Deucalion Ltd. 1)	George Town, Cayman Islands	0.00		-1,726	-2,684
Deutsche Genossenschafts-Hypothekenbank Aktiengesellschaft 3) 5)	Hamburg	100.00		1,407,258	0
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 Funding LLC	New York, USA	100.00		79,254	530
DG Holding Trust	New York, USA	100.00		37,970	190
DG LEASING GmbH 1)	Eschborn	100.00		26	0
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		3,017	-158
Dilax France SAS 1)	Valence, France	100.00		253	71
Dilax Intelcom AG 1)	Ermatingen, Switzerland	100.00		1,593	788
Dilax Intelcom GmbH 1)	Berlin	72.01		3,096	-648
Dilax Intelcom Iberica S.L.U. 1)	Madrid, Spain	100.00		61	-7
Dilax Management Investment Reserve GmbH 1)	Berlin	100.00		235	-3
Dilax Management Investment Verwaltungsgesellschaft mbH 1)	Berlin	100.00		23	-1
Dilax Management Investmentgesellschaft mbH & Co. KG 1)	Berlin	99.50		204	-5
Dilax Systems Inc. 1)	Saint Lambert, Canada	100.00		405	137
Dilax Systems UK Ltd. 1)	London, UK	100.00		-342	-122
DOBAS Grundstücksverwaltungsgesellschaft mbH 1)	Eschborn	100.00		29	4
Drem Shipping LLC 1)	Majuro, Marshall Islands	0.00		1,186	1,186
DRITTE DG Vermietungsgesellschaft für Immobilien mbH 1) 5)	Eschborn	100.00		26	0
DUNAVAGON s.r.o. 1)	Dunajská Streda, Slovakia	100.00		1,884	287
DURO Grundstücksverwaltungsgesellschaft mbH 1)	Eschborn	100.00		29	2
DV01 Szarazfoldi Jarmukolcsonzo rt 1)	Áporka, Hungary	100.00		1,823	-410
DVB Aviation Finance Asia Pte Ltd. i.L. 1)	Singapore, Singapore	100.00		2,507	1,422
DVB Bank America N.V. 1)	Willemstad, Curaçao	100.00		127,374	267,676
DVB Bank SE 5)	Frankfurt am Main	100.00		516,146	0
DVB Capital Markets LLC 1)	New York, USA	100.00		2,795	-294
DVB Container Finance America LLC 1)	Majuro, Marshall Islands	100.00		-1,087	22
DVB Group Merchant Bank (Asia) Ltd. 1)	Singapore, Singapore	100.00		362,577	83,331
DVB Holding (US) Inc. 1)	Greenwich, USA	100.00		2,417	-522
DVB Holding GmbH 1) 5)	Frankfurt am Main	100.00		13,000	0
DVB Investment Management N.V. 1)	Willemstad, Curaçao	100.00		209	0
DVB Transport Finance Limited 1)	London, UK	100.00		34,836	1,341
DVG Deutsche Vermögensverwaltungs-Gesellschaft mit beschränkter Haftung 5)	Frankfurt am Main	100.00		82	0
DVL Deutsche Verkehrs-Leasing GmbH i.L. 1)	Eschborn	74.90		2,520	1
DZ BANK Capital Funding LLC I 2) 4)	Wilmington, USA	100.00		300,890	6,611
DZ BANK Capital Funding LLC II 2) 4)	Wilmington, USA	100.00		500,709	6,451
DZ BANK Capital Funding LLC III 2) 4)	Wilmington, USA	100.00		350,300	4,165
DZ BANK Capital Funding Trust I	Wilmington, USA	0.00	100.00	300,001	6,654
DZ BANK Capital Funding Trust II	Wilmington, USA	0.00	100.00	500,001	6,460
DZ BANK Capital Funding Trust III	Wilmington, USA	0.00	100.00	350,001	4,169
DZ BANK Perpetual Funding (Jersey) Limited 4)	St. Helier, Jersey	0.00	100.00	260,486	1,515
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		283	5
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

SUBSIDIARIES

Name	Location	Shareholding	Voting rights, if different	Equity in € '000	Profit/loss in € '000
DZ Beteiligungsgesellschaft mbH Nr. 21 5)	Frankfurt am Main	100.00		25	0
DZ Beteiligungsgesellschaft mbH Nr. 22	Frankfurt am Main	100.00		22	-1
DZ Beteiligungsgesellschaft mbH Nr. 23 5)	Frankfurt am Main	100.00		25	0
DZ Beteiligungsgesellschaft mbH Nr. 24	Frankfurt am Main	100.00		21	-1
DZ FINANCE Ireland Limited	Dublin, Ireland	100.00		9,238	7,381
DZ FINANCIAL MARKETS LLC	New York, USA	100.00		3,685	439
DZ Gesellschaft für Grundstücke und Beteiligungen mbH 5)	Frankfurt am Main	100.00		1,461	0
DZ Immobilien + Treuhand GmbH 5)	Münster	94.50		4,055	0
DZ Polska Spólka Akcyjna w likwidacji	Warsaw, Poland	100.00		70,771	82
DZ PRIVATBANK (Schweiz) AG 1)	Zurich, Switzerland	100.00		180,127	593
DZ PRIVATBANK S.A. 3)	Strassen, Luxembourg	90.74		116,555	11,382
DZ PRIVATBANK Singapore Ltd. in liquidation 1)	Singapore, Singapore	100.00		8,996	-175
DZ Versicherungsvermittlung Gesellschaft mbH 5)	Frankfurt am Main	100.00		51	0
DZ Vierte Beteiligungsgesellschaft mbH 5)	Frankfurt am Main	100.00		265,487	0
e@syCredit Marketing und Vertriebs GmbH 1)	Nuremberg	100.00		26	0
Eagle Aircraft Leasing Limited 1)	George Town, Cayman Islands	0.00		0	0
ENDES Grundstücksverwaltungsgesellschaft mbH 1) 5)	Eschborn	100.00		26	0
Englische Strasse 5 GmbH 1)	Wiesbaden	90.00		19,588	473
EPI Grundstücksverwaltungsgesellschaft mbH 1)	Eschborn	100.00		389	13
EXERT Grundstücksverwaltungsgesellschaft mbH 1) 5)	Eschborn	100.00		26	0
Falcon Aircraft Leasing Limited i.L. 1)	Dublin, Ireland	0.00		n/a	n/a
Finassimoco S.p.A. 1)	Segrate (Mi), Italy	57.03		0	0
Finch Aircraft Leasing Limited 1)	Dublin, Ireland	0.00		12	-18
FKS-NAVIGIUM GmbH 1)	Eschborn	100.00		-516	-134
FLORIN GmbH 1)	Eschborn	100.00		54	29
FLORIN GmbH & Co. Immobilien KG 1)	Eschborn	6.00	76.00	-29	35
Fundamenta-Lakáskassza Lakás-takarékpénztár Zrt. 1)	Budapest, Hungary	51.25		193,864	22,885
Fundamenta-Lakáskassza Pénzügyi Közvetítö Kft. 1)	Budapest, Hungary	100.00		6,394	1,418
GAF Active Life 1 Renditebeteiligungs-GmbH & Co. KG 1)	Nidderau	96.55		56,448	-1,696
GAF Active Life 2 Renditebeteiligungs-GmbH & Co. KG 1)	Nidderau	94.98		153,810	5,478
Gandari Shipping Pte. Ltd. 1)	Singapore, Singapore	0.00		54	-6
GbR Dortmund Westenhellweg 39 - 41 1)	Wiesbaden	94.00	100.00	40,116	2,831
GENO Broker GmbH 5)	Frankfurt am Main	100.00		10,000	0
GENO-Beteiligungsgesellschaft mbH	Düsseldorf	100.00		1,151	1
Genossenschaftlicher Informations Service GIS GmbH	Frankfurt am Main	100.00		4,200	75
Gesellschaft für ernährungswirtschaftliche Beteiligungen mbH 1)	Ochsenfurt	100.00		5,628	199
Glen Campbell Opco LLC 1)	Majuro, Marshall Islands	0.00		0	0
Glencoe Shipping Holdco LLC 1)	Majuro, Marshall Islands	0.00		16	1
Global Credit Cash Duration EUR hedged I dis 1)	Luxembourg, Luxembourg	0.00		n/a	n/a
GMS Management und Service GmbH 1)	Nidderau	100.00		94	44
Goldberg Zweite Grundstücksverwaltungsgesellschaft Sütex mbH & Co. KG 1) 6)	Eschborn	94.50	88.00	132	350
Green Eagle Investments N.V. 1)	Willemstad, Curaçao	100.00		2,060	-1,846
Grundstücksverwaltungsgesellschaft Sütex mbH 1)	Eschborn	100.00		24	0
GWG 1. Wohn GmbH & Co. KG 1)	Stuttgart	100.00		2,000	1,022
GWG 2. Wohn GmbH & Co. KG 1)	Stuttgart	100.00		3,000	987
GWG 3. Wohn GmbH & Co. KG 1)	Stuttgart	100.00		7,000	1,281
GWG 4. Wohn GmbH & Co. KG 1)	Stuttgart	100.00		9,000	818
GWG Beteiligungsgesellschaft mbH 1)	Stuttgart	100.00		26	1
GWG Gesellschaft für Wohnungs- und Gewerbebau Baden-Württemberg AG 1)	Stuttgart	91.41		291,021	20,589
GWG ImmoInvest GmbH 1)	Stuttgart	94.90		6,443	533
GWG Wohnpark Sendling GmbH 1)	Stuttgart	94.00		3,306	523
GZ-Immobilien-Management GmbH & Co. Objekt KG	Frankfurt am Main	100.00		-715	-2
GZ-Trust Consult GmbH i.L.	Stuttgart	100.00		486	-5
Havel Nordost Zweite Grossmobilien GmbH 1)	Eschborn	100.00		42	17
Havel Nordost Zweite Grossmobilien GmbH & Co. Vermietungs KG 1)	Zehdenick	0.00	52.00	21	904
Hawk Aircraft Leasing Limited 1)	Dublin, Ireland	0.00		-8	0
Hibiscus Aircraft Leasing Limited 1)	Floriana, Malta	0.00		20	-22
Highlanders Aircraft Leasing (IRL) Ltd. 1)	Dublin, Ireland	0.00		-242	-8
Hollandse Scheepshypotheekbank N.V. 1)	Rotterdam, Netherlands	100.00		707	0

SUBSIDIARIES

Name	Location	Shareholding	Voting rights, if different	Equity in € '000	Profit/loss in € '000
Hudson Services LLC 1)	Majuro, Marshall Islands	0.00		265	-1,743
HumanProtect Consulting GmbH 1)	Cologne	100.00		243	100
Immobilien-Gesellschaft 'DG Bank-Turm, Frankfurt am Main, Westend' mbH & Co. KG des genossenschaftlichen Verbundes 1)	Frankfurt am Main	95.97		192,976	42,621
Immobilien-Verwaltungsgesellschaft 'DG BANK-Turm, Frankfurt am Main, Westend' mbH	Frankfurt am Main	100.00		72	37
IMPETUS Bietergesellschaft mbH 5)	Düsseldorf	100.00		54,063	0
Intermodal Investment Fund IX LLC 1)	Majuro, Marshall Islands	100.00		n/a	n/a
IPConcept (Luxemburg) S.A. 1)	Strassen, Luxembourg	100.00		4,580	7,502
IPConcept (Schweiz) AG 1)	Zurich, Switzerland	100.00		5,861	733
Iron Maple Rail Ltd. 1)	Vancouver, Canada	100.00		n/a	n/a
ITF International Transport Finance Suisse AG 1)	Zurich, Switzerland	100.00		-49,072	5,441
Ivanhoe Shipping Opco LLC 1)	Majuro, Marshall Islands	0.00		-3,110	-1,416
IZD-Beteiligung S.à.r.l. 1)	Luxembourg, Luxembourg	99.50		131	20,867
JASPIS GmbH 1)	Eschborn	100.00		40	15
JASPIS GmbH & Co. Immobilien KG 1) 6)	Eschborn	100.00		8	19
K2 Aircraft Malta Ltd 1)	Floriana, Malta	100.00		n/a	n/a
KALAMOS GmbH 1)	Eschborn	100.00		56	31
KALAMOS GmbH & Co. Immobilien KG 1)	Eschborn	0.00	52.00	-1,361	-10
Kalsubai Shipping and Offshore Private Ltd. 1)	Mumbai, India	0.00		n/a	n/a
Kälte Eckert GmbH 1)	Markgröningen	70.00		n/a	n/a
KBIH Beteiligungsgesellschaft für Industrie und Handel mbH	Frankfurt am Main	100.00		27,103	6,639
KISSELBERG Grundstücksverwaltungsgesellschaft mbH 1)	Eschborn	100.00		9	-1
KISSELBERG Grundstücksverwaltungsgesellschaft mbH & Co. Immobilien-Vermietungs KG 1)	Eschborn	6.00	66.67	8,691	1,650
KRAVAG Umweltschutz und Sicherheitstechnik GmbH 1)	Hamburg	100.00		239	16
KRAVAG-ALLGEMEINE Versicherungs-Aktiengesellschaft 1)	Hamburg	100.00		107,258	11,224
KRAVAG-LOGISTIC Versicherungs-Aktiengesellschaft 1)	Hamburg	51.00		205,389	19,468
KTP Beteiligungs GmbH & Co. KG 1)	Frankfurt am Main	100.00		25,765	-4
KTP Verwaltungs GmbH 1)	Frankfurt am Main	100.00		25	-1
KV MSN 27602 Aircraft Ltd. 1)	Dublin, Ireland	0.00		-3,175	-3,604
Landes Bangladesh Ltd. 1)	Dhaka, Bangladesh	100.00		n/a	n/a
Landes Canada Inc. 1)	Granby, Quebec, Canada	100.00		3,133	568
Landes de Mexico, S. de R. L. de C.V. 1)	Aguascalientes, AGS., Mexico	100.00		58	0
Landes Holding GmbH 1)	Isny im Allgäu	96.59		3,167	-5,350
Landes Hong Kong Limited 1)	Kwun Tong, Kowloon, Hong Kong	100.00		472	-307
Landes Lederwarenfabrik GmbH 1)	Isny im Allgäu	100.00		6,691	0
Lantana Aircraft Leasing Limited 1)	Floriana, Malta	0.00		25,805	-6,461
Leith Shipping LLC 1)	Majuro, Marshall Islands	0.00		-1,012	-1,012
LEKANIS GmbH 1)	Eschborn	100.00		41	16
LEKANIS GmbH & Co. Immobilien KG 1) 6)	Eschborn	100.00		20	69
Linton Shipping LLC 1)	Majuro, Marshall Islands	0.00		4	4
LISENE GmbH 1)	Eschborn	100.00		44	19
LISENE GmbH & Co. Immobilien KG 1)	Eschborn	0.00	52.00	20	19
LITOS GmbH 1)	Eschborn	100.00		41	16
LITOS GmbH & Co. Immobilien KG 1)	Eschborn	0.00	52.00	-26	25
LogPay Financial Services GmbH 1) 5) 6)	Eschborn	100.00		2,000	0
LogPay Mobility Services GmbH 1)	Eschborn	100.00		0	0
Maple Leaf Shipping Holdco LLC 1)	Majuro, Marshall Islands	0.00		55	-25
MD Aviation Capital Pte. Ltd. 1)	Singapore, Singapore	100.00		194,877	7,586
MDAC 1 Pte Ltd. 1)	Singapore, Singapore	100.00		17,532	59
MDAC 11 Pte Ltd. 1)	Singapore, Singapore	100.00		18,524	588
MDAC 2 Pte Ltd. 1)	Singapore, Singapore	100.00		17,280	70
MDAC 3 Pte Ltd. 1)	Singapore, Singapore	100.00		22,082	5,437
MDAC 4 Pte Ltd. 1)	Singapore, Singapore	100.00		10,209	-713
MDAC 5 Pte. Ltd. 1)	Singapore, Singapore	100.00		13,221	676
MDAC 6 Pte Ltd. 1)	Singapore, Singapore	100.00		53,097	1,865
MDAC 7 (Ireland) Ltd. 1)	Dublin, Ireland	100.00		151	38
MDAC 8 Pte Ltd. 1)	Singapore, Singapore	100.00		5,046	-659

SUBSIDIARIES

Name	Location	Shareholding	Voting rights, if different	Equity in € '000	Profit/loss in € '000
MDAC 9 Pte Ltd. 1)	Singapore, Singapore	100.00		4,017	213
MDAC Malta Ltd. 1)	Floriana, Malta	0.00		0	0
MH 1702 Vermögensverwaltungs GmbH 1) (VREP Holding 1 GmbH from Jan. 24, 2018)	Mainz	75.20		n/a	n/a
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 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
MINTAKA GmbH 1)	Eschborn	100.00		44	19
MINTAKA GmbH & Co. Immobilien KG 1) 6)	Eschborn	100.00		-122	-2
MODULUS GmbH 1)	Eschborn	100.00		51	26
MODULUS GmbH & Co. Immobilien KG 1)	Eschborn	6.00	76.00	30	28
Morgenstern Miet + Leasing GmbH 1)	Eschborn	95.00		26	0
Mount Diamir LLC 1)	Majuro, Marshall Islands	0.00		n/a	n/a
Mount Pleasant Shipping Pte. Ltd. 1)	Singapore, Singapore	100.00		9,521	573
Mount Rinjani Shipping Pte. Ltd. 1)	Singapore, Singapore	100.00		7,587	990
Mount Santubong Ltd. 1)	Labuan, Malaysia	100.00		1,378	1,522
Mount Ulriken LLC 1)	Majuro, Marshall Islands	100.00		n/a	n/a
MS 'Mumbai Trader' GmbH & Co. KG 1)	Bremen	0.00		0	0
MSN1164 Freighter Ltd. 1)	Dublin, Ireland	0.00		9,671	2,328
MSU Management-, Service- und Unternehmensberatung GmbH 1)	Landau in der Pfalz	74.00		781	200
NALINUS GmbH i. L. 1)	Frankfurt am Main	100.00		128	1
NELO Dritte GmbH 1)	Eschborn	100.00		47	22
NELO Dritte GmbH & Co. Immobilien KG 1)	Eschborn	0.00	52.00	27	96
NELO Fünfte GmbH 1)	Eschborn	100.00		44	19
NELO Fünfte GmbH & Co. Immobilien KG 1)	Eschborn	0.00	52.00	24	22
NELO Zweite GmbH 1)	Eschborn	100.00		24	-1
NFC Labuan Shipleasing I Ltd. 1)	Labuan, Malaysia	100.00		3,935	1,264
NFC Shipping Fund C LLC 1)	Majuro, Marshall Islands	0.00		24,664	18,803
NFC Shipping Fund II LLC 1)	Majuro, Marshall Islands	0.00		0	0
NOMAC AIRCRAFT LEASING (IRL) Ltd. i. L. 1)	Dublin, Ireland	0.00		n/a	n/a
NOVA Achte GmbH 1)	Eschborn	100.00		47	22
NOVA Neunte GmbH 1)	Eschborn	100.00		41	15
NOVA Siebte GmbH 1)	Eschborn	100.00		41	16
NOVA Siebte GmbH & Co. Immobilien KG 1)	Eschborn	6.00	76.00	21	19
NTK Immobilien GmbH 1)	Hamburg	100.00		42	0
NTK Immobilien GmbH & Co. Management KG 2)	Hamburg	100.00		812	-421
Ocean Containerships II DIS 1)	Oslo, Norway	0.00		0	0
Ocean Giant LLC 1)	Majuro, Marshall Islands	0.00		419	419
Pascon GmbH 1)	Wiesbaden	100.00		25	0
PAVONIS GmbH 1)	Eschborn	100.00		63	38
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		1,403	120
Philip Trading Opco LLC 1)	Majuro, Marshall Islands	0.00		289	9,225
Phoenix Beteiligungsgesellschaft mbH 5)	Düsseldorf	100.00		108,349	0
POHACONO GmbH & Co. Immobilien KG 1)	Eschborn	0.00	52.00	7	47
Puffin Aircraft Leasing Ltd. 1)	Dublin, Ireland	0.00		-116	-4
Q, Inc. 1)	San Francisco, USA	63.17		n/a	n/a
Quoniam Asset Management GmbH 1)	Frankfurt am Main	88.00	100.00	29,427	19,586
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
R+V Dienstleistungs GmbH 1)	Wiesbaden	100.00		628	-1
R+V Direktversicherung AG 1) 5)	Wiesbaden	100.00		13,320	0

SUBSIDIARIES

Name	Location	Shareholding	Voting rights, if different	Equity in € '000	Profit/loss in € '000
R+V Erste Anlage GmbH 1)	Wiesbaden	100.00		1,064	-10
R+V INTERNATIONAL BUSINESS SERVICES Ltd., Dublin 1)	Dublin, Ireland	100.00		1,053	-1,986
R+V KOMPOSIT Holding GmbH 1) 5)	Wiesbaden	100.00		1,848,052	0
R+V Krankenversicherung AG 1)	Wiesbaden	100.00		77,985	10,000
R+V Kureck Immobilien GmbH 1)	Wiesbaden	100.00		37	1
R+V Leben Wohn GmbH & Co. KG 1)	Wiesbaden	100.00		70,710	2,930
R+V Lebensversicherung Aktiengesellschaft 1) 5)	Wiesbaden	100.00		434,981	0
R+V Luxembourg Lebensversicherung S.A. 1)	Strassen, Luxembourg	100.00		361,453	50,004
R+V Mannheim P2 GmbH 1)	Wiesbaden	94.00		58,995	1,608
R+V Pensionsfonds AG 1)	Wiesbaden	100.00		27,453	1,450
R+V Pensionskasse AG 1)	Wiesbaden	100.00		106,172	400
R+V Personen Holding GmbH 1) 5)	Wiesbaden	100.00		977,490	0
R+V Rechtsschutz-Schadenregulierungs-GmbH 1)	Wiesbaden	100.00		148	32
R+V Service Center GmbH 1) 5)	Wiesbaden	100.00		2,869	0
R+V Service Holding GmbH 1) 5)	Wiesbaden	100.00		174,845	0
R+V Treuhand GmbH 1)	Wiesbaden	100.00		40	4
R+V Versicherung AG 5)	Wiesbaden	92.12		2,149,774	0
RC II S.a.r.l. 1)	Luxembourg, Luxembourg	90.00		9,477	-20
ReiseBank Aktiengesellschaft 1) 5)	Frankfurt am Main	100.00		19,267	0
RISALIS GmbH 1)	Eschborn	100.00		35	10
RISALIS GmbH & Co. Immobilien KG 1)	Eschborn	6.00	76.00	19	17
RUBINOS GmbH 1)	Eschborn	100.00		135	110
RUV Agenturberatungs GmbH 1)	Wiesbaden	100.00		406	138
RV AIP S.a.r.l 1)	Luxembourg, Luxembourg	100.00		n/a	n/a
RV AIP S.C.S. SICAV-SIF 1)	Luxembourg, Luxembourg	99.00		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
S2 Shipping and Offshore Ptd Ltd. 1)	Singapore, Singapore	100.00		45,628	-4,439
SAREMA GmbH 1)	Eschborn	100.00		52	27
SAREMA GmbH & Co. Immobilien KG 1)	Eschborn	6.00	52.00	32	367
Scheepvaartschappij Ewout B.V. 1)	Rotterdam, Netherlands	100.00		14	0
Schuster Versicherungsmakler GmbH 1)	Bielefeld	51.00		516	190
Schuster Versicherungsservice GmbH 1)	Bielefeld	100.00		28	0
Schwäbisch Hall Facility Management GmbH 1)	Schwäbisch Hall	51.00		8,390	4,483
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		628	1
SECURON Versicherungsmakler GmbH 1)	Hannover	51.00		647	267
Shamrock Trading Opco LLC 1)	Majuro, Marshall Islands	0.00		-3,573	-862
Shark Aircraft Leasing (Ireland) Limited i.L. 1)	Dublin, Ireland	0.00		n/a	n/a
Shipping and Intermodal Investment Management Fund I LLC 1)	Majuro, Marshall Islands	0.00		-28,623	-6,259
Shipping and Intermodal Investment Management Fund II LLC 1)	Majuro, Marshall Islands	0.00		-5,247	-3,486
SHT Schwäbisch Hall Training GmbH 1)	Schwäbisch Hall	100.00		5,971	893
SIIM Marlin Holdings LLC 1)	Majuro, Marshall Islands	100.00		n/a	n/a
SINALOA Aircraft Leasing Limited 1)	Floriana, Malta	0.00		-20	-28
SmartBuchhalter GmbH 1)	Eschborn	100.00		2,021	0
Sprint Sanierung GmbH 1)	Cologne	100.00		31,611	608
SRF I Ltd. 1)	Floriana, Malta	0.00		-857	-24
SRF II Ltd. 1)	Floriana, Malta	0.00		-5	0
SRF III Ltd. 1)	Floriana, Malta	0.00		772	742
Stani Trading Opco LLC 1)	Majuro, Marshall Islands	0.00		428	8,282
Stephenson Capital Limited 1)	George Town, Cayman Islands	0.00		-755	190
Stormers Aircraft Leasing (Malta) Ltd. 1)	Floriana, Malta	0.00		-2	0
Taigetos II LLC 1)	Majuro, Marshall Islands	100.00		0	0
Taigetos III LLC 1)	Majuro, Marshall Islands	100.00		1	-1
TeamBank AG Nürnberg 2) 5)	Nuremberg	92.43		539,699	0
Technology DZ Venture Capital Fund I GmbH & Co. KG i.L. 1)	Munich	68.29		8,275	2,437
TEGANON GmbH 1)	Eschborn	100.00		29	2
TEGANON GmbH & Co. Immobilien KG 1) 6)	Eschborn	100.00		3	20
Terra Maris I LLC 1)	Majuro, Marshall Islands	100.00		13,788	-4,518

SUBSIDIARIES

Name	Location	Shareholding	Voting rights, if different	Equity in € '000	Profit/loss in € '000
Tiger Aircraft Leasing (UK) Limited 1)	London, UK	0.00		0	0
TILIAS GmbH 1)	Eschborn	100.00		44	19
TILIAS GmbH & Co. Immobilien KG 1)	Eschborn	50.00	76.00	24	23
TOPAS GmbH 1)	Eschborn	100.00		49	24
TOPAS GmbH & Co. Immobilien KG 1)	Eschborn	0.00	52.00	30	29
TUKANA GmbH 1)	Eschborn	100.00		43	18
TUKANA GmbH & Co. Immobilien KG 1)	Eschborn	6.00	76.00	22	21
Twenty Holding Private Limited 1)	Singapore, Singapore	0.00		n/a	n/a
UI Management S.a.r.l. 1)	Luxembourg, Luxembourg	100.00		n/a	n/a
UI Vario: 2 issued by Union Investment Luxembourg S.A. 1)	Luxembourg, Luxembourg	0.00		461,143	-554
UII Issy 3 Moulins SARL 1)	Paris, France	100.00		8	-2
UII PSD KN ImmoInvest GP GmbH 1)	Hamburg	100.00		n/a	n/a
UII Verwaltungsgesellschaft mbH 1)	Hamburg	100.00		24	0
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		1,596,287	-3,405
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
UIR FRANCE 1 S.a.r.l. 1)	Paris, France	100.00		33	2
UIR FRANCE 2 S.a.r.l. 1)	Paris, France	100.00		35	2
UIR Verwaltungsgesellschaft mbH 1)	Hamburg	100.00		90	0
UMB Unternehmens-Managementberatungs GmbH 1)	Wiesbaden	100.00		2,058	606
UMBI GmbH 1)	Wiesbaden	100.00		74	-3
UniAbsolute Return Globalny FIZ 1)	Warsaw, Poland	0.00		n/a	n/a
UniAbsolute Smart Beta FIZ 1)	Warsaw, Poland	0.00		n/a	n/a
UniGotówkowy Aktywa Polskie 1)	Warsaw, Poland	0.00		n/a	n/a
UniInstitutional Global Credit 1)	Luxembourg, Luxembourg	0.00		n/a	n/a
UniInstitutional SDG Equities 1)	Luxembourg, Luxembourg	0.00		n/a	n/a
Union Asset Management Holding AG 2)	Frankfurt am Main	96.57		919,247	413,925
Union Investment Austria GmbH 1)	Vienna, Austria	100.00		15,030	1,702
Union Investment Financial Services S.A. 1)	Luxembourg, Luxembourg	100.00		18,271	1,587
Union Investment Institutional GmbH 1) 5) 6)	Frankfurt am Main	100.00		78,970	0
Union Investment Institutional Property GmbH 1) 6)	Hamburg	90.00		17,391	1,723
Union Investment Luxembourg S.A. 1)	Luxembourg, Luxembourg	100.00		220,837	58,100
Union Investment Privatfonds GmbH 1) 5) 6)	Frankfurt am Main	100.00		335,942	0
Union Investment Real Estate Asia Pacific Pte. Ltd. 1)	Singapore, Singapore	100.00		1,837	701
Union Investment Real Estate Austria AG 1)	Vienna, Austria	94.50		6,492	65
Union Investment Real Estate France S.A.S. 1)	Paris, France	100.00		2,934	1,315
Union Investment Real Estate GmbH 2) 6)	Hamburg	94.50		150,886	47,169
Union Investment Service Bank AG 1) 5) 6)	Frankfurt am Main	100.00		48,115	0
Union Investment Towarzystwo Funduszy Inwestycyjnych S. A. 1)	Warsaw, Poland	100.00		33,153	6,006
Union IT-Services GmbH 1) 5) 6)	Frankfurt am Main	100.00		3,823	0
Union Service-Gesellschaft mbH 1) 5) 6)	Frankfurt am Main	100.00		7,330	0
UniRak Nordamerika 1)	Luxembourg, Luxembourg	0.00		n/a	n/a
UniRegularna Wyplata FIZ 1)	Warsaw, Poland	0.00		n/a	n/a
Unterstützungskasse der Condor Versicherungsgesellschaften GmbH 1)	Hamburg	66.67		26	0
URA Verwaltung GmbH 1)	Vienna, Austria	100.00		32	-3
VAUTID (SHANGHAI) Wear Resistant Material Trading Co. Ltd. 1)	Shanghai, China	100.00		1,023	298
VAUTID Austria GmbH 1)	Marchtrenk, Austria	100.00		792	110
VAUTID GmbH 1)	Ostfildern	82.51		5,491	-76
VAUTID INDIA PRIVATE LIMITED 1)	Mumbai, India	100.00		n/a	n/a

SUBSIDIARIES

Name	Location	Shareholding	Voting rights, if different	Equity in € '000	Profit/loss in € '000
VAUTID LATAM S.A. 1)	Quito, Ecuador	74.00		n/a	n/a
VAUTID MIDDLE EAST F.Z.E 1)	Ajman Free Zone, United Arab Emirates	100.00		n/a	n/a
Vautid North America, Inc. 1)	Carnegie, USA	0.00	100.00	-294	4
VisualVest GmbH 1) 6)	Frankfurt am Main	100.00		12,525	-3,664
VMB Vorsorgemanagement für Banken GmbH 1)	Overath	100.00		47	-11
vohtec Qualitätssicherung GmbH 1)	Aalen	74.57	74.58	10,324	1,138
VR Consultingpartner GmbH 2)	Frankfurt am Main	100.00		1,971	-497
VR DISKONTBANK GmbH 1) 5)	Eschborn	100.00		136,147	0
VR Equity Gesellschaft für regionale Entwicklung in Bayern mbH 1)	Frankfurt am Main	100.00		2,243	-150
VR Equitypartner Beteiligungskapital GmbH & Co. KG UBG 2)	Frankfurt am Main	100.00		36,021	4,625
VR Equitypartner GmbH 5)	Frankfurt am Main	100.00		69,070	0
VR Equitypartner Management GmbH 1)	Frankfurt am Main	100.00		345	-32
VR FACTOREM GmbH 1) 5)	Eschborn	100.00		39,385	0
VR GbR 2)	Frankfurt am Main	100.00		221,963	0
VR Hausbau AG 1)	Stuttgart	94.48		2,750	0
VR HYP GmbH 1)	Hamburg	100.00		25	0
VR ImmoConsult GmbH 1)	Düsseldorf	51.00		373	73
VR Kreditservice GmbH 1) 5)	Hamburg	100.00		25	0
VR Mittelstandskapital Unternehmensbeteiligungs GmbH 2)	Düsseldorf	100.00		9,395	-1,898
VR Real Estate GmbH 1)	Hamburg	100.00		25	0
VR WERT Gesellschaft für Immobilienbewertung mbH 1) 5)	Hamburg	100.00		50	0
VR-IMMOBILIEN-LEASING GmbH 1) 5)	Eschborn	100.00		14,123	0
VR-LEASING ABYDOS GmbH 1)	Eschborn	100.00		57	32
VR-LEASING ABYDOS GmbH & Co. Immobilien KG 1)	Eschborn	6.00	76.00	-66	57
VR-LEASING AKANTHUS GmbH 1)	Eschborn	100.00		28	2
VR-LEASING AKANTHUS GmbH & Co. Immobilien KG 1)	Eschborn	100.00		3	21
VR-LEASING Aktiengesellschaft 5)	Eschborn	100.00		211,070	0
VR-LEASING ALDEBARA GmbH 1)	Eschborn	100.00		43	18
VR-LEASING ALDEBARA GmbH & Co. Immobilien KG 1)	Eschborn	6.00	76.00	-434	-17
VR-LEASING AMETRIN GmbH 1)	Eschborn	100.00		28	2
VR-LEASING AMETRIN GmbH & Co. Immobilien KG 1)	Eschborn	100.00		3	29
VR-LEASING ARINA GmbH 1)	Eschborn	100.00		48	23
VR-LEASING ARINA GmbH & Co. Immobilien KG 1)	Eschborn	0.00	52.00	29	28
VR-LEASING ARKI GmbH 1)	Eschborn	100.00		51	26
VR-LEASING ARKI GmbH & Co. Immobilien KG 1)	Eschborn	6.00	76.00	32	31
VR-LEASING ASINE GmbH 1)	Eschborn	100.00		46	21
VR-LEASING ASINE GmbH & Co. Immobilien KG 1)	Eschborn	6.00	76.00	-250	17
VR-LEASING ASOPOS GmbH 1)	Eschborn	100.00		29	2
VR-LEASING ASOPOS GmbH & Co. Immobilien KG 1)	Eschborn	100.00		3	16
VR-LEASING ATRIA GmbH 1)	Eschborn	100.00		41	16
VR-LEASING ATRIA GmbH & Co. Immobilien KG 1)	Eschborn	6.00	55.00	20	19
VR-LEASING AVENTURIN GmbH 1)	Eschborn	100.00		40	15
VR-LEASING AVENTURIN GmbH & Co. Immobilien KG 1)	Eschborn	6.00	76.00	22	18
VR-LEASING BETA GmbH 1)	Eschborn	100.00		28	2
VR-LEASING BETA GmbH & Co. Immobilien KG 1)	Eschborn	100.00		3	23
VR-Leasing Beteiligungs GmbH 1)	Eschborn	100.00		83,466	9,953
VR-LEASING DELOS GmbH 1)	Eschborn	100.00		29	2
VR-LEASING DELOS GmbH & Co. Immobilien KG 1)	Eschborn	100.00		3	25
VR-LEASING DIVO GmbH 1)	Eschborn	100.00		56	31
VR-LEASING DIVO GmbH & Co. Immobilien KG 1)	Eschborn	6.00	76.00	41	37
VR-LEASING DOBAS GmbH & Co. Immobilien KG 1)	Eschborn	100.00		5	47
VR-LEASING ERIDA GmbH 1)	Eschborn	100.00		40	1
VR-LEASING ERIDA GmbH & Co. Immobilien KG 1)	Eschborn	6.00	76.00	-231	-163
VR-LEASING FABIO GmbH 1)	Eschborn	100.00		36	11
VR-LEASING FABIO GmbH & Co. Immobilien KG 1)	Eschborn	6.00	76.00	15	14
VR-LEASING FACTA GmbH 1)	Eschborn	100.00		24	0
VR-LEASING FAGURA GmbH & Co. Erste Immobilien KG 1) 6)	Eschborn	100.00		3	15
VR-LEASING FAGURA GmbH & Co. Sechste Immobilien KG 1)	Eschborn	6.00	76.00	27	19

SUBSIDIARIES

Name	Location	Shareholding	Voting rights, if different	Equity in € '000	Profit/loss in € '000
VR-LEASING FAGURA GmbH & Co. Siebte Immobilien KG 1)	Eschborn	6.00	68.00	27	25
VR-LEASING FARINA GmbH 1)	Eschborn	100.00		38	12
VR-LEASING FARINA GmbH & Co. Immobilien KG 1)	Eschborn	0.00	52.00	16	15
VR-LEASING FERRIT GmbH & Co. Erste Immobilien KG 1)	Eschborn	6.00	76.00	862	92
VR-LEASING FERRIT GmbH & Co. Fünfte Immobilien KG 1)	Eschborn	6.00	76.00	20	18
VR-LEASING FERRIT GmbH & Co. Zweite Immobilien KG 1)	Eschborn	0.00	52.00	-367	66
VR-LEASING FLAVUS GmbH 1)	Eschborn	100.00		40	15
VR-LEASING FLAVUS GmbH & Co. Immobilien KG 1)	Eschborn	100.00		-1,518	-37
VR-LEASING FORTUNA GmbH 1)	Eschborn	100.00		24	0
VR-LEASING FRONTANIA GmbH & Co. Immobilien KG 1)	Eschborn	6.00	76.00	1,022	99
VR-LEASING FULVIUS GmbH 1)	Eschborn	100.00		52	27
VR-LEASING Hauptverwaltung GmbH & Co. KG 1)	Eschborn	94.80	76.00	5,000	3,339
VR-LEASING IKANA GmbH 1)	Eschborn	100.00		54	29
VR-LEASING IKANA GmbH & Co. Immobilien KG 1) 6)	Eschborn	6.00	76.00	8	38
VR-LEASING Immobilien-Holding GmbH & Co. KG 1) 6)	Eschborn	0.00	51.00	220	121
VR-LEASING IRIS GmbH 1)	Eschborn	100.00		167	142
VR-LEASING IRIS GmbH & Co. Immobilien KG 1)	Eschborn	6.00	76.00	17	16
VR-LEASING ISORA GmbH 1)	Eschborn	100.00		40	15
VR-LEASING ISORA GmbH & Co. Immobilien KG 1)	Eschborn	6.00	76.00	19	18
VR-LEASING KOSMOS GmbH 1) 5)	Eschborn	100.00		89	0
VR-LEASING LEROS GmbH 1)	Eschborn	100.00		40	15
VR-LEASING LEROS GmbH & Co. Immobilien KG 1)	Eschborn	6.00	76.00	20	18
VR-LEASING LIMNOS GmbH 1)	Eschborn	100.00		43	18
VR-LEASING LIMNOS GmbH & Co. Immobilien KG 1)	Eschborn	0.00	52.00	22	21
VR-LEASING LOTIS GmbH 1)	Eschborn	100.00		59	34
VR-LEASING LOTIS GmbH & Co. Immobilien KG 1)	Eschborn	0.00	52.00	41	39
VR-LEASING LYRA GmbH 1)	Eschborn	100.00		55	30
VR-LEASING LYRA GmbH & Co. Immobilien KG 1)	Eschborn	6.00	76.00	40	36
VR-LEASING MADIUM GmbH 1)	Eschborn	100.00		25	0
VR-LEASING MAGADIS GmbH 1)	Eschborn	100.00		73	48
VR-LEASING MAGADIS GmbH & Co. Immobilien KG 1)	Eschborn	0.00	51.00	42	58
VR-LEASING MALAKON GmbH 1)	Eschborn	100.00		36	11
VR-LEASING MALAKON GmbH & Co. Immobilien KG 1)	Eschborn	15.00	75.50	3,181	213
VR-LEASING MANEGA GmbH 1)	Eschborn	100.00		38	13
VR-LEASING MANEGA GmbH & Co. Immobilien KG 1)	Eschborn	6.00	75.50	-11	23
VR-LEASING MANIOLA GmbH 1)	Eschborn	100.00		39	13
VR-LEASING MANIOLA GmbH & Co. Immobilien KG 1)	Eschborn	11.20	51.00	2,460	145
VR-LEASING MARKASIT GmbH 1)	Eschborn	100.00		63	37
VR-LEASING MAROS GmbH 1)	Eschborn	100.00		42	17
VR-LEASING MAROS GmbH & Co. Immobilien KG 1)	Eschborn	0.00	52.00	21	20
VR-LEASING MARTES GmbH 1)	Eschborn	100.00		39	13
VR-LEASING MARTES GmbH & Co. Immobilien KG 1)	Eschborn	14.50	51.00	1,830	112
VR-LEASING MAXIMA GmbH 1)	Eschborn	100.00		26	0
VR-LEASING MENTHA GmbH 1)	Eschborn	100.00		43	18
VR-LEASING MENTHA GmbH & Co. Immobilien KG 1)	Eschborn	22.00	51.00	787	52
VR-LEASING MENTUM GmbH 1)	Eschborn	100.00		47	22
VR-LEASING MENTUM GmbH & Co. Immobilien KG 1)	Eschborn	7.80	51.00	4,535	435
VR-LEASING MERGUS GmbH 1)	Eschborn	100.00		138	113
VR-LEASING METRO GmbH & Co. Objekte Rhein-Neckar KG 1)	Eschborn	100.00		-590	202
VR-LEASING MILETOS GmbH 1)	Eschborn	100.00		45	20
VR-LEASING MILETOS GmbH & Co. Immobilien KG 1)	Eschborn	6.00	76.00	25	24
VR-LEASING MILIUM GmbH 1)	Eschborn	100.00		40	15
VR-LEASING MILIUM GmbH & Co. Immobilien KG 1)	Eschborn	6.00	76.00	19	18
VR-LEASING MILVUS GmbH 1)	Eschborn	100.00		110	85
VR-LEASING MUNDA GmbH 1)	Eschborn	100.00		29	2
VR-LEASING MUNDA GmbH & Co. Immobilien KG 1)	Eschborn	100.00		3	55
VR-LEASING MUSCAN GmbH 1)	Eschborn	100.00		38	13
VR-LEASING MUSTELA GmbH 1)	Eschborn	100.00		51	26
VR-LEASING NALANDA GmbH 1)	Eschborn	100.00		44	18

SUBSIDIARIES

Name	Location	Shareholding	Voting rights, if different	Equity in € '000	Profit/loss in € '000
VR-LEASING NALANDA GmbH & Co. Immobilien KG 1)	Eschborn	6.00	75.50	20	22
VR-LEASING NAPOCA GmbH 1)	Eschborn	100.00		39	14
VR-LEASING NAPOCA GmbH & Co. Immobilien KG 1)	Eschborn	6.00	51.00	57	143
VR-LEASING NATANTIA GmbH 1)	Eschborn	100.00		44	17
VR-LEASING NAVARINO GmbH 1)	Eschborn	100.00		95	69
VR-LEASING NAVARINO GmbH & Co. Immobilien KG 1)	Eschborn	100.00		-472	153
VR-LEASING NESTOR GmbH 1)	Eschborn	100.00		50	24
VR-LEASING NESTOR GmbH & Co. Immobilien KG 1)	Eschborn	6.00	75.50	22	29
VR-LEASING NETTA GmbH 1)	Eschborn	100.00		56	26
VR-LEASING NETTA GmbH & Co. Immobilien KG 1) 6)	Eschborn	94.00	51.00	17	33
VR-LEASING NOVA Fünfte GmbH 1)	Eschborn	100.00		56	31
VR-LEASING ONDATRA GmbH 1)	Eschborn	100.00		59	33
VR-LEASING ONDATRA GmbH & Co. Immobilien KG 1)	Eschborn	0.00	51.00	37	35
VR-LEASING ONYX GmbH 1)	Eschborn	100.00		40	14
VR-LEASING ONYX GmbH & Co. Immobilien KG 1)	Eschborn	100.00		-132	1,195
VR-LEASING OPAVA GmbH 1)	Eschborn	100.00		27	1
VR-LEASING OPAVA GmbH & Co. Immobilien KG 1)	Eschborn	100.00		-2,382	591
VR-LEASING OPHIR GmbH 1)	Eschborn	100.00		30	4
VR-LEASING OPHIR GmbH & Co. Immobilien KG 1)	Eschborn	100.00	83.66	-7,433	638
VR-LEASING OPTIMA GmbH 1)	Eschborn	100.00		72	47
VR-LEASING OPTIMA GmbH & Co. Immobilien KG 1)	Eschborn	0.00	51.00	-87	82
VR-LEASING ORDO GmbH 1)	Eschborn	100.00		41	15
VR-LEASING OSMERUS GmbH 1)	Eschborn	100.00		24	-1
VR-LEASING PAROS GmbH 1)	Eschborn	100.00		31	6
VR-LEASING PAROS GmbH & Co. Immobilien KG 1)	Eschborn	6.00	76.00	73	242
VR-LEASING POCO GmbH & Co. Immobilien KG 1)	Eschborn	0.00	52.00	-6	34
VR-LEASING REGELSCHULE GmbH & Co. Immobilien KG 1)	Eschborn	0.00	51.00	19	18
VR-LEASING SALIX GmbH 1)	Eschborn	100.00		77	51
VR-LEASING SALIX GmbH & Co. Immobilien KG 1)	Eschborn	0.00	51.00	61	60
VR-LEASING SALONA GmbH 1)	Eschborn	100.00		33	7
VR-LEASING SALONA GmbH & Co. Immobilien KG 1)	Eschborn	6.00	75.50	9	37
VR-LEASING SAMARA GmbH 1)	Eschborn	100.00		91	66
VR-LEASING SAMARA GmbH & Co. Immobilien KG 1)	Eschborn	100.00		73	81
VR-LEASING SANAGA GmbH 1)	Eschborn	100.00		26	1
VR-LEASING SANAGA GmbH & Co. Immobilien KG 1) 6)	Eschborn	100.00		3	77
VR-LEASING SANIDOS GmbH 1)	Eschborn	100.00		43	18
VR-LEASING SANIDOS GmbH & Co. Immobilien KG 1)	Eschborn	4.00	52.00	26	25
VR-LEASING SARITA GmbH 1)	Eschborn	100.00		42	17
VR-LEASING SARITA GmbH & Co. Immobilien KG 1)	Eschborn	6.00	76.00	21	20
VR-LEASING SASKIA GmbH 1)	Eschborn	100.00		42	17
VR-LEASING SASKIA GmbH & Co. Immobilien KG 1)	Eschborn	6.00	76.00	21	20
VR-LEASING SEPIA GmbH 1)	Eschborn	100.00		31	6
VR-LEASING SEPIA GmbH & Co. Immobilien KG 1)	Eschborn	4.00	52.00	815	14
VR-LEASING SIGUNE GmbH 1)	Eschborn	100.00		43	17
VR-LEASING SIGUNE GmbH & Co. Immobilien KG 1)	Eschborn	6.00	68.00	22	21
VR-LEASING SIMA GmbH 1)	Eschborn	100.00		138	112
VR-LEASING SIMA GmbH & Co. Immobilien KG 1)	Eschborn	0.00	51.00	30	28
VR-LEASING SINABIS GmbH 1)	Eschborn	100.00		34	9
VR-LEASING SINABIS GmbH & Co. Immobilien KG 1)	Eschborn	6.00	75.50	14	11
VR-LEASING SIRIUS GmbH 1)	Eschborn	100.00		28	2
VR-LEASING SIRIUS GmbH & Co. Immobilien KG 1) 6)	Eschborn	100.00		3	31
VR-LEASING SOLIDUS Dreizehnte GmbH 1)	Eschborn	100.00		126	101
VR-LEASING SOLIDUS Elfte GmbH 1)	Eschborn	100.00		46	21
VR-LEASING SOLIDUS Elfte GmbH & Co. Immobilien KG 1)	Eschborn	94.00	76.00	26	25
VR-LEASING SOLIDUS Fünfte GmbH 1)	Eschborn	100.00		29	4
VR-LEASING SOLIDUS Neunte GmbH 1)	Eschborn	100.00		47	22
VR-LEASING SOLIDUS Neunzehnte GmbH 1)	Eschborn	100.00		44	19
VR-LEASING SOLIDUS Neunzehnte GmbH & Co. Immobilien KG 1)	Eschborn	6.00	76.00	24	23
VR-LEASING SOLIDUS Sechzehnte GmbH 1)	Eschborn	100.00		41	16

SUBSIDIARIES

Name	Location	Shareholding	Voting rights, if different	Equity in € '000	Profit/loss in € '000
VR-LEASING SOLIDUS Sechzehnte GmbH & Co. Immobilien KG 1)	Eschborn	6.00	76.00	21	19
VR-LEASING SOLIDUS Vierzehnte GmbH 1)	Eschborn	100.00		41	16
VR-LEASING SOLIDUS Zweite GmbH 1)	Eschborn	100.00		52	27
VR-LEASING SOLIDUS Zweite GmbH & Co. Immobilien KG 1)	Eschborn	6.00	76.00	33	11
VR-LEASING SOLIDUS Zwölfte GmbH 1)	Eschborn	100.00		42	17
VR-LEASING TELLUR GmbH 1)	Eschborn	100.00		44	19
VR-LEASING TELLUR GmbH & Co. Immobilien KG 1)	Eschborn	6.00	76.00	26	25
Wadi Funding LLC 1)	Majuro, Marshall Islands	100.00		15,859	490
Wadi Woraya I LLC 1)	Majuro, Marshall Islands	100.00		-13,666	-573
Wadi Woraya III LLC 1)	Majuro, Marshall Islands	100.00		-7,805	-516
Wasps Aircraft Leasing (Ireland) Limited i.L. 1)	Dublin, Ireland	0.00		n/a	n/a
Waverley Shipping Opco LLC 1)	Majuro, Marshall Islands	0.00		-4,418	-2,675
WBS Wohnwirtschaftliche Baubetreuungs- und Servicegesellschaft mbH 1)	Stuttgart	94.90		19,699	4,131
Weinmann GmbH & Co. Objekt Eichwald KG 1) 6)	Eschborn	100.00		3	52
WGZ FINANCE PUBLIC LIMITED COMPANY	Dublin, Ireland	100.00		414,079	23,981
WGZ Immobilien + Management GmbH 5)	Münster	100.00		35	0
WGZ ImmobilienKontor GmbH 1)	Münster	100.00		61	0
WGZ ImmobilienKontor GmbH & Co. KG 1)	Münster	55.00		72	149
WL BANK AG Westfälische Landschaft Bodenkreditbank 3) 5)	Münster	90.92		355,084	0
ZPF Asia Pacific Pte. Ltd. 1)	Singapore, Singapore	100.00		n/a	n/a
ZPF Holding GmbH i.L. 1)	Siegelsbach	95.58		n/a	n/a
ZPF Industrial Furnaces (Taicang) Co. Ltd. 1)	Taicang, China	100.00		n/a	n/a
ZPF Services GmbH i. L. 1)	Heilbronn	100.00		61	36
ZPF Therm Maschinenbau GmbH i.L. 1)	Siegelsbach	100.00		5,371	-338

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		9,671	2,328
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		10,723	844
BEA Union Investment Management Limited 1)	Hong Kong, Hong Kong	49.00		51,774	6,744
Ceskomoravska stavebni sporitelna a.s. 1)	Prague, Czech Republic	45.00		380,784	45,989
D8 Product Tankers I LLC 1)	Majuro, Marshall Islands	50.00		0	0
D8 Product Tankers Investments LLC 1)	Majuro, Marshall Islands	50.00		0	0
Deucalion MC Engine Leasing Ltd. 1)	Dublin, Ireland	50.00		7,742	633
Deutsche WertpapierService Bank AG	Frankfurt am Main	50.00		180,188	8,725
DUO PLAST Holding GmbH 1)	Lauterbach	47.43		12,401	2,349
DZ BANK Galerie im Städel Kunstverwaltungsgesellschaft mbH	Frankfurt am Main	50.00		17	-2
GMS Holding GmbH 1)	Paderborn	58.89	45.00	12,256	2,545
Herakleitos 3050 LLC 1)	Majuro, Marshall Islands	50.00		0	0
Intermodal Investment Fund IV LLC 1)	Majuro, Marshall Islands	50.00		21,264	2,984
Intermodal Investment Fund VIII LLC 1)	Majuro, Marshall Islands	50.00		6,154	835
IZD-Holding S.à.r.l. 1)	Luxembourg, Luxembourg	50.30	50.00	1,280	43,275
Leuna Tenside Holding GmbH 1)	Leuna	50.00		12,646	3,216
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		25	0
Prvá stavebná sporitel'na, a.s. 1)	Bratislava, Slovakia	32.50		239,843	20,420
R+V Kureck Immobilien GmbH Grundstücksverwaltung Braunschweig 1)	Wiesbaden	50.00		8,043	287
Raiffeisen Banca Pentru Locuinte S.A. 1)	Bucharest, Romania	33.32		15,582	459
TrustBills GmbH	Hamburg	25.00		1,446	-1,120
VB-Leasing International Holding GmbH 1)	Vienna, Austria	50.00		79,469	1,298
Versicherungs-Vermittlungsgesellschaft des Sächsischen Landesbauernverbandes mbH 1)	Dresden	50.00		181	13
Versicherungs-Vermittlungsgesellschaft mbH des Bauernverbandes Mecklenburg-Vorpommern e.V. (VVB) 1)	Neubrandenburg	50.00		164	10
Versicherungs-Vermittlungsgesellschaft mbH des Landesbauernverbandes Brandenburg (VVB) 1)	Teltow	50.00		32	3
Versicherungs-Vermittlungsgesellschaft mbH des Landesbauernverbandes Sachsen-Anhalt e.V. (VVB) 1)	Magdeburg	50.00		57	9
Zhong De Zuh Fang Chu Xu Yin Hang (Sino-German-Bausparkasse) Ltd. 1)	Tianjin, China	24.90		366,373	25,255

ASSOCIATES

Name	Location	Shareholding	Voting rights, if different	Equity in € '000	Profit/loss in € '000
8F Leasing S.A. 1)	Contern, Luxembourg	22.00		0	0
A330 Parts Ltd. 1)	Newark, USA	20.00		9,671	2,328
adorsys GmbH & Co. KG 1)	Nuremberg	25.89		1,340	2,218
adorsys Verwaltungs GmbH 1)	Nuremberg	25.90		29	1
Aer Lucht Limited 1)	Dublin, Ireland	47.80		0	0
Artemis Gas 1 Shipping Inc. 1)	Piraeus, Greece	20.00		0	0
Aviateur Capital Limited 1)	Dublin, Ireland	20.00		1,808	189
Bankenkonsortium der Zenit GmbH, GbR	Düsseldorf	33.30		0	0
bbv-service Versicherungsmakler GmbH 1)	Munich	25.20		1,908	436
Bergina AS 1)	Grimstad, Norway	40.00		n/a	n/a
Celestyal Cruises Ltd. 1)	Strovolos, Cyprus	49.00	33.33	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		25	0
Epic Gas Ltd. 1)	Tortola, Virgin Islands	15.40		0	0
European Convenience Food GmbH 1)	Borken	44.73		8,523	-398
European Property Beteiligungs-GmbH 1)	Frankfurt am Main	38.90	33.20	990	-38
GBS Beteiligungsgesellschaft mbH 1)	Bayreuth	42.33		0	-48

ASSOCIATES

Name	Location	Shareholding	Voting rights, if different	Equity in € '000	Profit/loss in € '000
GGB-Beratungsgruppe GmbH	Stuttgart	23.13		-1,123	-1,858
GHM Holding GmbH 1)	Erolzheim	40.00		17,219	-17
GHM MPP Reserve GmbH 1)	Regenstauf	50.00		357	-4
GHM MPP Verwaltungs GmbH 1)	Regenstauf	50.00		21	-1
Global Asic GmbH 1)	Dresden	30.80		12,219	233
Global Offshore Services B.V. 1)	Amsterdam, Netherlands	32.13		0	0
Goldeck Zetti Beteiligungsgesellschaft mbH 1)	Leipzig	39.23		33,850	886
Gram Car Carriers Holdings Pte. Ltd. 1)	Singapore, Singapore	5.88		0	0
Groneweg Verwaltungsgesellschaft mbH 1)	Greven	48.00		n/a	n/a
Hör Technologie GmbH 1)	Weiden i.d.OPf.	61.54	49.99	7,907	1,109
Hudson Chemical Tankers Ltd 1)	Middlesex, UK	25.00		n/a	n/a
Kapitalbeteiligungsgesellschaft für die mittelständische Wirtschaft in Nordrhein-Westfalen mbH - KBG -	Neuss	23.60		2,768	484
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		71,729	10,244
KTP Holding GmbH 1)	Bous	37.36		17,166	3,067
LogPay Transport Services GmbH 1) 5) 6)	Eschborn	49.02		2,046	0
Mandarin Containers Limited 1)	Tortola, Virgin Islands	17.01		0	0
Modex Holding Limited (BVI) 1)	Tortola, Virgin Islands	26.18		0	0
MON A300 Leasing Ltd. 1)	George Town, Cayman Islands	20.00		70	1,491
MON Engine Parts Inc. 1)	Wilmington, USA	20.00		3,223	284
Mount Faber KS i.L. 1)	Oslo, Norway	49.00		0	0
MSEA Aframax Holdings LLC 1)	Majuro, Marshall Islands	48.00		0	0
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	30	0
Ostertag Holding GmbH 1)	Walddorfhäslach	54.68	49.90	25	0
Piller Entgrattechnik GmbH 1)	Ditzingen	40.00		10,745	1,994
PI-SM GmbH 1)	Ehringshausen	32.30		25	0
SCL GmbH 1)	Butzbach	49.00		7,799	1,256
Service-Direkt Telemarketing Verwaltungsgesellschaft mbH	Weinheim	32.83		4,168	-1,299
SRF Railcar Leasing Limited 1)	Cashel, Ireland	49.00		0	0
TAP Ltd. 1)	Hamilton, Bermuda	38.05		n/a	n/a
TES Holding Ltd. 1)	Bridgend, UK	40.00		27,052	-4,638
Touax Rail Finance 3 Ltd. 1)	Bracetown, Ireland	28.92		0	0
Treuhand- und Finanzierungsgesellschaft für Wohnungs- und Bauwirtschaft mit beschränkter Haftung. Treufinanz	Düsseldorf	33.14		1,891	-194
TREVA Entertainment GmbH i. L. 1)	Hamburg	32.70		1,269	-529
United MedTec Holding GmbH 1)	Bückeburg	41.01		9,750	230
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
WÜRTT. GENO-HAUS GmbH & Co. KG	Stuttgart	29.70		36,852	1,511
Zarges Tubesca Finance GmbH 1)	Weilheim	26.67		0	-19
ZBI Partnerschafts-Holding GmbH 1)	Erlangen	49.90		n/a	n/a

SHAREHOLDINGS OF 20% OR MORE

Name	Location	Shareholding	Voting rights, if different	Equity in € '000	Profit/loss in € '000
ANDROS GmbH & Co. Immobilien KG 1)	Gilching	20.00	8.00	27	99
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		38,393	12,806
BLE Bau- und Land-Entwicklungsgesellschaft Bayern GmbH 1)	Munich	20.00		300	-68
BRASIL FLOWERS S.A. 1)	Barbacena, Brazil	45.00		n/a	n/a

SHAREHOLDINGS OF 20% OR MORE

Name	Location	Shareholding	Voting rights, if different	Equity in € '000	Profit/loss in € '000
Burghofspiele GmbH 1)	Eltville	20.00		61	-14
Bürgschaftsbank Brandenburg GmbH	Potsdam	25.31		27,601	1,273
Bürgschaftsbank Mecklenburg-Vorpommern GmbH	Schwerin	30.38		16,350	201
Bürgschaftsbank Sachsen-Anhalt GmbH	Magdeburg	29.73		15,158	209
Bürgschaftsbank Thüringen GmbH	Erfurt	22.13		25,304	700
CardProcess GmbH	Karlsruhe	39.80		31,261	567
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	26.64		n/a	n/a
Corpus Sireo Health Care III SICAV-FIS 1)	Luxembourg, Luxembourg	33.33		32,187	1,043
Corpus Sireo Health Care IV SICAV-FIS 1)	Luxembourg, Luxembourg	66.67		215	0
Credit Suisse Global Infrastructure SCA SICAR 1)	Luxembourg, Luxembourg	30.09		306,710	103,198
Dacos Software GmbH 1)	Saarbrücken	29.96		n/a	n/a
DZ BANK Mikrofinanzfonds eG 2)	Frankfurt am Main	30.82	0.45	250	0
Finatem II GmbH & Co. KG 1)	Frankfurt am Main	20.20		21,833	-229
FREUNDE DER EINTRACHT FRANKFURT Aktiengesellschaft 1)	Frankfurt am Main	32.05		2,893	-1
GbR Ottmann GmbH & Co. Südhausbau KG, München VR Hausbau AG, Stuttgart (GbR 'Ackermannbogen.de-Wohnen am Olympiapark') 1)	Munich	50.00		2	-86
GENO-Haus Stuttgart Beteiligungs GmbH	Stuttgart	33.33		29	0
GENO-Haus Stuttgart GmbH & Co. KG Verwaltungsgesellschaft	Stuttgart	45.45		13	0
GENOPACE GmbH 1) 6)	Berlin	22.49		0	0
German Equity Partners III GmbH & Co. KG 1)	Frankfurt am Main	24.19		13,431	11,106
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		11,863	1,851
GTIS Brazil II S-Feeder LP 1)	Edinburgh, UK	100.00		19,298	-8,984
Hermann-Löns-Grundstücks- und Entwicklungs GbR 1)	Bergisch-Gladbach	50.00		176	176
HGI Immobilien GmbH 1)	Frankfurt am Main	50.00		122	10
HGI Immobilien GmbH & Co. GB I KG 1)	Frankfurt am Main	73.91	73.21	18,129	3,049
Hines European Value Fund SCSp 1)	Luxembourg, Luxembourg	26.79		n/a	n/a
Kredit-Garantiegemeinschaft des bayerischen Handwerks Gesellschaft mit beschränkter Haftung	Munich	20.00		4,846	0
Kreditgarantiegemeinschaft in Baden-Württemberg Verwaltungs-GmbH	Stuttgart	20.00		1,023	0
Locanis AG 1)	Unterföhring	41.28		0	-2,966
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		6,869	-1,561
Medico 12 GmbH & Co. KG 1)	Frankfurt am Main	99.98		1,948	405
Mercateo Beteiligungsholding AG 1)	Taufkirchen	32.83		3,986	-262
paydirekt GmbH	Frankfurt am Main	33.33		20,699	-2,491
PT. VAUTID WEAR TECHNOLOGY INDONESIA 1)	15139 Tangerang (Banten), Indonesia	50.00		n/a	n/a
RV-CVIII Holdings, LLC 1)	Camden, USA	100.00		37,789	1,024
Schroder Italien Fonds GmbH & Co. KG 1)	Frankfurt am Main	23.08	19.74	728	0
Schroder Property Services B.V. S.à.r.l. 1)	Amsterdam, Netherlands	30.00		168	27
Seguros Generales Rural S.A. de Seguros y Reaseguros 1)	Madrid, Spain	30.00		250,393	18,313
TF H III Technologiefonds Hessen Gesellschaft mit beschränkter Haftung	Wiesbaden	25.00		1,733	-72
TF H Technologie-Finanzierungsfonds Hessen Gesellschaft mit beschränkter Haftung (TF H GmbH) i.L.	Wiesbaden	33.33		572	-2
Tishman Speyer Brazil Feeder (Scots/D), L.P. 1)	Edinburgh, UK	100.00		24,517	2,843
Tishman Speyer European Strategic Office Fund Feeder, L.P. 1)	London, UK	97.18		19,895	7,249
TXS GmbH 1)	Ellerau	24.50		200	664
VAUTID & HUIFENG (WUHU) Wear Resistant Material Co. Ltd. 1)	Wuhu, China	50.00		978	337
VAUTID Arabia Coating & Treatment of Metals LLC 1)	Ras Al Khaimah, United Arab Emirates	24.50		188	-36
VAUTID-SHAH HARDFACE Pvt. Ltd. 1)	Navi Mumbai, India	37.49		1,683	2,022
VBI Beteiligungs GmbH 1)	Vienna, Austria	24.50		3,715	3,243
VR-NetWorld GmbH 2)	Bonn	43.48		5,309	390
VV Immobilien GmbH & Co. United States KG 1)	Munich	25.00		7	80
ZhangJiaGang Vautid Yao Yu Wear Resistance Material Co., Ltd. 1)	Yangshe Town, China	50.00		n/a	n/a

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		435,135	40,322
DEPFA BeteiligungsHolding II Gesellschaft mit beschränkter Haftung 1)	Düsseldorf	10.00		255	-11
EDEKABANK Aktiengesellschaft	Hamburg	8.35		91,434	3,650
equensWorldline SE	Utrecht, Netherlands	11.89		881,140	35,988
EURO Kartensysteme GmbH	Frankfurt am Main	19.60		11,635	173
PANELLINIA BANK SOCIETE ANONYME (under special liquidation)	Athens, Greece	8.42	5.28	50,143	-12,637
Protektor Lebensversicherungs-AG 1)	Berlin	5.27		105,412	12,512
Raiffeisendruckerei GmbH 1)	Neuwied	7.88		35,273	1,540
SCHUFA Holding AG 1)	Wiesbaden	17.94		58,073	20,747

SHAREHOLDINGS OF LESS THAN 20%

Name	Location	Shareholding	Voting rights, if different	Equity in € '000	Profit/loss in € '000
Hotel Wagramerstrasse 8 Errichtungs- und BetriebsgmbH & Co KG 1)	Vienna, Austria	0.00		n/a	n/a
ABE Clearing S.A.S a Capital Variable	Paris, France	1.92		15,604	4,791
AERS Consortio AG 1)	Stuttgart	16.50		125	-19
Airport Garden Services and Business Center S.A. 1)	Brussels-Zaventem, Belgium	0.33		n/a	n/a
AKA Ausfuhrkredit-Gesellschaft mit beschränkter Haftung	Frankfurt am Main	0.31		231,752	22,885
Akademie Badischer Volksbanken und Raiffeisenbanken GmbH 1)	Karlsruhe	0.03		n/a	0
Almack Mezzanine I LP 1)	London, UK	9.82		6	64,126
Architrave GmbH 1)	Berlin	13.00		n/a	n/a
Assicoop-Assicurazioni Cooperative S.r.l. 1)	Catania, Italy	0.41		n/a	n/a
assistance partner GmbH & Co. KG 1)	Munich	5.01		1,208	203
Bank Polskiej Spoldzielczosci Spolka Akcyjna	Warsaw, Poland	1.00		162,534	5,290
BayBG Bayerische Beteiligungsgesellschaft mbH	Munich	9.38		226,714	12,688
Bayerische Raiffeisen- Beteiligungs-Aktiengesellschaft 2)	Beilngries	1.85		840,719	37,457
Berliner Volksbank eG 1)	Berlin	0.00	0.10	965,039	17,068
Beteiligungs-Aktiengesellschaft der bayrischen Volksbanken 1)	Pöcking	1.49		231,873	7,202
BGG Bayerische Garantiegesellschaft mit beschränkter Haftung für mittelständische Beteiligungen	Munich	13.15		48,737	2,360
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		17	3,051
BTG Beteiligungsgesellschaft Hamburg mbH	Hamburg	10.00		4,158	584
Bürgschaftsbank Bremen GmbH	Bremen	4.86		6,839	548
Bürgschaftsbank Hessen GmbH	Wiesbaden	15.87		19,162	970
Bürgschaftsbank Nordrhein-Westfalen GmbH Kreditgarantiegemeinschaft	Neuss	15.75		34,158	1,114
Bürgschaftsbank Rheinland-Pfalz GmbH	Mainz	14.31		16,525	145
Bürgschaftsbank Sachsen GmbH	Dresden	14.66	16.59	40,370	2,220
Bürgschaftsbank Schleswig-Holstein GmbH	Kiel	11.79		39,211	564
BürgschaftsGemeinschaft Hamburg GmbH	Hamburg	6.36		24,499	535
Caprese S.A. 1)	Brussels-Zaventem, Belgium	0.00		n/a	n/a
Cash Logistik Security AG 1)	Düsseldorf	4.10		4,840	912
Cassa Centrale Banca - Credito Cooperativo del Nord Est Società per Azioni	Trento, Italy	3.69		240,975	18,437
Celt S. A. 1)	Kraków, Poland	4.44		n/a	n/a
Centrast S. A. 1)	Warsaw, Poland	0.64		n/a	n/a
CLS Group Holdings AG	Lucerne, Switzerland	0.69		416,681	36,462
Coop System S.p.A. 1)	Rome, Italy	1.97		n/a	n/a
Cruz Martins & Wahl Lda. 1)	Lousado, Portugal	10.00		10,061	1,735
Cube Optics AG 1)	Mainz	14.16		n/a	n/a
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 III Gesellschaft mit beschränkter Haftung 1)	Düsseldorf	0.40		333	-9
Deutsche Bauernsiedlung - Deutsche Gesellschaft für Landentwicklung (DGL) mbH 1)	Frankfurt am Main	16.26		7,464	-178

SHAREHOLDINGS OF LESS THAN 20%

Name	Location	Shareholding	Voting rights, if different	Equity in € '000	Profit/loss in € '000
Deutsche Börse Commodities GmbH	Frankfurt am Main	16.20	14.48	4,752	2,126
Deutscher Genossenschafts-Verlag eG 2)	Wiesbaden	1.48	1.28	66,631	1,080
DG ANLAGE Holland-Fonds 'Nieuwegein, 's-Hertogenbosch' GmbH & Co. KG (DGI 48)	Frankfurt am Main	0.57		0	-1,755
DG IMMOBILIEN MANAGEMENT Gesellschaft mbH	Frankfurt am Main	5.01		3,945	241
DG Immobilien-Anlagegesellschaft 'Berlin, Pariser Platz 3' Dr. Neumann & Prüske KG (DGI 43) i.L.	Frankfurt am Main	6.24		11,265	75,337
DG Immobilien-Anlagegesellschaft Nr. 31 'Berlin-Mitte, Holzmarktstr. 15–18' Schütze & Dr. Neumann KG i.L.	Frankfurt am Main	0.06		1,690	-26
DG Immobilien-Anlagegesellschaft Nr. 32 'Chemnitz, Essen' Schütze & Dr. Neumann KG i.L.	Frankfurt am Main	0.18		0	-143
DG Immobilien-Anlagegesellschaft Nr. 34 'Berlin, Darmstadt, Frankfurt' Schütze & Dr. Neumann KG i.L.	Frankfurt am Main	0.06		3,536	15,210
DG Immobilien-Anlagegesellschaft Nr. 35 'Berlin, Frankfurt' Prüske & Dr. Neumann KG i.L.	Frankfurt am Main	0.07		8,590	5,864
DG Immobilien-Anlagegesellschaft Nr. 36 'Seniorenresidenz Oberursel' Kreft & Dr. Neumann KG i.L.	Frankfurt am Main	0.26		0	-3,259
DG Immobilien-Anlagegesellschaft Nr. 37 'Berlin-Wegedornstrasse' GbR mit quotaler Haftung i.L.	Frankfurt am Main	0.66		11,162	24,488
DG IMMOBILIEN-Objektgesellschaft 'Stuttgart, Industriestrasse' Kreft & Dr. Neumann KG (DGI 49) i.L.	Frankfurt am Main	0.98		0	-2,903
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		14	-3
EDD AG 2)	Düsseldorf	9.99		37,054	-542
EIG Energy Fund XVI (Scotland) L.P. 1)	Edinburgh, UK	14.02		172,315	-2,423
Euro Capital S.A.S. 1)	Metz, France	6.67		32,736	1,659
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		0	0
Evonik Projekt-Beteiligungs-GmbH & Co. KG 1)	Essen	1.00		343,692	-11
EXTREMUS Versicherungs-Aktiengesellschaft 1)	Cologne	5.00		64,740	300
FBEM Gesellschaft mit beschränkter Haftung i. L.	Berlin	2.97		271	2,740
Fiducia & GAD IT AG 2)	Frankfurt am Main	0.35		435,130	33,849
FIDUCIA Mailing Services eG 2)	Karlsruhe	0.12		83	0
Flugplatz Schwäbisch Hall GmbH 1)	Schwäbisch Hall	2.00		49	0
GAD Beteiligungs GmbH & Co. KG 2)	Münster	2.28		117,992	3,010
GBK Holding Gmbh & Co. KG 1)	Kassel	0.02		470,693	11,454
GDV Dienstleistungs-GmbH 1)	Hamburg	2.82		21,773	1,215
German Equity Partners IV GmbH & Co. KG 1)	Frankfurt am Main	4.36		60,934	-2,863
GLADBACHER BANK Aktiengesellschaft von 1922	Mönchengladbach	17.53		39,278	2,748
GMS Mitarbeiter Beteiligungsgesellschaft UG & Co.KG 1)	Münster	4.00	3.95	1,007	-6
Golding Mezzanine SICAV III 1)	Munsbach, Luxembourg	1.30		199,401	39,212
Grand Hotel Heiligendamm GmbH & Co. KG Fundus Fonds Nr. 34 1)	Disternich	1.90		n/a	n/a
HANDWERKSBAU NIEDERRHEIN AKTIENGESELLSCHAFT	Düsseldorf	10.15		23,120	1,620
immigon portfolioabbau ag	Vienna, Austria	3.79		425,170	90,051
Interessengemeinschaft Frankfurter Kreditinstitute GmbH	Frankfurt am Main	7.01		25,373	9,691
IT Förder- und Beteiligungs eG	Münster	2.90		12,354	6,717
IVS Immobilien GmbH 1)	Schiffweiler	6.00		26	0
K in Kortrijk S.A. 1)	Brussels, Belgium	0.00		n/a	n/a
Kapsch IT Service for finance and industries GmbH 1)	Vienna, Austria	2.00		n/a	n/a
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		215	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
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

SHAREHOLDINGS OF LESS THAN 20%

Name	Location	Shareholding	Voting rights, if different	Equity in € '000	Profit/loss in € '000
Kreditgarantiegemeinschaft des Hotel- und Gaststättengewerbes in Bayern GmbH	Munich	12.00		4,359	0
Kreditgarantiegemeinschaft für den Handel in Bayern GmbH	Munich	7.19		6,317	0
Kunststiftung Baden-Württemberg GmbH 1)	Stuttgart	0.50		2,899	-17
Les Grands Pres S.A. 1)	Brussels-Zaventem, Belgium	0.00		n/a	n/a
Immo Feest en Cultuurpaleis Oostende SA 1)	Brussels, Belgium	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
Maritim Hotel Königswinter Grundstücksverwaltungsgesellschaft mbH & Co. Immobilien-Vermietungs KG 1)	Bad Salzuflen	6.00	24.50	n/a	n/a
MBG H Mittelständische Beteiligungsgesellschaft Hessen GmbH	Wiesbaden	16.26		10,447	402
MBG Mittelständische Beteiligungsgesellschaft Baden-Württemberg Gesellschaft mit beschränkter Haftung	Stuttgart	9.94		66,948	6,067
MBG Mittelständische Beteiligungsgesellschaft Rheinland-Pfalz mbH	Mainz	9.80	11.11	13,548	1,172
MBG Mittelständische Beteiligungsgesellschaft Schleswig-Holstein mbH	Kiel	14.59	15.22	36,042	2,604
MergeOptics GmbH i.L. 1)	Berlin	19.72		n/a	n/a
Mittelständische Beteiligungsgesellschaft Berlin-Brandenburg mbH	Potsdam	8.89		18,278	1,956
Mittelständische Beteiligungsgesellschaft Mecklenburg-Vorpommern mbH	Schwerin	16.00		14,141	655
Mittelständische Beteiligungsgesellschaft Niedersachsen (MBG) mbH	Hannover	19.92		13,131	895
Mittelständische Beteiligungsgesellschaft Sachsen mbH	Dresden	9.38		44,729	2,464
Mittelständische Beteiligungsgesellschaft Sachsen-Anhalt (MBG) mbH	Magdeburg	19.84		22,870	153
Mittelständische Beteiligungsgesellschaft Thüringen mbH	Erfurt	10.28		23,730	1,214
MORIO GmbH & Co. Immobilien KG 1)	Wegberg	6.00	24.00	n/a	n/a
Münchener Hypothekenbank eG 2)	Munich	1.32		1,302,656	31,936
Munster S.A. 1)	Luxembourg, Luxembourg	0.11		n/a	n/a
NELO Vierte GmbH & Co. Immobilien KG 1)	Waldems	6.00	48.00	2	0
Niedersächsische Bürgschaftsbank (NBB) GmbH	Hannover	17.68		24,464	1,273
Norddeutsche Genossenschaftliche Beteiligungs-Aktiengesellschaft 1)	Hannover	0.71		1,322,633	41,374
Oberbergische Aufbau-Gesellschaft mit beschränkter Haftung	Gummersbach	7.32		1,922	334
Opción Jamantab S. A. DE C. V. 1)	Mexico City, Mexico	0.00		n/a	n/a
Partners Group Global Mezzanine 2007 S.C.A., SICAR 1)	Luxembourg, Luxembourg	2.24		152,442	17,522
PAXOS GmbH & Co. KG 1)	Pullach i. Isartal	6.00	9.80	n/a	n/a
Prosa Beteiligungs GmbH & Co. KG 1)	Frankfurt am Main	15.63		n/a	n/a
Prosolis GmbH The Solution House i.L. 1)	Fulda	6.00		n/a	n/a
Raiffeisen Waren-Zentrale Rhein-Main eG	Cologne	2.50		119,454	-6,030
Raiffeisen-Kassel A-Beteiligungs GmbH & Co. KG	Kassel	8.22		40,415	294
Raiffeisen-Kassel B-Beteiligungs GmbH & Co. KG	Kassel	8.22		40,415	294
Royale 120 New Building S.A. 1)	Brussels-Zaventem, Belgium	0.00		n/a	n/a
Royale 120 S.A. 1)	Brussels-Zaventem, Belgium	0.01		n/a	n/a
RREEF Pan-European Infrastructure Feeder GmbH & Co. KG 1)	Eschborn	17.70		404,036	0
Rund Vier GmbH & Co. KG 1)	Vienna, Austria	0.00		n/a	n/a
RW Holding AG 1)	Düsseldorf	2.46		425,974	0
S.W.I.F.T. Society for Worldwide International Financial Telecommunication 2)	La Hulpe, Belgium	0.31		69,854	219,049
Saarländische Wagnisfinanzierungsgesellschaft mbH	Saarbrücken	2.59		6,335	-68
SALEG Sachsen-Anhaltinische Landesentwicklungs GmbH 1)	Magdeburg	1.15		14,555	594
Sana Kliniken AG 1)	Munich	0.69		413,693	38,288
Schulze-Delitzsch-Haus, eingetragene Genossenschaft 1)	Bonn	0.95		1,174	144
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	0.38		181,783	6,904
Sireo Immobilienfonds No. 1 GmbH & Co. KG 1)	Bonn	0.05		127,177	48,936
Société de la Bourse de Luxembourg S.A. 1)	Luxembourg, Luxembourg	0.06		n/a	n/a
Süddeutsche Zuckerrübenverwertungs-Genossenschaft eG	Ochsenfurt	4.44	4.55	151,111	7,474
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		51	25
The Co-operators Group Ltd. 1)	Guelph, Canada	3.60		n/a	n/a
True Sale International GmbH	Frankfurt am Main	7.69		4,809	46
U.S. Central Federal Credit Union i.L.	Austin, USA	0.00		0	0
Ufficio Centrale Italiano di Assistenza Assicurativa Automobilisti in Circolazione Internazionale -U.C.I. Societe consortie a R.L. 1)	Milan, Italy	0.09		n/a	n/a

SHAREHOLDINGS OF LESS THAN 20%

Name	Location	Shareholding	Voting rights, if different	Equity in € '000	Profit/loss in € '000
UIR Belgique 1 S.A. 1)	Brussels, Belgium	0.18		n/a	n/a
UIR Belgique 2 S.A. 1)	Brussels, Belgium	1.00		n/a	n/a
UIR Le Président 1 1)	Brussels-Zaventem, Belgium	0.00		n/a	n/a
UIR Le Président 2 1)	Brussels-Zaventem, Belgium	0.00		n/a	n/a
UIR MU III S.A. de C.V. 1)	Mexico City, Mexico	0.00		n/a	n/a
Vereinigte Volksbank eG 1)	Sindelfingen	0.01		n/a	n/a
Visa Inc.	San Francisco, USA	0.00		23,239,343	4,997,914
Volksbank Einlagensicherung eG 1)	Vienna, Austria	0.69		n/a	n/a
Vorgebirgs-Residenz Bonn-Endenich GmbH & Co. Kommanditgesellschaft	Unterschleissheim	5.00		102	0
VR-Bank Schwäbisch Hall eG 1)	Schwäbisch Hall	0.01		113,884	5,048
WESTFLEISCH Finanz AG 1)	Münster	0.36		74,512	11,622
WN Real Estate GmbH & Co. KG 1)	Weilheim	6.00		28	454
WRW Wohnungswirtschaftliche Treuhand Rheinland-Westfalen Gesellschaft mit beschränkter Haftung i.L.	Düsseldorf	2.73		n/a	n/a
ZAWISLA Immobilien GmbH + Co. KG 1)	Jockgrim	6.00	24.00	25	15
ZG Raiffeisen eG	Karlsruhe	1.05	0.02	79,033	-8,577
ZT Management Holding GmbH 1)	Weilheim	19.52		0	-27,414
Zweite EMH Grundstücksverwaltung GmbH & Co. KG 1)	Minden	5.20	24.50	n/a	n/a

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.

6) The company makes use of the exemptions provided for under section 264b HGB.

n/a = no figures available.

» 48 Disclosures pursuant to section 285 no. 11a HGB

As at the balance sheet date, DZ BANK was a shareholder with unlimited liability in the following entities:

- Bankenkonsortium der Zenit GmbH, GbR, Mülheim an der Ruhr
- DG Immobilien-Anlagegesellschaft Nr. 37 'Berlin-Wegedornstrasse' GbR mit quotaler unbeschränkter Haftung i.L., Frankfurt am Main
- Konsortium der Absatzfinanzierungsinstitute plettac-assco GbR, Wuppertal
- VR GbR, Frankfurt am Main.

» 49 Events after the balance sheet date

There were no events of particular importance after the end of the financial year.

Responsibility statement

To the best of our knowledge, and in accordance with the applicable reporting principles, the annual financial statements of DZ BANK give a true and fair view of the assets, liabilities, financial position and profit or loss of DZ BANK, and the management report of DZ BANK includes a fair review of the development and performance of the business and the position of DZ BANK, together with a description of the principal opportunities and risks associated with the expected development of DZ BANK.

Frankfurt am Main, March 6, 2018

DZ BANK AG
Deutsche Zentral-Genossenschaftsbank

The Board of Managing Directors

Kirsch

Berghaus

Dr. Brauckmann

Köhler

Dr. Riese

Speth

Ullrich

Zeidler

Independent auditor's report

To DZ BANK AG Deutsche Zentral-Genossenschaftsbank, Frankfurt am Main

Report on the audit of the annual financial statements and of the management report

Opinions

We have audited the annual financial statements of DZ BANK AG Deutsche Zentral-Genossenschaftsbank, Frankfurt am Main, which comprise the balance sheet as at 31 December 2017, and the income statement for the fiscal year from 1 January 2017 to 31 December 2017, and notes to the financial statements, including the recognition and measurement policies presented therein. In addition, we have audited the management report of DZ BANK AG Deutsche Zentral-Genossenschaftsbank, Frankfurt am Main, for the fiscal year from 1 January 2017 to 31 December 2017. In accordance with the German legal requirements, we have not audited the content of the statement on corporate governance pursuant to Sec. 289f (4) HGB ["Handelsgesetzbuch": German Commercial Code] contained in section IV.1.11 of the management report.

In our opinion, on the basis of the knowledge obtained in the audit,

– the accompanying annual financial statements comply, in all material respects, with the requirements of German commercial law applicable to institutions and give a true and fair view of the assets, liabilities and financial position of the Institution as at 31 December 2017 and of its financial performance for the fiscal year from 1 January 2017 to 31 December 2017 in compliance with German legally required accounting principles, and

– the accompanying management report as a whole provides an appropriate view of the Institution's position. In all material respects, this management report is consistent with the annual financial statements, complies with German legal requirements and appropriately presents the opportunities and risks of future development. Our opinion on the management report does not cover the content of the statement on corporate governance referred to above.

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 annual financial statements and of the management report.

Basis for the opinions

We conducted our audit of the annual financial statements and of the 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 annual financial statements and of the management report" section of our auditor's report. We are independent of the Institution 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 annual financial statements and on the management report.

Key audit matters in the audit of the annual financial statements

Key audit matters are those matters that, in our professional judgement, were of most significance in our audit of the annual financial statements for the fiscal year from 1 January 2017 to 31 December 2017. These matters were addressed in the context of our audit of the annual 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. Measurement of equity investments and shares in affiliates

Reasons why the matter was determined to be a key audit matter

The determination of the fair values of equity investments and shares in affiliates is generally based on business plans which are drawn up separately for each entity. The figures in such plans are based on assumptions which require the use of judgement by the Board of Managing Directors or estimates. In particular, the current uncertainty surrounding the future economic development of the investees and affiliates influences these assumptions, also in light of the prevailing low interest rates. Furthermore, in determining the capitalised earnings value, assumptions must be made regarding, in particular, the derivation of the return on an alternative investment with the same risk and maturity profile using capital market models (Capital Asset Pricing Model) in order to derive the discount rate to apply to the cash flows of the forecast.

As the measurement of equity investments and shares in affiliates is based on a high degree on assumptions involving the use of estimates or judgement, and these items are material in amount, this was a key audit matter. Our focus was on the measurement of the shares in affiliates (Bausparkasse Schwäbisch Hall AG, DVB Bank SE, R+V Versicherung AG, DZ PRIVATBANK AG, WL BANK AG) whose business model is currently particularly affected by the prevailing low interest rates and the general economic development.

Auditor's response

To assess the recoverability of the carrying amounts of the equity investments and shares in affiliates, we assessed the design of the process used to value shareholdings.

Based on the capitalised earnings valuations or alternative valuation methods, we assessed the recoverability of the carrying amounts of the equity investments for a sample of affiliates and equity investments.

For the review of the recoverability of the carrying amounts of the equity investments, we used specialists in the audit team who have special expertise in the area of business valuation.

We reviewed the methodology and arithmetical accuracy of the valuation model developed by DZ BANK. We assessed the appropriateness of the significant assumptions underlying the valuation methods. Our focus in this respect was on assessing the plausibility of the significant planning assumptions (e.g., new business and margin planning) taking the results achieved in the past and quality of the entities' planning into account. We analysed the data used by the Bank based on our knowledge of the business activities and forecast industry development and, where available, compared specific data and assumptions with external market data. During our audit, we also appraised the derivation of the sustainable earnings at the respective entities and the derivation of the capitalisation rate.

Our audit procedures did not lead to any reservations relating to the measurement of the equity investments and shares in affiliates.

Reference to related disclosures

Information on the principles applied for measuring equity investments and shares in affiliates are contained in section A, note 02 of the notes to the financial statements. Further information is provided in section B, note 14 and in the list of shareholdings in section D, note 47.

2. Recoverability of deferred tax assets

Reasons why the matter was determined to be a key audit matter

Bestehen zwischen den handelsrechtlichen Wertansätzen von Vermögensgegenständen, Schulden und If there are differences between the carrying amounts of assets, liabilities, prepaid expenses and deferred income in the statutory accounts and their tax carrying amounts which are expected to reverse in subsequent fiscal years, the resulting tax relief may be recognised in the balance sheet as deferred tax assets, measured at the entity's individual tax rate at the time the differences are due to reverse. The Board of Managing Directors of DZ BANK exercised the option to recognise deferred tax assets. The recognised items must be reversed as soon as the tax relief arises or ceases to be expected.

Whether the differences are likely to reverse in subsequent fiscal years is estimated on the basis of a forecast of tax earnings for the next five fiscal years, which in turn is derived from internal planning. In light of the material significance and use of the judgement in relation to the assumptions used in the forecast, the assessment of the recoverability of deferred tax assets was a key audit matter.

Auditor's response

We assessed the design of the Bank's process for recognising deferred tax assets and assessing the recoverability of deferred tax assets.

In addition, we reconciled the Bank's tax forecasts for subsequent years with internal planning documents in accordance with German commercial law and obtained an understanding of the cause of differences in taxable profit. We assessed the budgets and forecasts prepared in accordance with German commercial law in terms of the underlying planning inputs and the quality of past budgets and forecasts and tested their plausibility in light of our knowledge of the Bank's business activities and the development of the industry.

Furthermore, we examined whether existing tax group relationships were correctly taken into account in the tax planning and assessed the underlying planning horizon and the tax rates used for the tax group. We also assessed enacted changes in relevant tax legislation with a view to possible effects on the accounting for deferred taxes and its implementation by the Bank.

Our audit procedures did not lead to any reservations relating to the assessment of the recoverability of deferred tax assets.

Reference to related disclosures

Information on deferred tax assets is contained in section A, note 02 and section B, note 17 of the notes to the financial statements.

3. Migration of accounting-related data

Reasons why the matter was determined to be a key audit matter

In the wake of the merger of DZ BANK and WGZ BANK in fiscal year 2016, the majority of the former WGZ BANK's accounting-related data was migrated successively in seven phases from its IT systems to the existing system landscape of the merged central bank.

In light of the complexity of the migration, the significant volume of data and the potentially material effects of migration errors on the Bank's assets, liabilities, financial position and financial performance, the migration was a key audit matter.

Auditor's response

We audited the data migration in the course of the project. Our audit included, on the conceptual level, a test of the design of:

- Blueprints and migration guidelines, including with regard to processes for transferring and processing data, and

- Migration scripts and workflows, internal tests and quality assurance measures, acceptance procedures and criteria.

Specialists with expertise and experience from similar migration projects and project-based reviews were used to audit the data migration.

In addition, we audited the design and operating effectiveness of DZ BANK's accounting-related internal control system to ensure the complete and correct migration of data in accordance with German legally required accounting principles. This included an assessment of whether the controls implemented in the project were suitable for preventing or identifying and remedying errors arising during the migration.

With regard to the operating effectiveness, we examined on a sample basis the key controls performed by the Bank such as test runs or reconciliations between the systems. In so doing, we checked in particular whether the key controls were planned, prepared and performed in accordance with the project instructions, whether the control outcomes were documented overall in a manner that is readily comprehensible for expert third parties and whether the significant follow-up actions were implemented.

In addition, we checked for all phases on a sample basis whether the data had been correctly transferred and processed in terms of quantity and content. After the migration was completed, we also assessed the design of the temporary solutions still in place until the standard process and the error resolution plan has been fully implemented.

Our audit procedures in relation to the migration of accounting-related data did not lead to any reservations.

Reference to related disclosures

Information on the migration is contained in section I.2 of the management report.

Other information

The executive directors are responsible for the other information. The other information comprises the statement on corporate governance pursuant to Sec. 289f (4) HGB and the responsibility statement pursuant to Sec. 289 (1) Sentence 5 HGB.

Our opinions on the annual financial statements and on the 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 annual financial statements, with the 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 annual financial statements and the management report

The executive directors are responsible for the preparation of the annual financial statements that comply, in all material respects, with the requirements of German commercial law applicable to institutions, and that the annual financial statements give a true and fair view of the assets, liabilities, financial position and financial performance of the Institution in compliance with German legally required accounting principles. In addition, the executive directors are responsible for such internal control as they, in accordance with German legally required accounting principles, have determined necessary to enable the preparation of annual financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the annual financial statements, the executive directors are responsible for assessing the Institution'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, provided no actual or legal circumstances conflict therewith.

Furthermore, the executive directors are responsible for the preparation of the management report that, as a whole, provides an appropriate view of the Institution's position and is, in all material respects, consistent with the annual 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 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 management report.

The Supervisory Board is responsible for overseeing the Institution's financial reporting process for the preparation of the annual financial statements and of the management report.

Auditor's responsibilities for the audit of the annual financial statements and of the management report

Our objectives are to obtain reasonable assurance about whether the annual financial statements as a whole are free from material misstatement, whether due to fraud or error, and whether the management report as a whole provides an appropriate view of the Institution's position and, in all material respects, is consistent with the annual 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 annual financial statements and on the 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 annual financial statements and this 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 annual financial statements and of the 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 opinion. 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 annual financial statements and of arrangements and measures (systems) relevant to the audit of the 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 of the Institution.

– 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 Institution'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 annual financial statements and in the 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 Institution to cease to be able to continue as a going concern.

– Evaluate the overall presentation, structure and content of the annual financial statements, including the disclosures, and whether the annual financial statements present the underlying transactions and events in a manner that the annual financial statements give a true and fair view of the assets, liabilities, financial position and financial performance of the Institution in compliance with German legally required accounting principles.

– Evaluate the consistency of the management report with the annual financial statements, its conformity with [German] law, and the view of the Institution's position it provides.

– Perform audit procedures on the prospective information presented by the executive directors in the 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 annual 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 24 May 2017. We were engaged by the Supervisory Board on 24 May 2017. We have been the auditor of DZ BANK AG Deutsche Zentral-Genossenschaftsbank without interruption since fiscal 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: performance of reviews of interim financial statements, performance of voluntary audits of separate and consolidated financial statements of controlled entities, performance of project-based reviews, performance of the audit of reporting requirements and rules of conduct pursuant to Sec. 36 (1) WpHG ["Wertpapierhandelsgesetz": German Securities Trading Act], including the audit of custody operations, issuance of comfort letters, certificates pursuant to Sec. 5 InvStG ["Investmentsteuergesetz": German Investment Tax Act], performance of agreed-upon procedures pursuant to ISRS 4400, performance of reviews pursuant to ISRE 2410 and IDW AuS 900, audits of the service-related internal control system pursuant to IDW AsS 951 and ISAE 3402, audits of financial statements or elements thereof in accordance with IDW AuS 490, other assurance engagements pursuant to ISAE 3000, performance of reviews of financial investment brokers pursuant to IDW AsS 840, 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 have been provided (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, review of specialist designs for new accounting topics and in connection with the development of a planning tool, support services in connection with the digitalisation of product processes, preparation of certificates for foreign tax purposes, support with regard to new or amendment tax reporting or documentation requirements, review of tax returns and tax brochures).

German Public Auditor responsible for the engagement

The German Public Auditor responsible for the engagement is Christian Mai.

Eschborn/Frankfurt am Main, 9. März 2018

Ernst & Young GmbH
Wirtschaftsprüfungsgesellschaft

Dr. Freiling	Mai
Wirtschaftsprüfer	Wirtschaftsprüfer

Editorial information

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