Volksbanken Raiffeisenbanken
Cooperative Financial Network

2023
Annual Financial Statements and Management Report of DZ BANK AG

DZ BANK

Note

DZ BANK AG Deutsche Zentral-Genossenschaftsbank, 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.

The English version of this report is a convenience translation. In cases of doubt, the German original version shall prevail.

Contents

Management report of DZ BANK AG

I DZ BANK AG fundamentals

1 Business model and strategic focus

DZ BANK focuses its strategy on the local cooperative banks. In doing so, it pursues the objective of consolidating the positioning of the Cooperative Financial Network over the long term as one of the leading financial services providers in Germany. Strengthening the market position of the cooperative banks is the most important prerequisite for their success. This partnership is built on the principles of subsidiarity, decentralization, and regional market responsibility.

At DZ BANK, the strategic initiatives designed to ensure the bank's resilience for the future are brought together in the 'Verbund First 4.0' strategic program. The program is aimed at improvements in three key areas: market offering, control and production processes, and corporate culture. It is divided into implementation packages, with additional packages due to be added in 2024. These include the 'Fit4Growth' initiative, in which DZ BANK will focus on optimizing and stepping up cross-divisional collaboration on key processes. The activities in the treasury/funding topic area will be expanded, and a new implementation package for activities relating to generative artificial intelligence will be created.

The following sections describe how DZ BANK is implementing its strategy in the various business lines.

1.1 Cooperative Banks/Verbund

The cooperative banks are DZ BANK's most important customer group, its shareholders, and its partners in joint activities covering sales and the provision of advisory services. The focus of the Cooperative Banks/Verbund division is to meet the needs of this relationship of support for the cooperative banks. The Regionaldirektoren [regional directors] of DZ BANK are an important point of contact and customer relationship manager for the cooperative banks, with the aim of assisting them with their business activities in the regional markets. Moreover, DZ BANK's presence throughout Germany ensures that it can be physically close to the banks it supports.

DZ BANK offers the cooperative banks consultancy and other services at every stage of strategic bank management and regulatory processes. In addition, DZ BANK assists the local cooperative banks with treasury and controlling aspects of bank management, such as planning and risk management, as well as with optimization for strategic bank management purposes and with own-account investing activities.

The support for the cooperative banks regarding sustainability is provided at various levels. Knowledge is shared using a number of different dialogue formats and events, such as a sustainability conference. In addition, a sustainability portal provides members with a central platform for sustainability information. Collaboration with the cooperative banks on sustainability matters is expected to intensify in the years ahead, particularly in view of increasing regulatory requirements.

In the year under review, the regular strategy events held by Atruvia, the BVR, and DZ BANK in collaboration with the Cooperative Financial Network's regional banking associations were combined for the first time into a multi-company format entitled 'Strategie-Hub Regional 2023' with a series of four regional events. The objective is to facilitate dialogue on shared strategic topics in order to strengthen the Cooperative Financial Network's strategy and, for reasons of efficiency, to reduce the number of events covering similar subjects. Furthermore, network committees ensure that the cooperative banks are closely involved in DZ BANK's strategic considerations and initiatives. The aim of the DZ BANK Group's Central Advisory Council is to enable important strategic matters in the DZ BANK Group to be discussed in depth and to connect the various players and levels in the Cooperative Financial Network. DZ BANK also has five regional Banking Advisory Councils that carry out an advisory and multiplier function.

1.2 Corporate Banking

In the corporate banking market, DZ BANK supports the cooperative banks. This support concept is geared to the needs of corporate customers and to the individual market situation and is integrated with the activities of the Cooperative Financial Network. DZ BANK has twelve regional branches that look after both its direct customers and its customers in the joint business with the cooperative banks at a regional level. Customer relationship management for multinationals, the agricultural and healthcare sectors, and Cooperative Financial Network customers has been grouped together in the Central Corporate Banking division in Frankfurt am Main.

DZ BANK continually upgrades its existing corporate banking services and processes in Germany. The digital VR GeschäftsNavigator (VR business navigator) application, which is now used by 570 local cooperative banks, was expanded in 2023 to include a module for optimizing joint marketing activities aimed at large and medium-sized companies. A further focus was on updating the future digital workplace for corporate banking relationship managers, which included incorporating new functionality.

DZ BANK is developing new solutions for its corporate customers and their retail customers on the basis of the Europe-wide Request-to-Pay (RtP) system. RtP bridges the gap between billing and bill payment, enabling companies to reduce administrative effort and costs. The benefit of the solution for their retail customers is that they do not need to spend time entering data during the billing process. DZ BANK developed this solution in collaboration with cooperative enterprises, such as Atruvia, and market partners. The pilot project in the Cooperative Financial Network began in 2023 with the aim of being able to roll out the solutions for the cooperative banks’ corporate and retail customers from mid-2024 onward.

In addition to digitalization, other areas of focus in 2023 were integrating sustainability into the customer dialogue and helping corporate customers with their transformation in the context of the decarbonization of industry. This is illustrated by the growth of funding for renewable energies. DZ BANK also added to its environmental, social, and corporate governance (ESG) goals, defining specific climate targets and decarbonization pathways in the following carbon-intensive sectors: energy, automotive, steel, cement, aviation, shipping, and real estate. The aim is to reduce the carbon intensity attributable to these sectors in DZ BANK’s lending business and in its own-account investments, so as to reduce it to virtually zero by 2050 at the latest.

DZ BANK also aims to support the international business of the Cooperative Financial Network’s corporate customers. It offers a range of solutions geared to Germany’s internationally oriented economy, including foreign payments processing, import and export credit guarantees and financing, and currency hedging. It has four branches and six representative offices outside Germany. As DZ BANK is seeing increased demand for low-volume export finance for corporate customers of the Cooperative Financial Network, it uses the SmaTiX (Small Ticket Express) portal of AKA Ausfuhrkredit-Gesellschaft mbH to support these customers. In the interest of sustainable export finance, DZ BANK and other banks provided support for the White Paper on Sustainability in Export Finance produced by the International Chamber of Commerce (ICC). DZ BANK also contributed to the update of the White Paper, which the ICC published in February 2023. Not least in view of the recommendations in the White Paper, the Organisation for Economic Co-operation and Development (OECD) decided on extensive reforms to its rules on state-backed export finance in July 2023. The new rules have a particular emphasis on the funding of climate-friendly projects.

DZ BANK is the center of excellence for development lending business within the Cooperative Financial Network. It supports the cooperative banks in two ways. Firstly, its development lending experts help the cooperative banks to advise their end customers. And secondly, it is replacing existing sales and communication channels with digital processes and portal services. The focus of these activities is on stabilizing market share and harnessing potential for growth.

1.3 Retail Banking

In the Retail Banking business line, DZ BANK offers cooperative banks, cooperation banks, and retail customers a comprehensive range of services based on its financial services concept. One of the primary areas of focus is the marketing of securities business with retail customers, for which DZ BANK provides products, processes, and platforms.

The products provided include customer investment solutions for advisory customers and independent retail investors of all experience levels. The product range consists of DZ BANK's own interest-rate products, derivatives and, in particular, investment certificates relating to particular trends or topics and sustainability. In this context, investment certificates with a charitable income component are issued. This involves DZ BANK and the participating cooperative banks giving up a share of their margin, with the money going to selected organizations in the form of sponsorship. DZ BANK has also added savings plans based on funds, exchange-traded funds (ETFs), and equities to its product range, which also contains investment account price models that are geared to customer needs and cater to market trends. Among these models are traditional investment accounts that are also available online, meinDepot (my investment account) for young customers, and an investment account with a flat-rate fee. This is all designed to further DZ BANK's objective of establishing the brokerage solution in the customer business as a comprehensive depository for securities that can be used by a broad range of customers at the cooperative banks.

DZ BANK offers a management cycle to support the cooperative banks with their strategic planning. This encompasses the planning, implementation, and control of the corporate strategy as well as tools for data and analytics. It also helps the cooperative banks to fulfill their regulatory obligations. As part of its marketing programs for young customers, new investment accounts, and sustainability, DZ BANK offers packages of measures in the form of processes and support services. These also help with the fulfillment of regulatory requirements, for example concerning sustainability in advisory services.

In accordance with its digitalization strategy, DZ BANK is developing platform solutions for advisors and customers of the cooperative banks and cooperation banks. DZ BANK's meinGIS platform provides advisors with access to the latest market information, such as securities prices, price charts, and corporate news. As well as visiting a branch, customers in the securities business can access their bank digitally so that they can quickly open an online investment account themselves and carry out trades online, for example. This brokerage solution is integrated into the VR Banking App, which provides users with a range of information and products, including market data, real-time prices, analysis tools, access to DZ BANK research, and product suggestions. Furthermore, retail customers can use the Meine Anlagezertifikate (my investment certificates) function to obtain detailed information on the investment products in their investment accounts at any time. In 2024, DZ BANK plans to introduce cryptocurrency trading for retail customers.

1.4 Capital Markets

DZ BANK offers advisory and sales services in relation to investment and risk management products covering the interest-rate, credit, equities, and currency asset classes for the benefit of its institutional customers in Germany and abroad, the cooperative banks in their own-account investing activities, and its corporate customers. Its offering encompasses primary market, secondary market, and research services.

DZ BANK's Group Treasury division is responsible for managing and optimizing liquidity throughout the DZ BANK Group. This ranges from managing the cooperative banks' day-to-day cash inflows and outflows in the context of the cash-pooling function performed by DZ BANK as the cooperative central institution to optimizing the procurement of liquidity by issuing securities. These are sold through the bank's own sales units and through intermediaries to institutional customers, such as insurance companies and fund management companies in Germany and abroad, and to retail customers of the cooperative banks. Group Treasury is also responsible for securities documentation in DZ BANK's capital markets business, which includes equity instruments and debt instruments issued by DZ BANK or by customers.

DZ BANK is working on further expanding its sustainability expertise and ESG activities in its capital markets business with institutional customers. In this context, it plans to continue strengthening its sustainability profile, particularly in primary market business for bonds. The range of sustainable investment products on offer in the securities business with retail customers is also to be extended. DZ BANK supported green, social, sustainability, and sustainability-linked bonds with a total volume of €25.1 billion in 2023, making it one of the leading European syndicate banks in the market segment for sustainable bonds. In the same period, DZ BANK placed sustainable promissory notes with a total volume of €2.4 billion. It is thus one of the leading banks when it comes to providing support for sustainable euro-denominated promissory notes from Germany (market share of roughly 17.4 percent) and for euro-denominated benchmark green covered bonds (market share of over 8 percent) in 2023.

The digitalization of existing business models is also progressing in the capital markets business. For example, DZ BANK continued to develop its smart derivatives contracts as an open standard with an automated payment function. And in October, it went live with its own cryptodepository platform, providing a solution for institutional investors for the settlement and deposit of their current investments in cryptosecurities. The platform will also enable institutional investors to participate in the exploration phase of the European Central Bank (ECB) for the settlement of wholesale transactions in central bank money. DZ BANK has applied to the Bundesanstalt für Finanzdienstleistungsaufsicht (BaFin) [German Federal Financial Supervisory Authority] – and the ECB's Joint Supervisory Team (JST) – to have its license extended so that it can expand its depository services to include native cryptoassets, such as Bitcoin and Ether, alongside the existing bond and fund services.

In cooperative network business, DZ BANK is updating its advisory and sales processes to take account of the changing requirements of the cooperative banks and in order to leverage potential efficiencies. The EGon own-account investing platform was also further developed in the reporting year, with the first stage of expansion implemented to transform it into an integrated process platform. EGon provides information, transaction functions, and simulations designed to help the cooperative banks with all of their own-account investing activities.

1.5 Transaction Banking

In the Transaction Banking business line, DZ BANK provides its customers with payments processing, card processing, customer-centric solutions, capital markets services, and securities services. It also offers a depository function for investment funds, plus advisory services. DZ BANK's objective in this context is to consolidate and continually improve the competitiveness of the entities within the Cooperative Financial Network with regard to transaction banking.

The focus of this business line is on ensuring that the Cooperative Financial Network is well equipped for the future requirements of transaction banking. In view of the continued strong growth of digital payment processes, DZ BANK has introduced dedicated platforms for providing customer solutions and enters into partnerships in this area. For example, DZ BANK is participating in the European Payments Initiative (EPI) aimed at establishing a European payment system that is based on a digital wallet solution and uses the instant payments infrastructure. The launch of the RtP pilot project at the end of 2023 makes the Cooperative Financial Network one of the first providers in Europe to enable its customers to pay bills digitally through their account (see also section 1.2 'Corporate Banking').

DZ BANK is also closely involved in the ECB's planning for a digital euro and is monitoring the associated impact on private-sector solutions and initiatives. It is participating in the development of a market solution for deposit money tokens that are issued by banks on a decentralized basis. This type of deposit money paves the way for the concept of a unified ledger, as described by the Bank for International Settlements (BIS) in its 2023 Annual Economic Report. This market infrastructure makes it possible to manage the flow of goods and services, as well as payments, on a shared programmable platform and to exchange goods for money within smart contracts. A proof of concept was initiated in conjunction with industrial companies in mid-2023.

Key milestones for the consolidation of payments processing as part of the ZV ON€ project were reached in 2023, including the migration of international payments processing, individual payments processing, and large-amount payments processing to a single platform. The migration in SEPA payments processing is due to take place in a number of stages in 2024, with completion scheduled for the autumn. This harmonization is part of the Cooperative Financial Network's strategy and should help to further consolidate the network's payments processing resources, functions, and services and, from DZ BANK's perspective, to create a structure for payments processing that is efficient and fit for the future.

DZ BANK is keeping step with the evolution of card processing by enhancing its portfolio of solutions. Key areas of investment in digitalization solutions for local banks in the reporting year were the online order process and the first self-service options. A project to enable cards to be issued in real time began in 2023. This involves a switch from issuing physical cards to generating virtual credit cards in online banking. This should be made available to the Cooperative Financial Network's end customers in the second half of 2024. Digital debit cards are available for e-commerce in the form of giropay. And through the Digitale Regionen (digital regions) project, DZ BANK is establishing solutions that local banks can use to support their local authority customers' digital transformation.

DZ BANK is continuing to pursue its strategy of growth in the depository business. In 2023, it consolidated its market position by acquiring the depository business of Deutsche Apotheker- und Ärztebank eG (apoBank). DZ BANK is the third-largest depository bank in Germany, with assets under depository of €313 billion. It also continued to broaden its collaboration in this business with DZ PRIVATBANK S. A., Luxembourg, (DZ PRIVATBANK), and their joint activities were brought together in the Fondshafen (fund haven) campaign.

2 Management of DZ BANK

2.1 Management units

The DZ BANK Group comprises DZ BANK as the parent company and the DZ BANK Group's subsidiaries in which DZ BANK directly or indirectly exercises control.

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 form the core of the financial services group:

- Bausparkasse Schwäbisch Hall AG, Schwäbisch Hall, (Bausparkasse Schwäbisch Hall; subgroup abbreviated to BSH)
- R+V Versicherung AG, Wiesbaden, (R+V Versicherung; subgroup abbreviated to R+V)
- Union Asset Management Holding AG, Frankfurt am Main, (Union Asset Management Holding; subgroup abbreviated to UMH)
- TeamBank AG Nürnberg, Nuremberg, (TeamBank)
- DZ BANK – central institution and corporate bank (DZ BANK – CICB)
- DZ HYP AG, Hamburg and Münster, (DZ HYP)
- DZ PRIVATBANK S. A., Strassen, (DZ PRIVATBANK S. A.; subgroup abbreviated to DZ PRIVATBANK)
- VR Smart Finanz AG, Eschborn, (VR Smart Finanz AG; subgroup abbreviated to VR Smart Finanz)

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

The DZ BANK – CICB operating segment comprises both the cooperative central institution function, which supports the operating activities of the local cooperative banks, and the corporate bank function. DZ BANK – holding function is used to pool a range of responsibilities, notably tasks carried out on behalf of the DZ BANK Group in relation to commercial law, tax, and prudential supervision.

All risks at DZ BANK, and therefore arising in connection with the CICB segment and the holding function, are determined, reported, and managed for DZ BANK. The aim of this approach is to satisfy the regulatory requirements under Basel Pillar 1 and Pillar 2 whereby DZ BANK must be treated as one bank overall. This also meets the German Minimum Requirements for Risk Management for Banks and Financial Services Institutions (MaRisk BA).

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

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

2.2 Governance

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

2.2.1 General management approach

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

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

2.2.2 Appointments to key posts in the subsidiaries

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

2.2.3 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 also aims to ensure coordination between the key entities in the DZ BANK Group to achieve consistent management of opportunities and risks, allocate capital, deal with strategic issues, and leverage synergies. Its members comprise the Board of Managing Directors of DZ BANK and the chief executive officers of BSH, DZ HYP, DZ PRIVATBANK, R+V, TeamBank, UMH, and VR Smart Finanz.

Various committees consisting of representatives from all strategic business lines and group functions assist the Group Coordination Committee's decision-making by preparing proposals. These are the following committees: the Group Risk and Finance Committee, the Group IT Committee, the Group HR Committee, the product and sales committees for retail customers, corporate customers, and institutional customers, the Group Procurement Committee, the Group Sustainability Committee, the Heads of Internal Audit 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 of the German Supervision of Financial Conglomerates Act (FKAG) and section 25a of the German Banking Act (KWG). It assists DZ BANK with groupwide financial and liquidity management, risk capital management, and recovery and resolution planning. The Group Risk and Finance Committee also assists the Group Coordination Committee in matters of principle. The members of this committee include the relevant executives at DZ BANK responsible for finance, risk, and treasury. The committee members also include executives at various subsidiaries. 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 Control 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 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 and on ensuring a coordinated roadmap, a transparent project portfolio, and a holistic data governance approach.

– The management of credit risk throughout the group is the responsibility of the **Group Credit Management working group** of the Group Risk and Finance Committee. This working group monitors compliance with the rules in the group credit risk policy in connection with its involvement in drawing up group credit standards and related monitoring and validation processes as the basis for groupwide management of counterparty risk. In particular, this covers all measures relating to the monitoring and management of the limit allocation at individual counterparty level. The working group also participates in the further development and harmonization of the credit management organization and processes, and it discusses and continually develops the group credit risk strategy, group credit risk management, and group credit standards. It thus assists the Group Risk and Finance Committee with the groupwide harmonization of credit-related processes with due regard to their economic necessity. The monitoring and control of DZ BANK's overall portfolio for credit risk is coordinated by the **Credit Committee**, a committee of the Board of Managing Directors. It normally meets every week and makes decisions on material lending exposures at DZ BANK, taking into account the credit risk strategy of the DZ BANK Group. The Credit Committee is also responsible for managing country risk in 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 from the market viewpoint: capital management, balance sheet and balance sheet structure management, liquidity and liquidity risk management, and funding activities. This body also focuses on coordinating and dovetailing funding strategies and liquidity reserve policies, as well as on independently determining funding needs and on preparing consistent investor relations and rating documents 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** is the central body responsible for the operational implementation of the strategic requirements in the following areas to ensure integrated resource management: capital management, balance sheet and balance sheet structure management, liquidity and liquidity risk management, and income statement and profitability management. This committee also discusses overarching issues and current regulatory matters with the aim of identifying those requiring management action.

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

– The **Compliance working group** assists DZ BANK with compliance management across the group where this is legally required. It also advises the DZ BANK Group's Group Risk and Finance Committee on fundamental compliance-related issues. One of the primary tasks of the Compliance working group is to draw up common compliance standards for the DZ BANK Group; in addition, it serves as a platform enabling specialists to share information and agree on requirements across the group. When fulfilling its responsibilities, the 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 Compliance working group reports to the Group Risk and Finance Committee, headed by the member of the DZ BANK Board of Managing Directors responsible for compliance and finance, and by the member of the DZ BANK Board of Managing Directors responsible for risk control.

– The **Information Security working group** of the Group Risk and Finance Committee and of the Group IT Committee is the central body responsible for managing information security and information security risk in the DZ BANK Group. It advises the Group Coordination Committee, the Group Risk and Finance

Committee, and the Group IT Committee on matters relating to specifying and adjusting information security targets and on the group's corporate strategy in this regard. The working group encourages information and experience relating to information security issues to be shared throughout the group, is responsible for the design of the risk management system for information security in the DZ BANK Group, and signs off the documentation forming part of the rules and regulations for the groupwide information security management system before this documentation is presented, where required, to the Boards of Managing Directors in the DZ BANK Group for approval.

– The **Outsourcing Management working group** is the central committee in the DZ BANK Group responsible for the management of outsourcing and sets out the general parameters for the management of outsourcing risk in the DZ BANK Group. It encourages information and experience relating to issues in connection with the management of outsourcing to be shared throughout the group. The Outsourcing Management working group is responsible for the design of the risk management system from the perspective of the group's minimum requirements for the management of outsourcing in the DZ BANK Group. It signs off the documentation forming part of the rules and regulations for the groupwide outsourcing management system before this documentation is presented, where required, to the Boards of Managing Directors in the DZ BANK Group for approval and assists the Group Coordination Committee, the Group Risk and Finance Committee, and the Group IT Committee with matters relating to specifying and adjusting targets for the management of outsourcing and with the group's corporate strategy in this regard.

The **Group IT Committee (GITC)**, comprising the members of the Boards of Managing Directors of the main group entities with responsibility for IT, supports the Group Coordination Committee in strategic IT matters. It is the highest-level IT management committee in the group and coordinates all overarching IT activities in the DZ BANK Group.

In particular, the Group IT Committee is responsible for the group IT strategy of the DZ BANK Group, makes decisions on collaboration issues between IT units, identifies and realizes synergies, specifies common IT standards, and initiates joint IT projects. The aim of the GITC is to develop a future-proof IT setup for the DZ BANK Group and to support the departments of the group entities and the local cooperative banks in their respective markets. The cooperative principle is practiced both within the DZ BANK Group and in the collaboration with the BVR and Atruvia.

From an operational perspective, the activities are coordinated by the Heads of IT group and implemented in the IT units in the DZ BANK Group.

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

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

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

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

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

The **Group Procurement Committee**, comprising the members of the Boards of Managing Directors and executives holding power of attorney at DZ BANK and its subsidiaries, supports the Group Coordination Committee in matters relating to procurement strategy in the DZ BANK Group. This committee manages the DZ BANK Group's procurement activities that are relevant throughout the group. In particular, the Group Procurement Committee makes decisions on collaboration issues between procurement units, identifies and realizes synergies, and specifies common standards and procedures with the objective of achieving optimum procurement terms and conditions for the entities of the DZ BANK Group. From an operational perspective, the activities are coordinated by the Procurement Board – the Group Procurement Committee's executive arm consisting of the DZ BANK Group's heads of procurement – and implemented in the procurement units in the DZ BANK Group.

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 Boards of Managing Directors. This working group also serves as a platform for sharing specialist information across the group – especially information on current trends in internal audit – and for refining group audit activities. On behalf of this working group, the Head of Group Audit reports to the member of the Board of Managing Directors responsible for group audit and, where appropriate, to the Group Coordination Committee.

The **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 subsidiaries. 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 innovation topics with group relevance on an ongoing basis, to bring together the divisions involved in innovation projects, and to ensure that innovation activities in the DZ BANK Group are transparent.

The **Group Sustainability Committee (GSC)** at the level of the Board of Managing Directors was created in 2023 and focuses on the management and implementation of sustainability in the DZ BANK Group. In addition to the GSC, there is a sustainability coordination committee made up of the sustainability officers in the management units. The sustainability coordination committee is an operational committee that is subordinate to the GSC and provides a platform for the sharing of information on the latest sustainability-related developments and activities across the group. Led by DZ BANK, the sustainability coordination committee identifies key issues relevant to the whole of the group, initiates joint projects, and prepares decisions to be made by the GSC.

2.3 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 loss allowances and profit/loss before taxes) are presented in chapters II.3.1 and II.3.2 of this management report.

- **Volume figures:**
  The main volume-related KPIs include equity and total assets, which are presented in chapter II.4 of this management report and in the annual financial statements (balance sheet as at December 31, 2023).

- **Productivity:**
  The KPI for productivity is the cost/income ratio. This figure is described in chapter II.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 KPIs for economic and regulatory liquidity adequacy presented in chapters VII.6.2 and VII.6.3 of the risk report in this management report. The minimum liquidity surplus reflects economic liquidity adequacy. Regulatory liquidity adequacy is expressed in terms of the liquidity coverage ratio (LCR) and the net stable funding ratio (NSFR).

- **Capital adequacy:**
  The KPIs for economic capital adequacy are described in chapter VII.7.2 of the risk report in this management report. The KPIs for regulatory capital adequacy are included in chapter VII.7.3. They comprise the coverage ratio for the financial conglomerate, the total capital ratio, the Tier 1 capital ratio, the common equity Tier 1 capital ratio, and the leverage ratio, as well as the metrics for the minimum requirement for own funds and eligible liabilities (MREL), namely the MREL ratio as a percentage of risk-weighted assets, the MREL ratio as a percentage of the leverage ratio exposure, the subordinated MREL ratio as a percentage of risk-weighted assets, and the subordinated MREL ratio as a percentage of the leverage ratio exposure.

Forecasts for the aforementioned KPIs at DZ BANK are set out in the outlook. Sustainability-specific KPIs are reported on in the DZ BANK Group's separate Sustainability Report.

2.4 Management process

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

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

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

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

II Business report

1 Economic conditions

In Germany, 2023 was characterized by a downturn that set in after the outbreak of war in Ukraine in 2022 and the energy crisis triggered by this conflict. High inflation weighed particularly heavily on the economy, reducing consumers' purchasing power and thus forcing them to cut back on spending. Although disposable incomes saw healthy nominal growth over the course of the year, households remained cautious, not only because of the higher prices but also because of the uncertain economic environment. Sources of uncertainty in the reporting year included Germany's controversial Buildings Energy Act (GEG), the conflict in the Middle East, and the German Federal Constitutional Court's highly consequential ruling on the debt brake. These factors had an adverse impact on sales opportunities and investment conditions for businesses that were simultaneously struggling with rising costs. Energy-intensive industries curbed their production in light of persistently high energy prices. The production of energy itself also diminished noticeably, partly in response to widespread efforts to reduce consumption and partly due to the last remaining nuclear power stations in Germany being taken off the grid. In addition, demand from outside Germany was weak as other economies were similarly affected by high inflation and the interest-rate rises. Soaring prices had prompted the European Central Bank (ECB) and other central banks to raise their base rates. The rise in interest rates created more challenging conditions for investment. One of the sectors affected by this was the real estate market, especially residential construction. New planning permissions plunged and in some cases, construction was put on hold even for housing projects that had already been approved.

Whereas Germany's economy had registered growth of 1.8 percent in 2022, gross domestic product (GDP) declined by 0.3 percent in 2023. Over the year as a whole, growth remained close to zero. In the first quarter of 2023, however, Germany's GDP edged up by 0.1 percent compared with the previous quarter. Although consumer spending fell substantially, net exports delivered a positive contribution to growth, but only because exports declined less sharply than imports. Gross investment also increased significantly. The second quarter saw no growth in economic output. Consumer spending picked up and provided some positive momentum, but exports deteriorated. In the third quarter, GDP continued to stagnate. Consumer spending weakened, while investment increased. In the final quarter of the year, the growth picture deteriorated further as GDP fell by 0.3 percent compared with the previous quarter.

High inflation and an increase in interest rates also took their toll on the economy of the eurozone. This was primarily reflected in a marked slowdown in consumer spending and investment, but did not push the bloc's overall economic growth into negative territory. Although the eurozone had recorded GDP growth of 3.4 percent in 2022, this figure fell to just 0.5 percent in 2023. The first and second quarters of 2023 both saw modest quarter-on-quarter growth of 0.1 percent, followed by a 0.1 percent contraction in GDP in the third quarter. Whereas the negative growth trend intensified in Germany in the final quarter of the year, growth in the eurozone remained at 0.0 percent.

The US economy also struggled with high interest rates and rapidly rising consumer prices in 2023. However, its economy remained in surprisingly robust shape. Overall, economic output went up by 2.5 percent in 2023, compared with 1.9 percent in 2022. This was primarily driven by a substantial rise in consumer spending, which, in turn, was mainly attributable to the robust labor market. Employment improved strongly, keeping the unemployment rate at an average of 3.6 percent in 2023 and thus at a similarly low level as in 2022. Inflation had been high in the US in 2022, especially at the start of the year, but slowed steadily over the course of 2023. By the final months of 2023, the rate of inflation had dropped to just above 3.0 percent.

Energy prices played a key role in slowing down inflation. In addition, upward pressure on prices for industrial goods eased thanks to improvements in conditions along companies' supply chains over the course of the year.

China recovered from the impact of its strict zero-COVID policy in 2023, after the associated measures had been lifted by Beijing at the end of 2022. At 5.2 percent, China's economic growth was up strongly compared with 2022, when the Chinese economy had grown by 3.0 percent and thus at a slower rate than the global economy for the first time in decades. However, the growth spurt at the start of 2023 was fueled by strong catch-up effects and proved very short-lived. Following a dip in economic growth around the middle of the year, government stimulus measures helped to push the growth rate up again somewhat in the second half of 2023.

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

The war in Ukraine created uncertainty in the capital markets in both the reporting year and in the previous year. In the first six months of 2023, trading was affected by concerns about inflation, but in the second half of the year, these concerns diminished and paved the way for more upbeat stock market conditions toward the end of the year.

The STOXX Europe 600, a share index comprising 600 large listed European companies, stood at 479.02 points as at December 31, 2023, which was 54.13 points higher than at the end of the previous year (December 31, 2022: 424.89 points). By contrast, the index had dropped by 62.91 points in the previous year.

Some EU countries still exceeded the ratios for new and overall indebtedness required for compliance with the stability criteria specified in the Fiscal Compact agreed by the EU member states at the beginning of 2012. In the Fiscal Compact, the signatory countries committed to reducing their debt (as a proportion of GDP) each year by one twentieth of the difference between the debt level and the Maastricht limit of 60 percent of GDP.

At the end of the third quarter of 2023, the total borrowing of the 20 eurozone countries equated to 89.9 percent of their GDP, a decrease of 2.3 percentage points compared with the figure of 92.2 percent as at September 30, 2022.

Italy's public debt as a percentage of GDP stood at 140.6 percent in the third quarter of 2023 (third quarter of 2022: 143.1 percent), which is the highest in the eurozone after that of Greece.

Based on a policy of quantitative easing, the ECB has supported the markets for government bonds in recent years, thereby creating the necessary time over the last few years for the European Monetary Union (EMU) countries burdened with excessive debt to reduce their budget deficits.

By the third quarter of 2022, the central banks in both the US and the eurozone were pursuing more restrictive monetary policy.

At its meeting on December 14, 2023, the ECB decided not to make changes to its three key interest rates. By contrast, at the previous meeting on September 14, 2023, the deposit facility interest rate had been set at 4.00 percent, the main refinancing rate at 4.50 percent, and the marginal lending facility rate at 4.75 percent. At that meeting, the ECB emphasized its determination to swiftly bring inflation back down to its medium-term target of 2.00 percent.

The ECB Governing Council intends to continue to reinvest repayments on maturing securities purchased under the pandemic emergency purchase program (PEPP) in full during the first six months of 2024. Plans for the second half of 2024 envisage a reduction of the PEPP portfolio by an average of €7.5 billion per month. The reinvestment of repayments under the PEPP is scheduled to stop at the end of 2024.

On December 13, 2023, the US Federal Reserve (Fed) kept the federal funds rate in the range of 5.25 to 5.50 percent, thus maintaining it unchanged for the third consecutive time.

There were differences in the financial performance of Germany's two largest banks in 2023. Whereas one of them registered a doubling of its net profit and a sharp fall in expenses for loss allowances for loans and advances compared with the previous year, the other one saw a significant decrease in its net profit and a marked increase in expenses for loss allowances for loans and advances. Both banks recorded a small rise in administrative expenses in the reporting year.

3 Financial performance

3.1 Financial performance at a glance

Although market conditions remained challenging, the operating business had a positive impact on the bank's financial performance. Net profit amounted to €478 million, which was above the 2022 figure.

The year-on-year changes in the key figures that made up the operating profit generated by DZ BANK in 2023 were as described below.

Operating income amounted to €2,774 million, a year-on-year fall of €7 million (2022: €2,781 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 €97 million to €1,864 million (2022: €1,767 million).

The **cost/income ratio** (i.e. the ratio of administrative expenses to operating income) rose to 67.2 percent in 2023 (2022: 63.5 percent).

Operating profit before loss allowances decreased by €104 million to €910 million (2022: €1,014 million).

Loss allowances amounted to a net addition of €80 million (2022: net addition of €285 million).

Operating profit amounted to €830 million (2022: €729 million), a year-on-year increase of €101 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 2022 management report.

The operating profit before loss allowances achieved in the reporting year was €267 million higher than the forecast for 2023.

This was due to the boost to net interest income, net fee and commission income, and gains and losses on trading activities provided by the customer business.

Additions to loss allowances for loans and advances were lower than anticipated. Moreover, income was generated from recoveries on loans and advances previously impaired.

In the reporting year, the cost/income ratio was lower than expected due to an increase in income.

3.2 Financial performance in detail

The individual year-on-year changes in the financial performance of DZ BANK in 2023 are described in detail below.

FIG. II.1 – INCOME STATEMENT

€ million	2023	2022	Change (%)
Net interest income[1]	**1,641**	1,282	28.0
of which: income from long-term equity investments[2]	**745**	478	55.9
Net fee and commission income[3]	**578**	522	10.7
Net trading income	**429**	1,179	-63.6
Administrative expenses	**-1,864**	-1,767	5.5
Staff expenses	-773	-839	-7.9
Other administrative expenses[4]	-1,091	-928	17.6
Other net operating income/expense	**126**	-202	> 100
Operating profit before loss allowances	**910**	1,014	-10.3
Loss allowances[5]	**-80**	-285	-71.9
Operating profit	**830**	729	13.9
Other net income/expense[6]	**-278**	-15	>100.0
of which: addition to reserves required by section 340g HGB	-150	0	>100.0
Profit before taxes	**552**	714	-22.7
Taxes[7]	**-74**	-334	-77.8
Net income for the year	**478**	380	25.8

1 See annual financial statements, income statement; total of interest income, interest expense, current income, and income from profit-pooling, profit-transfer, and partial profit-transfer agreements.
2 See annual financial statements, income statement; total of current income from long-term equity investments and shares in affiliated companies and income from profit-pooling, profit-transfer, and partial profit-transfer agreements.
3 See annual financial statements, income statement; total of fee and commission income and fee and commission expenses.
4 See annual financial statements, income statement; total of other administrative expenses, amortization and write-downs on intangible assets, and depreciation and write-downs on property, plant and equipment.
5 See annual financial statements, income statement; total of write-downs on and loss allowances for loans and advances and certain securities, and additions to provisions for losses on loans and advances.
6 See annual financial statements, income statement; total of write-downs on and loss allowances for long-term equity investments, shares in affiliated companies, and securities treated as fixed assets, plus the addition to the fund for general banking risks, expenses from the transfer of losses, and the extraordinary result.
7 See annual financial statements, income statement; total of income taxes plus other taxes not included under 'Other operating expenses'.

Net interest income increased by €359 million to €1,641 million (2022: €1,282 million).

Net interest income (excluding income from long-term equity investments) is primarily attributable to the lending business portfolios (Corporate Banking business line) and the capital markets business. Net interest income also includes the interest expense and income relating to issued subordinated bonds and those purchased by group entities. The amounts of the individual items and the effects on the change in net interest income are described below.

Net interest income (excluding income from long-term equity investments) advanced by €92 million to €896 million (2022: €804 million).

In the Corporate Banking business line, net interest income rose by €6 million to €556 million (2022: €550 million). The net interest income in the four regional corporate customer divisions plus Central Corporate Banking increased by €11 million to €320 million (2022: €309 million). The rise in net interest income was attributable to the higher lending volume.

Net interest income in the Structured Finance division amounted to €167 million, a decrease of €6 million compared with the prior-year figure of €173 million. The increased volume of lending did not make up for the lower margins, which were partly due to the competitive situation.

In the Investment Promotion division, net interest income advanced by €1 million to €69 million (2022: €68 million). This year-on-year rise was primarily due to a modest level of portfolio growth.

Net interest income from money market and capital markets business increased by €184 million to €473 million (2022: €289 million). This increase was firstly attributable to the deposit-taking operating business in the short-dated maturity segment, particularly deposits from corporate customers. Secondly, the rise in interest rates in the money market led to increased net interest income from the investment of liquidity in the excess of non-interest-bearing liabilities (e.g. equity) over non-interest-bearing assets. However, brokerage expenses for own issues, expenses for early redemption payments, and expenses in connection with the early redemption of own issues weighed on net interest income.

As there has not been any bonus interest paid in connection with participation in the TLTRO III program since the second half of 2022, no such bonus interest was received in 2023 (2022: €71 million).

The adverse impact of subordinated capital (balance of subordinated own issues and subordinated securities purchased by group entities) on net interest income increased by €27 million to €134 million in 2023 (2022: €107 million) as a consequence of expansion of the liability portfolios.

DZ BANK's reported income from long-term equity investments amounted to €745 million, which was higher than the prior-year figure (2022: €478 million). The amount for the reporting year includes an advance dividend of €201 million from Turm KG resulting from the sale of the building 'Westend 1', Frankfurt am Main. The year-on-year rise was attributable to higher income from long-term equity investments in respect of UMH (up by €43 million), BSH (up by €55 million), R+V (up by €32 million), and DZ HYP (up by €25 million). By contrast, there was a reduction in income from long-term equity investments in respect of VR Equitypartner GmbH (down by €15 million), DZ Beteiligungsgesellschaft mbH Nr. 18 (down by €9 million), Deutsche WertpapierService Bank AG (dwpbank) (down by €6 million), and IMPETUS Bietergesellschaft mbH (down by €5 million).

Net fee and commission income went up by €56 million to €578 million (2022: €522 million).

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

In the Corporate Banking business line, net fee and commission income was €16 million higher than in the previous year at €199 million (2022: €183 million). This included an increase of €10 million in relation to fees and commissions in connection with loan processing and an increase of €9 million for financial guarantee contracts / loan commitments.

In the Capital Markets business line, the contribution to net fee and commission income rose by €16 million to €214 million (2022: €198 million). One of the main reasons for this was the increase of €14 million in transaction fees from the securitization business.

Net fee and commission income in the Transaction Banking business line was also up year on year at €176 million, a rise of €6 million compared with the prior-year figure of €170 million. This included a €9 million rise in connection with payments processing fees and a €7 million rise related to safe custody and securities management business. By contrast, income from currency service business declined by €6 million.

As part of service procurement arrangements, DZ BANK has transferred processing services in the payments processing business to equensWorldline SE and Cash Logistik Security AG, and in securities business to Deutsche WertpapierService Bank AG. The expenses arising in connection with obtaining services from the above external processing companies amounted to a total of €217 million (2022: €192 million) and were reported under the net fee and commission income of the Capital Markets / Transaction Banking business lines.

Net trading income fell by €750 million to €429 million (2022: €1,179 million).

Net trading income relates to the business activities of the Capital Markets business line. The Group Treasury division's income from money market business entered into for trading purposes (mainly repurchase agreements) is also included in net trading income.

Gains and losses on operating trading activities in the Capital Markets business line amounted to a net gain of €540 million, a year-on-year rise of €15 million (2022: net gain of €525 million).

Net trading income benefited from the benign conditions in the capital markets in 2023. Strong demand from customers also contributed to the very good business performance in foreign exchange trading, in structured products, and in the bond business. At the same time, there was encouraging growth in sales of retail investment certificates compared with the previous year.

Other gains and losses on trading activities resulting from non-operating, HGB-related effects amounted to a net loss of €110 million (2022: net gain of €654 million).

This was attributable to non-operating effects in net trading income. Firstly, losses arose on the bank's own structured issues under German commercial law in the context of product-specific valuation effects in connection with the elimination of interest-rate risk; these effects had given rise to income in 2022. And secondly, positive valuation effects arose from widening mark-ups in the context of securities issued by the bank for trading purposes.

In the reporting year, €2 million was added to the special reserves pursuant to section 340e (4) HGB and recognized in profit or loss (2022: €47 million).

Administrative expenses came to €1,864 million, an increase of €97 million on the comparable figure in 2022 (€1,767 million).

Staff expenses went down by €66 million, from €839 million in 2022 to €773 million in the reporting year. This decrease was primarily driven by pensions (€90 million) due to a rise in the annuity trend from 1.8 percent to 2.3 percent and by a non-recurring item linked to pension adjustments that had resulted in additional expenses in the previous year.

Other administrative expenses climbed by €163 million to €1,091 million in 2023 (2022: €928 million). This overall increase predominantly comprised a €28 million rise in consultancy costs, a €21 million rise in IT costs, and a €12 million rise in expenses for business trips, hospitality, representation, and donations. By contrast, contributions and fees (bank levy, deposit guarantee fund, fees for banking supervision) decreased by €16 million.

The amortization and write-downs on intangible assets and the depreciation and write-downs on property, plant and equipment included in other administrative expenses increased by €117 million to €177 million (2022: €60 million). This increase was primarily attributable to the write-down recognized on the W1 Tower in Frankfurt am Main.

Other net operating income/expense amounted to net income of €126 million in 2023 (2022: net expense of €202 million). This included net income of €33 million (2022: net expense of €323 million) that resulted from the measurement of the occupational pension plan and primarily comprised the cost of €26 million from the unwinding of discounts reported in 2023 (2022: €59 million) in connection with the measurement of defined benefit obligations and the income of €59 million resulting from the valuation of plan assets in 2023 (2022: expense of €264 million).

In 2023, other net operating income also included income from the reversal of provisions of €122 million (2022: €77 million). Income in connection with currency transactions in the banking book stood at €18 million, a year-on-year improvement of €43 million compared with the expense of €25 million in connection with such transactions in 2022.

Loss allowances amounted to a net addition of €80 million (2022: net addition of €285 million). This item includes not only the income/expense from loss allowances for loans and advances but also gains and losses on securities in the liquidity reserve.

In 2023, loss allowances for loans and advances amounted to an expense of €85 million (2022: expense of €139 million). This was primarily attributable to a net addition of €150 million in the lending business and a net addition of €2 million to provisions for losses on loans and advances. Countervailing recoveries on loans and advances previously impaired amounted to €67 million and predominantly resulted from interest paid on impaired loans and advances.

In 2023, the net reversals of €29 million in stages 1 and 2 were mainly attributable to transfers to stage 3. Furthermore, loss allowances were increased in stage 3 owing to additions in respect of individual counterparties following changes in credit ratings. These were partly offset by reversals as a result of improvements in the credit ratings of some counterparties.

Gains and losses on securities in the liquidity reserve amounted to a gain of €4 million in 2023 (2022: loss of €146 million). This overall gain comprised write-downs of €32 million resulting from market price movements, reversals of provisions for anticipated losses in an amount of €7 million, and €29 million in realized gains.

In the year under review, **other net income and expense** amounted to an expense of €278 million (2022: expense of €15 million).

Within this figure, losses on investments of €82 million (2022: gains of €1 million) included both losses from long-term equity investments of €82 million (2022: gains of €6 million) and gains/losses on long-term securities of €0 million (2022: losses of €5 million).

Losses from long-term equity investments included, in particular, write-downs on the carrying amounts of the long-term equity investments in DZ PRIVATBANK S.A. (€64 million written down), GENO Broker GmbH (€10 million written down), Union Investment Real Estate GmbH (€6 million written down), and paydirekt GmbH (€5 million written down), along with gains of €9 million on the disposal of the long-term equity investment in immigon portfolioabbau ag I. A. In 2022, there had been reversals of write-downs on the carrying amounts of the long-term equity investments in DZ HYP (€13 million reversed) and DZ FINANCIAL MARKETS LLC (€5 million reversed), write-downs on the carrying amounts of the long-term equity investments in VR Smart Finanz (€18 million written down) and Cassa Centrale Banca – Credito Cooperativo del Nort Est S. p. A. (€12 million written down), and gains of €18 million on the disposal of part of the long-term equity investment in Visa Inc.

Under gains and losses on long-term securities, reversals of write-downs in an amount of €5 million offset the realized gains and losses. The net loss of €5 million in 2022 had primarily resulted from write-downs and reversals of write-downs.

The expense in respect of the transfer of losses amounted to €7 million (2022: €4 million). This was mainly attributable to the transfer of losses of €2 million from GENO Broker GmbH (2022: losses of €3 million from GENO Broker GmbH).

In 2023, the extraordinary result amounted to an expense of €39 million (2022: expense of €12 million). The larger expense was due to the expansion of restructuring measures in 2023 and the related increase in the provision for restructuring.

The figure for the year under review includes an addition of €150 million to the fund for general banking risks pursuant to section 340g HGB.

Profit before taxes amounted to €552 million (2022: €714 million).

The **net tax expense** for 2023 of €74 million (2022: €334 million) included income from group tax levies of €523 million (2022: €198 million) and a tax expense of €597 million (2022: €532 million).

Net income for the year came to €478 million (2022: €380 million).

As a result of the net income for the year of €478 million and the profit brought forward from 2022 of €28 million, DZ BANK will propose a dividend of €0.25 per share to the Annual General Meeting. This would equate to a total distribution of €448 million.

3.3 Number of branches

As at December 31, 2023, as had been the case a year earlier, DZ BANK had 7 German branches in Berlin, Düsseldorf, Hannover, Koblenz, Munich, Münster, and Stuttgart as well as 4 international branches situated in London, New York, Hong Kong, and Singapore.

The 7 branches in Germany oversee a further 6 sub-offices.

4 Net assets

As at December 31, 2023, DZ BANK's total assets had increased by €11.3 billion to €374.2 billion (December 31, 2022: €362.9 billion).

DZ BANK's international branches accounted for €25.4 billion (December 31, 2022: €21.9 billion), or around 6.8 percent, of the total assets of DZ BANK as at December 31, 2023. New York (€11.9 billion; December 31, 2022: €7.1 billion) and London (€7.3 billion; December 31, 2022: €8.2 billion) together accounted for around 75.6 percent of the €25.4 billion. The remaining €6.2 billion was attributable to the branches in Singapore (€3.5 billion; December 31, 2022: €3.7 billion) and Hong Kong (€2.7 billion; December 31, 2022: €2.9 billion).

The **return on assets**, which was calculated by dividing the net income for the year by the total assets at December 31, 2023, was 0.1 percent (December 31, 2022: 0.1 percent).

As at December 31, 2023, the **volume of business** amounted to €431.6 billion (December 31, 2022: €414.4 billion). This figure comprises not only total equity and liabilities but also the contingent liabilities of €11.5 billion (December 31, 2022: €10.7 billion) and DZ BANK's other obligations of €45.9 billion (December 31, 2022: €40.8 billion). The increase in other obligations was due to the growth of irrevocable loan commitments.

The notional amount of the derivatives recognized at fair value of €1,762.9 billion (December 31, 2022: €1,624.6 billion) and **of the derivatives not recognized at fair value** of €75.5 billion (December 31, 2022: €94.2 billion) came to €1,838.4 billion as at December 31, 2023 (December 31, 2022: €1,718.8 billion). This rise was due, in particular, to interest-linked contracts. Of the total amount, €21.1 billion was accounted for by positive fair values (December 31, 2022: €24.9 billion) and €21.0 billion by negative fair values (December 31, 2022: €28.1 billion).

Cash and cash equivalents as at December 31, 2023 had fallen by €4.1 billion to €1.7 billion (December 31, 2022: €5.8 billion).

Loans and advances to banks had gone up by €19.0 billion to €251.1 billion as at December 31, 2023, compared with €232.1 billion as at December 31, 2022. Loans and advances to affiliated banks had increased by €11.5 billion to €116.0 billion. Loans and advances to other banks had risen by €7.5 billion to €135.2 billion.

Loans and advances to customers as at December 31, 2023 had climbed by €1.4 billion to €46.6 billion (December 31, 2022: €45.2 billion). Within this figure, loans had increased by €1.1 billion.

As at December 31, 2023, the value of **bonds, shares, and other securities** had risen by €4.2 billion to €32.0 billion (December 31, 2022: €27.8 billion). This change was attributable almost exclusively to holdings of bonds, the value of which amounted to €31.9 billion as at December 31, 2023 (December 31, 2022: €27.7 billion). The value of shares and other variable-yield securities was unchanged year on year at €0.1 billion (December 31, 2022: €0.1 billion).

The **trading assets** line item was €27.6 billion as at December 31, 2023, a fall of €8.8 billion compared with December 31, 2022 (€36.4 billion). This was mainly the result of a decline in repurchase agreements of €10.2 billion and a countervailing rise in derivatives of €1.1 billion.

Deposits from banks had fallen by €14.4 billion to €163.4 billion (December 31, 2022: €177.8 billion). Deposits from affiliated banks had reduced by €2.2 billion to €67.2 billion, while deposits from other banks had gone down by €12.2 billion to €96.2 billion. This included €10.5 billion attributable to redemptions of tranches under the ECB's TLTRO III program and €3.5 billion attributable to overnight money and fixed-term deposits. There was a countervailing increase in development program loans.

Deposits from customers as at December 31, 2023 had risen by €4.6 billion to €71.6 billion (December 31, 2022: €67.0 billion). This change was predominantly attributable to an increase in overnight money and fixed-term deposits of €3.2 billion and in registered bonds of €1.6 billion.

Debt certificates issued including bonds stood at €73.2 billion. This equates to an advance of €19.2 billion compared with the figure at December 31, 2022 of €54.1 billion. The reasons for this were a €15.4 billion increase in the portfolio of bonds issued and a €3.8 billion rise in the portfolio of commercial paper.

The **trading liabilities** line item had expanded by €1.5 billion to €38.9 billion (December 31, 2022: €37.4 billion). Within this amount, repurchase agreements were up by €4.2 billion, whereas the fair values of derivatives were down by €2.8 billion.

FIG. II. 2 – SHAREHOLDERS AS AT DECEMBER 31, 2023

* Directly and indirectly.

The **fund for general banking risks** in accordance with section 340g HGB stood at €3,847 million, which was €152 million higher than the figure of €3,695 million as at December 31, 2022. In 2023, €150 million was added to the reserve pursuant to section 340g HGB and €2 million was added to the reserve pursuant to section 340e (4) HGB, in both cases recognized in profit or loss.

The **equity** of €10,758 million reported on the balance sheet as at December 31, 2023 increased during the reporting year (December 31, 2022: €10,638 million) as a result of the net effect from the retention of the distributable profit for 2023 less the dividend paid for 2022.

DZ BANK's capital and solvency situation is described in the risk report within this management report (chapter VII.7.3.3).

5 Financial position

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

In the context of liquidity management, the DZ BANK Group distinguishes between operational liquidity (liquidity in the maturity band of up to one year) and structural liquidity (liquidity in the maturity band of more than one year).

The DZ BANK Group has a diversified funding base for **operational liquidity**. A considerable portion is accounted for by money market activities resulting from the cash-pooling function with the local cooperative banks. This enables cooperative banks to invest available liquidity with DZ BANK or obtain liquidity from DZ BANK if they need it. This regularly results in a liquidity surplus, which provides one of the main bases for short-term funding in the unsecured money markets. Corporate customers and institutional clients are another important source of funding for covering operational liquidity requirements.

For funding purposes, the DZ BANK Group also issues money market products based on debt certificates under a standardized groupwide multi-issuer euro commercial paper program through its offices and branches in Frankfurt, New York, Hong Kong, London, and Luxembourg. In addition, a US CP head office program is used centrally by DZ BANK Frankfurt.

Key repo and securities lending activities, together with the collateral management process, are managed centrally in DZ BANK's Group Treasury division as a basis for secured money market financing activities. Funding on the interbank market is not strategically important to the DZ BANK Group.

The DZ BANK Group also has at its disposal liquid securities that form part of its counterbalancing capacity. These securities can be used as collateral in monetary policy funding transactions with central banks, or in connection with secured funding in private markets.

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

As at December 31, 2023, the nominal value of DZ BANK AG's participation in the ECB's TLTRO III program was €0.5 billion (December 31, 2022: €11.0 billion).

Group Risk Controlling prepares an annual internal funding plan, which is based on the funding requirements calculated for the DZ BANK Group and DZ BANK for the next three years. The funding plan is calculated for a baseline scenario (matching the baseline scenario for strategic planning) and for at least one adverse scenario. The funding requirements are updated monthly and the adopted planning is backtested.

The risk report within this management report includes disclosures on **liquidity adequacy** (chapter VII.6). The year-on-year changes in cash flows from operating activities, investing activities, and financing activities are shown in the **statement of cash flows** in the consolidated financial statements. Contractual cash inflows and cash outflows are set out in the **maturity analysis** in note 87 of the notes to the consolidated financial statements.

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

The non-financial report of the DZ BANK Group in accordance with section 340i in conjunction with section 315b of the German Commercial Code (HGB) is combined with the non-financial report of DZ BANK AG in accordance with section 340a in conjunction with section 289b HGB and integrated into the 2023 Sustainability Report.

The 2023 Sustainability Report is published in German at www.dzbank.de/berichte and in English at www.dzbank.com/reports.

1 Human resources report

1.1 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 Leadership Positions in the Private and Public Sectors (FührposGleichberG) requires companies with more than 500 employees that are subject to codetermination under German industrial relations legislation to set binding targets for the supervisory board, the board of managing directors, and the first and second levels of management (heads of division and heads of department).

Gender equality is a high priority at DZ BANK. It is therefore enshrined in the bank's values of cosmopolitanism, partnership, and sustainability. It is also embodied by the workforce diversity policy.

DZ BANK helps all qualified employees to pursue their career path, irrespective of their gender. This approach is not restricted to the first and second levels of management, but applies to all employees, including trainees. The annual dialogues in the different areas of board responsibility create transparency with regard to the personnel and demographic structure of each individual department. Their focus is on talented female employees, young professionals, and candidates for the development program for high-potential employees. The bank's promotion of equal opportunities consists of the three elements of diversity, development of high-potential employees, and demographics. The success of these activities is reviewed in regular reports. In addition, the bank makes every effort to ensure gender-neutral communication and provides targeted training. The proportion of women among new employees appointed in the reporting year was 39.9 percent.

FIG. IV.1 – EMPLOYEES AT MANAGEMENT LEVELS AND IN STAFF POTENTIAL-PROMOTION PROGRAMS IN 2023

	Total number	Of which women	Proportion of women in 2023 (%)	Proportion of women in 2022 (%)
Heads of division/general managers	34	3	8.8	8.8
Heads of department (includes **31** global head functions in foreign branches)	161	24	14.9	15.6
Heads of group	477	133	27.9	23.5
Total	**672**	**160**	**23.8**	**20.7**
	Total number	Of which women	Proportion of women (%)	
Staff potential-promotion programs	30	19	63.3	

In accordance with the legislation on the equal participation of women and men in leadership positions, the following table shows the proportion of women in the period up to December 31, 2023:

FIG. IV.2 – PROPORTION OF WOMEN IN LEADERSHIP POSITIONS IN 2023

Reporting period	**Jul. 1, 2017 to Dec. 31, 2023**	
Objective (stated as a percentage)	**Target**	**Actual**
First management level below the Board of Managing Directors	10	8.8
Second management level below the Board of Managing Directors	20	14.9

The proportion of women at the level of heads of group increased significantly, by 4.4 percentage points, to just under 28 percent as at December 31, 2023. The proportion remained unchanged at the level of heads of division. At the level of heads of department, the proportion edged down by 0.7 percentage points, which equates to one person in absolute terms. Across all management levels, however, the proportion of women rose by 3.1 percentage points to 23.8 percent. An overall ratio of 50 percent was achieved when filling managerial vacancies in 2023.

The absolute targets specified for the number of women at the management levels below the Board of Managing Directors, to be achieved by December 31, 2026, are as follows (the percentage figures have been rounded):
First level: 5 (15 percent)
Second level: 32 (21 percent)

In line with the diversity policy adopted, the Supervisory Board of DZ BANK AG set the following targets on February 23, 2023 for the period up to October 31, 2027:
Proportion of women on the Supervisory Board: 25 percent
Proportion of women on the Board of Managing Directors: 25 percent
Both targets were met, or continued to be met, in 2023, with women making up 25 percent of each board.

V Outlook

1 Economic conditions

The outlook for the macroeconomic environment provides the basis for projections for 2024 regarding financial position and financial performance as well as expected liquidity and capital adequacy. Any adverse macroeconomic factors that present a material risk to the DZ BANK Group are addressed and examined in detail in chapter VII.4.2 of the risk report. Opportunities arising from favorable factors are presented in chapter VI.2.1 of the opportunity report.

1.1 Global economic trends

The energy crisis triggered by the Russia-Ukraine war is not over yet, but has abated somewhat. This is reflected, for example, in noticeably lower energy prices (including electricity prices) and well-filled gas storage facilities. Interest rates have risen strongly and rapidly, resulting in more challenging investment conditions. One of the sectors most keenly affected by this is residential construction. At the same time, structural problems in China, for example in the real estate sector, are holding back the country's economic growth and, by extension, global trade. As inflation rates continue to fall, the economy of the eurozone is predicted to stage a recovery in 2024. From the second half of the year, this upturn should enjoy a tailwind from the first interest-rate cuts, but is nonetheless expected to remain relatively weak in 2024.

Threats to global economic growth include the risk of fresh protectionist measures being imposed on trade between the US, China, and Europe. This is reflected in the debate about the Inflation Reduction Act in the US and the ever-growing list of sensitive raw materials for which Chinese export licenses are required. Geopolitical tensions, such as over the position of Taiwan, may also prompt a further escalation of trade disputes. This would adversely affect the global economy and hit the heavily export-dependent German economy particularly hard. Supply chain problems and renewed upswings in energy prices could prolong the phase of elevated inflation rates.

In many parts of the world, the dramatic rise in inflation had already reached its peak at the end of 2022. Consequently, inflation rates came down noticeably in 2023, but still remained well above the target levels of major central banks. For many products, it took a while for the impact of the extreme energy price spike during the energy squeeze to filter through the various production stages to the retail prices charged to end customers. In addition, healthy wage increases – designed to offset the inflation-linked erosion of purchasing power – prompted businesses in the service sector and other industries to raise their prices, which consequently slowed down the fall in inflation rates. In 2024, inflation should generally continue to come down but will likely still remain above central bank targets.

1.2 Trends in the USA

The US economy remained in surprisingly robust shape over the course of 2023. Quarter-on-quarter GDP growth was particularly pronounced in the third quarter of 2023. The fact that the US economy continued to perform well in spite of rising interest rates is likely attributable to a significant upturn in employment, the favorable long-term mortgage finance deals that many private households had secured when interest rates were still low, and – last but not least – government spending measures. Thanks to these sources of support, a recession now looks avoidable, although it remains a risk.

For 2024, DZ BANK predicts a marked slowdown in economic growth. Strongly elevated interest rates can be expected to put a damper on investment and consumer spending, thereby holding back economic growth. Against this backdrop, gross domestic product will likely grow by only 1.5 percent. US politics also remain a risk factor. As the government's majority in the House of Representatives is wafer-thin, the budget negotiation process is proving long and arduous. A temporary government shutdown cannot be ruled out for 2024. One driver of the discord in the US political arena may well be the upcoming presidential and congressional elections in November 2024. This environment could heighten concerns about a potential fiscal policy crisis. The sustainability of US government debt levels may be called into question. And further interest-rate hikes in the US would certainly also take their toll on other economies.

The trajectory of inflation is a further risk factor. Inflation is trending downward, but high wage demands and efforts to boost production in the US make it likely that heightened inflationary pressures will persist for some time yet. DZ BANK thus expects inflation to remain at clearly elevated levels beyond 2023. On this basis, it projects an average inflation rate of 3.0 percent for the US in 2024.

1.3 Trends in the eurozone

Overall, the eurozone economy performed sluggishly in 2023. Consumer spending was weakened by persistently high inflation, while higher interest rates continued to act as a drag on investment over the course of the year. In addition, exports faced increasingly strong headwinds in connection with weak global economic growth. The eurozone recorded economic growth of 0.5 percent in 2023.

Over the course of 2024, the bloc should gradually emerge from its economic weak patch. Upward pressures on consumer prices should continue to ease, which – paired with continuing wage growth – should improve the spending headroom of private households. The fact that interest rates have reached their peak and may start to be cut again in the second half of the year should reduce adverse pressures on investment. However, there is a risk of interest rates remaining high or even being raised further. This could also have unfavorable fiscal policy implications, as highly indebted countries in the eurozone are vulnerable to the pressures arising from a growing interest burden.

Provided the global economy starts to gather pace in the second half of 2024, even if only moderately, European exports should enjoy a small boost. DZ BANK anticipates that the eurozone economy will grow at a rate of 0.8 percent in 2024 as a whole.

The normalization of previously overblown gas and electricity prices also started to push down consumer prices, a trend that still remains intact. This led to a reduction in the inflation rate to an average of 5.4 percent in 2023. In 2024, inflation should continue to slow, albeit only very gradually. Government measures implemented to mitigate soaring energy prices are set to expire in a number of eurozone countries. In addition, upward pressure on prices in the service sector due to wage increases remains strong and will abate only slowly. DZ BANK predicts an inflation rate of 3.0 percent for the eurozone in 2024.

1.4 Trends in Germany

Amid a perfect storm of adverse factors ranging from high energy prices and interest-rate hikes to weak global economic growth, Germany's economy has slid into recession. Although survey-based leading indicators seemed to be showing small signs of improvement in the autumn, they closed 2023 at very low levels. Uncertainty also stemmed from the debate about budgetary funding in the wake of the German Federal Constitutional Court's ruling on the debt brake. There is no immediate prospect of an upturn. In 2023 as a whole, economic output shrank by 0.3 percent.

The outlook for the coming year is similarly bleak. Energy prices are still higher than before Russia's war of aggression against Ukraine, meaning that Germany's industrial sector remains burdened with a competitive disadvantage. The health of the global economy also remains precarious and exports are consequently unlikely to bounce back to the strong levels seen before the pandemic. In addition, bureaucratic barriers to investment will take time to dismantle. Nonetheless, the economy should be able to stage a modest recovery in 2024. The marked easing of inflationary pressures is a positive signal. DZ BANK expects inflation to gradually fall in 2024. It anticipates that consumer prices will rise by 3.2 percent in 2024, compared with an average inflation rate for 2023 of 6.0 percent.

Demand in the real estate market has been depressed significantly by the sharp rise in interest rates. Compared with 2021, new business in the consumer home finance segment has fallen by almost half while investment in commercial real estate and residential property portfolios has diminished by nearly two-thirds. Property prices have been falling across all market segments since mid-2022. In 2024, the year-on-year reduction in prices should slow to between 2 and 4 percent for residential real estate and between 5 and 7 percent for commercial real estate. The combination of high interest rates and sharp increases in construction costs meant that many construction projects were put on hold as building of rented housing has become unprofitable. There were many insolvencies among project developers in 2023. The housing market is likely to see much fewer completions in 2024, in spite of substantial demand for housing. The extremely sparse supply of homes is causing a marked rise in rental prices. Consequently, the housing market environment is set to be even more fraught in 2024.

Conditions for investment remain challenging. The construction sector is struggling with high interest rates and increased construction costs. However, slowing inflation and robust wage growth are easing the pressure on consumers' purses. In addition, the ECB looks likely to start cutting interest rates again from the second half of the year. Headwinds for exporters should diminish as the international trade environment begins to improve in the second half of 2024. All in all, DZ BANK expects the German economy to grow by 0.5 percent in 2024.

1.5 Trends in the financial sector

In 2023, major central banks around the world maintained the new policy direction that they had embarked on in the previous year. The US Fed had already discontinued its bond-buying program and had begun to trim its balance sheet in 2022. The ECB followed suit in 2023, gradually reducing its holdings under the asset purchase program and terminating the pandemic emergency purchase program (PEPP). Repayments under the PEPP will continue to be reinvested until the end of 2024, but can be allocated in a flexible manner. This cautious approach from the ECB, which has been designed with flexibility in mind and is complemented by the transmission protection instrument (TPI), has helped to prevent the excessive widening of spreads on the bonds of individual eurozone countries and thus to counter potential fragmentation risk. Current spread levels also reflect the somewhat muted economic environment. As economic conditions brighten over the course of 2024, spreads could narrow.

The Fed raised the upper end of the federal funds rate range to 5.5 percent in 2023. This appears to be the highest that it will go, and interest-rate cuts are likely in 2024. Moreover, the ECB increased its main refinancing rate to 4.5 percent in 2023. With inflation coming down faster than originally anticipated, the first reductions in key eurozone interest rates are predicted for the second half of 2024. Consequently, interest-related business probably reached its maximum upside potential in 2023. Although the developments described above may stimulate the real estate market, the growth of this market will be held back by interest rates remaining at a high level, the general economic situation, and high investment costs.

Despite the headwinds created by geopolitical turmoil and the related trade disputes on the global economic stage, DZ BANK expects the German economy to grow slightly (see also chapter 1.4 of the outlook). Given that the uncertainty factors – which are relevant to the major economic areas (United States, Europe, and China) – are occurring simultaneously, it is impossible to rule out unexpected adverse effects on companies and households, which in turn would have negative implications for the financial position and financial performance of the financial sector in 2024.

The year ahead is therefore likely to be challenging for the financial sector. Regardless of the aforementioned macroeconomic conditions, the financial sector has also faced considerable pressures in terms of both adjustment and costs in recent years. These arise from structural changes and regulatory requirements and could be intensified by upward pressure on prices and the potential threat of a wage/price spiral. This environment is 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 processes.

The agenda of regulatory reforms initiated in response to the financial crisis has a range of objectives, including making the financial sector more resilient in the event of a crisis – mainly through improved capital and liquidity adequacy – and ensuring that the risks arising from the business activities in the financial industry are not borne by the public sector. As a result, the financial industry has progressively reduced its leverage and substantially bolstered its risk-bearing capacity by improving liquidity and capital adequacy. The planned implementation of EU banking regulations must also be seen in this light.

The issue that is likely to continue shaping activities in the financial industry in the long term is the implementation of the multifaceted ESG standards and their implications for the business models used in the sector. At present, the primary challenge faced by the financial sector is to implement the relevant requirements at an operational level throughout the value chain, which includes business management, risk management, and the internal and external reporting systems. The consideration of ESG aspects in the financial and capital markets is, on the one hand, opening up new market opportunities for the financial sector. On the other, events in the various ESG categories should also be seen as risks and managed accordingly. Information on the handling of ESG risks can be found in the risk report (chapter VII.5).

2 Changes in financial position and financial performance

2.1 Financial performance

The outlook for 2024 is shaped by certain overarching macroeconomic parameters. Energy prices are coming down again compared with 2023, allowing inflation in the eurozone to slow and easing upward pressure on prices. This will bring about a slight improvement in economic growth. Against this backdrop, the ECB is expected to start to gradually lower its key interest rates in late 2024 and the outlook for the stock markets is being adjusted upward.

Net interest income (excluding income from long-term equity investments) for 2024 is predicted to be above the 2023 figure. In 2023, net interest income was particularly weighed down by expenses for early redemption payments and expenses in connection with the early redemption of own issues. However, net interest income was boosted by volume growth in the Corporate Banking business line and increases in income from the money market and capital markets business.

The lending volume in the Corporate Banking business line is predicted to remain level with 2023. In line with the strategy of the DZ BANK – CICB operating segment, corporate banking will remain the key area of growth.

The growth in volume envisaged under the strategic planning is to be achieved, for example, with packages of measures under the ‘Verbund First 4.0’ strategic program, focusing on aspects such as the optimization and digitalization of corporate customer processes. In the Structured Finance division, the contribution to earnings is expected to remain stable in spite of an even more competitive market environment and higher funding costs due to the expansion of the business in key product fields.

Net interest income in the money market and capital markets business will likely fall sharply due to anticipated interest-rate cuts by the ECB.

No negative effects from early redemption payments and expenses in connection with the early redemption of own issues are expected for other net interest income in 2024.

A moderate fall in **income from long-term equity investments** is predicted for 2024 as the forecast increases in profit will not make up for the extraordinary advance dividend received from Turm KG resulting from the sale of the building ‘Westend 1’, Frankfurt am Main, that was included in the 2023 figure.

Net fee and commission income is projected to not quite match the high level of 2023 and will probably decline slightly in 2024. This is largely the result of slightly more conservative estimates for service fees in the individual operating units within DZ BANK in response to the general market uncertainty.

The Corporate Banking business line's net fee and commission income for 2024 is expected to be slightly below the strong 2023 figure.

In the Transaction Banking business line, net fee and commission income is likely to stabilize in 2024 due to the strong positioning of this business in the market resulting from the sustained trend toward the use of credit cards and additional mobile payment options, driven mainly by advancing digitalization and connectivity.

Net fee and commission income in the Capital Markets business line is projected to fall. One of the sources of such income is the underwriting business, in which brokerage fees are collected from retail and institutional customers. The approach for generating operating fee and commission income remains focused on strengthening existing customer relationships, signing up new customers, and expanding the product range.

Net trading income is generated from margins and trading volume in customer business involving investment and risk management products and from the related customer-initiated trading contributions. In the operating business in the Capital Markets business line, a key income driver in 2024 is likely to be the further exploitation of capital-markets-related cross-selling potential in corporate banking. Moreover, measures to intensify collaboration with the cooperative banks in the customer business will be taken to leverage additional potential in the securities business.

Trading activity is anticipated to remain at a high level in 2024, with the market as a whole subject to significant volatility.

Net trading income is likely to decline sharply in 2024. This can be explained by negative pull-to-par effects in 2024 that will arise in connection with positive valuation effects resulting from the widening of mark-ups for the bank's own issues in previous years. Negative pull-to-par effects are also expected in connection with product-specific valuation effects related to German commercial law that arise from the elimination of interest-rate risk using economic hedging in the context of the bank's own structured issues.

The projected trend in operating income could be adversely affected by a potential deterioration in macroeconomic and geopolitical conditions as well as by monetary policy decisions on the part of the ECB.

In all probability, **administrative expenses** will fall in 2024.

This decrease, which will relate to general and administrative expenses, is expected because the bank levy will cease to apply.

In 2023, administrative expenses were adversely affected by the substantial write-down on the building 'Westend 1' in Frankfurt am Main.

Other net operating income is set to be lower than in 2023 owing to the anticipated reduction in income from the reversal of provisions.

Loss allowances for 2023 included not only reversals but also a significant volume of income from recoveries on loans and advances previously impaired. This income is not expected to be at the same level in 2024, so there is likely to be a much greater need for net additions to **loss allowances** in 2024.

The balance of **other net income and expense** should improve in 2024 compared with the reporting year as the 2023 figure was weighed down, in particular, by write-downs on long-term equity investments, the extraordinary result, and an addition to the fund for general banking risks pursuant to section 340g HGB.

In view of these circumstances, **profit before taxes** at DZ BANK AG is expected to be higher in 2024 than it was in 2023.

The **cost/income ratio** for 2024 is likely to remain at a similar level to that in the year under review, with an expected fall in administrative expenses (elevated depreciation and write-downs on property, plant and equipment in 2023) and a decline in operating income.

3 Liquidity and capital adequacy of the DZ BANK Group

Based on the position at the end of the reporting year and the funding measures planned for 2024, the DZ BANK Group predicts that it will be able to continue maintaining an appropriate level of economic and regulatory **liquidity adequacy** in 2024.

Further information on liquidity adequacy can be found in the risk report (chapter VII.6).

As matters currently stand, the DZ BANK Group's **capital adequacy** will continue to be assured for 2024 from both economic and regulatory perspectives; that is to say, it will continue to have at its disposal the available internal capital and eligible own funds necessary to cover the risks associated with the finance business and other risks arising from the group's business operations.

Over the last few years, the DZ BANK Group has greatly strengthened its capital base from its own resources (through the retention of profits) and through corporate action. In 2024, a high priority will once again be given to strengthening the capital base in order to ensure stable capital ratios.

For 2024, DZ BANK anticipates that the DZ BANK Group's **common equity Tier 1 capital ratio** will hold steady at above 15 percent.

Further information on capital adequacy can be found in the risk report (chapter VII.7).

VI DZ BANK Group and DZ BANK opportunity report

The details relating to DZ BANK are included in the opportunity report for the DZ BANK Group. A separate opportunity report is not prepared for DZ BANK. Unless stated otherwise, the disclosures relating to the DZ BANK Group also apply to DZ BANK.

1 Management of opportunities

The DZ BANK Group defines **opportunities** as situations in which potential income can be unlocked and/or potential cost savings can be achieved.

The management of opportunities is integrated into the **annual strategic planning process**. The potential for returns is identified and analyzed on the basis of various macroeconomic scenarios, trends, and changes in the market environment, and then included in strategic financial planning. Details about the strategic planning process are presented in chapter I.2.4 in 'DZ BANK Group fundamentals' in this (group) management report.

Opportunity management is an integral component of **governance** and is therefore taken into account in the general management approach, in the management of subsidiaries via appointments to key posts, and in the DZ BANK Group's committees. Details about the governance of the DZ BANK Group can be found in chapter I.2.2 in 'DZ BANK Group fundamentals' in the 2023 (group) management report.

2 Potential opportunities

2.1 Potential opportunities from macroeconomic developments

The statements made in the outlook on the expected business performance of the DZ BANK Group in the year ahead are based on the macroeconomic scenario that DZ BANK considers to be the most likely.

If economic conditions in the relevant markets are better than expected, opportunities may arise for the DZ BANK Group. In a positive scenario such as this, the easing of the trade disputes between China and the US would avoid further barriers to trade affecting, in particular, the EU and Germany, the latter being heavily dependent on exports. The global economic downturn, especially in China, would be milder and shorter than expected and would not materialize in the US, which would lessen the risk of a global recession. Political stability and continuity in the US and a rapid end to the war between Israel and Hamas could also have a positive impact on the situation.

In spite of populist governments and high levels of government debt in the EU, stability in the eurozone – forged through European economic policy, joint solutions, and a gradual fall in interest rates – would drive growth in the European economy. Effective use of transmission protection instruments of the European Central Bank (ECB) would also mean that countries in the eurozone could continue to obtain finance easily. This would have a positive knock-on effect on the financial and capital markets. Furthermore, a gradual fall in interest rates would lessen the impact of factors that drive inflation, such as wage/price spirals. In the US, too, a downward movement in interest rates would have a positive effect on the country's budget and government debt. If interest rates remained high or even edged up further, however, net interest income and the net interest margin in the Bank sector and life insurance business in the Insurance sector would be positively impacted.

Consumer confidence could increase and improve if the German government's ongoing budget crisis can be remedied in the near term. A decline in energy and commodity prices – potentially supported by a foreseeable end to the war in Ukraine – could help to boost confidence further. In combination with a fall in the rate of inflation toward the level targeted by the ECB, this would have a positive impact on the German economy. Moreover, an absence of further price corrections in the real estate markets coupled with declining interest rates would benefit the DZ BANK Group's financial performance and provide stability, above all for the commercial real estate market.

All of the positive factors outlined above are highly unlikely to materialize together. From the DZ BANK Group's perspective, however, even the occurrence of individual factors would create an environment for the financial sector that would probably benefit the individual business models and the financial position and financial performance of the DZ BANK Group as a whole. Stable conditions in the financial and capital markets would have a positive impact on the net interest income and net fee and commission income generated from customer business and on net income from insurance business. In particular, an assumed economic recovery could potentially limit the net expense recognized for loss allowances and thereby help to increase the Group's net profit.

2.2 Potential opportunities from regulatory initiatives

Regulatory changes and initiatives may provide banks and insurance companies with the opportunity to offer products or services that are better tailored to customers' needs. For example, sustainability aspects are becoming increasingly important for many customers when making purchases and investments. Initiatives at European level, such as sustainable finance strategies and proposals for an EU green bond standard, underline the significance of sustainability aspects for the financial sector. Further development of these initiatives may lead to customers and the markets participating in sustainable finance initiatives on a greater scale, which would provide banks and insurance companies with the opportunity to strengthen the unique selling points of their products and services and to unlock potential growth in sustainable finance. This would have a positive impact on, for example, net fee and commission income and net interest income.

2.3 Potential opportunities from strategic initiatives

The strategic focus in the DZ BANK Group (see chapter I.1 in 'DZ BANK Group fundamentals' in the 2023 (group) management report) follows the guiding principle of fulfilling the role of a **network-oriented central institution and financial services group**. Business activities are centered on the local cooperative banks and their customers. The objective of this strategic approach is to consolidate the positioning of the Cooperative Financial Network as one of the leading financial services providers in Germany on a long-term basis. The partnership between the cooperative banks and the entities in the DZ BANK Group is built on the principles of subsidiarity, decentralization, and regional market responsibility.

The DZ BANK Group develops and implements **strategic initiatives and programs** at three levels:

Firstly, the entities in the DZ BANK Group work on strategic projects and initiatives in collaboration with the cooperative banks and Atruvia, with the BVR taking a leading role. The strategy agenda entitled 'Shaping the future cooperatively' provides a framework within which the entities of the Cooperative Financial Network are implementing the initiatives in the strategic KundenFokus (customer focus) project with the aim of establishing an omnichannel model to strengthen their competitiveness.

Secondly, the entities in the DZ BANK Group have jointly identified key areas of collaboration (such as operating models and sustainability) that offer potential to reinforce their future viability and profitability. The aim is to continue to develop and take action in these areas of collaboration over the coming years.

Thirdly, each individual entity in the DZ BANK Group pursues its own strategic initiatives. One example is the 'Verbund First 4.0' strategic program at DZ BANK, which is designed to ensure the organization's resilience for the future. The program is aimed at improvements in three key areas: market presence (network-focused, customer-oriented, and digital), control and production processes (efficient, effective, and focused), and corporate culture (performance-driven and integrative). The 'Verbund First 4.0' strategic program is updated continually in line with requirements. This transformation is being driven predominantly by key topics such as sustainability, digitalization, and employer branding.

BSH describes its long-term objective through its vision of being the leading product and solutions provider in the homes and housebuilding cooperative ecosystem. It intends to remain the market leader in the home savings market and, together with the cooperative banks, become the no. 1 in the home finance market. In addition, it is making inroads into new areas of growth for homes and housebuilding by maintaining a firm focus on customers and facilitating close collaboration between the cooperative banks and BSH's field staff on marketing. BSH is a center of excellence (provider of products and solutions) for consumer home finance, supporting the cooperative banks and playing an important part in strengthening the Cooperative Financial Network's market position. The evolution of BSH's role into that of a solutions provider for its bank partners and its integration into the homes and housebuilding cooperative ecosystem address the demand for end-to-end solutions and the development of new business models centered around customers' basic needs alongside financial products and extending the value chain.

DZ HYP is forging ahead with digitalization in many areas of its business. In consumer home finance, it is further expanding its role as a decentralized product supplier for the banks in the Cooperative Financial Network. Competitive products, rapid processes, and a risk-adjusted pricing model give banks scope to generate income through fees and commissions and through cross-selling options. The integration of Atruvia's omnichannel platform will be a central focus in 2024, enabling DZ HYP to support local cooperative banks with best-in-class products and services on this platform that they can use to advise customers on consumer home finance. The main aspects of DZ HYP's FK Digital project in its corporate customer business are deploying data optimally within processes, improving interfaces, and unlocking the associated potential for greater efficiency while, at the same time, catering to the current and future requirements of market players and supervisory authorities alike. The initial implementation phase of FK Digital began in July 2023 and is expected to be completed in spring 2025. This should also help to further optimize the bank's streamlined, profitable approach incorporating intensive customer relationship management. The bank has also drawn up a strategy for implementing the DZ HYP cloud infrastructure. In 2024, it plans to finish establishing the fundamental cloud infrastructure and migrate the majority of the IT landscape to the future operating model. The real estate sector has the potential to play a key role in combating climate change. DZ HYP sees its own role as supporting the green transformation of the economy in order to channel cash flows toward more sustainable business, for example by financing more energy-efficient real estate.

R+V's vision is to be the cooperative center of excellence for insurance, healthcare cover, and retirement pensions, working closely with its sales partners. Making customers happy is the cornerstone of future success under its strategic program, WIR@R+V. The program is designed to boost R+V's earnings power by putting a greater emphasis on profitability so that it can continue to make a significant contribution to the success of business in the Cooperative Financial Network. R+V also remains firmly focused on its growth strategy of strengthening areas of importance for the future, such as healthcare and long-term nursing care, membership, sustainability, and the omnichannel approach. By delivering a consistently robust business performance, it can maintain sufficient financial strength to be able to remain a reliable partner and deliver on its value propositions in the long term.

In response to the changing conditions in which it operates, **Union Investment** has created the internal FitForFuture program, which establishes the strategic areas of investment going forward. These areas of investment include not only sustainability and digitalization but also a 'learning organization'. Other key areas are the cementing of Union Investment's positioning as an active asset manager and the Masterplan platform in its retail business, which chimes with the aim of harnessing the potential of high-net-worth customers and the related product range. This investment in the future will be cost-neutral and will thus help to secure the profitable growth of the Union Investment Group.

Positive effects from the strategic programs and initiatives could have a beneficial impact on, for example, net fee and commission income, net interest income, or administrative expenses.

VII DZ BANK Group and DZ BANK risk report

1 Disclosure principles

In its capacity as the parent company in the DZ BANK Group, DZ BANK is publishing this risk report in order to meet the transparency requirements for risks applicable to the DZ BANK Group as specified in **section 114 and section 117 of the German Securities Trading Act (WpHG)** and **section 315 of the German Commercial Code (HGB)** in conjunction with **German Accounting Standard (GAS) 20**. Furthermore, the risk report meets the transparency requirements regarding risks applicable to DZ BANK as a separate entity that are specified in **section 289 HGB** in accordance with GAS 20. Based on the requirements set out in GAS 20.A1.3, this risk report is structured according to risk type. The chapters about the individual risk types are preceded by general information and information relating to all risk types.

With this report, DZ BANK also meets the risk reporting requirements specified in the International Accounting Standards (IASs) and International Financial Reporting Standards (IFRSs), specifically those set out in the following legal standards:
- **IAS 1.134–136** (capital)
- **IFRS 7.31–42** (nature and extent of risks arising from financial instruments)
- **IFRS 17.121–132** (nature and extent of risks arising from contracts within the scope of IFRS 17); at the start of 2023, the provisions of IFRS 17.121–132 replaced the rules that had applied until the previous year (IFRS 4.38–39A)

This information is referred to in the notes to the consolidated financial statements and, as such, is also formally part of the notes to the consolidated financial statements.

This does not include the legal standards below, because the required disclosures are not used to manage risk. In these instances, the disclosures are made in the notes to the consolidated financial statements:
- Accounting-related credit disclosures in accordance with **IFRS 7.35F(a)–36(b)**: note 86
- Maturity analysis in respect of financial assets and financial liabilities in accordance with **IFRS 7.39(a) and (b)**: note 87
- Sensitivity analyses in accordance with **IFRS 17.128**: note 97
- Claims rate trend for direct non-life insurance business and for the inward reinsurance business in accordance with **IFRS 17.130**: note 95
- Maturity analysis for insurance contracts issued and for reinsurance contracts held in accordance with **IFRS 17.132(b) and (c)**: note 97

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 risk report.

In preparing this risk report, DZ BANK also takes account of the **recommended risk-related disclosures** issued by the Financial Stability Board (FSB), the European Banking Authority (EBA), and the European Securities and Markets Authority (ESMA) that are designed to improve the usefulness of disclosures in the decision-making process.

The quantitative disclosures in this 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**). The disclosure of this information, which is important for knowledgeable users, is designed to ensure that external reporting is useful when such users need to make decisions.

The details relating to DZ BANK are included in the risk report for the DZ BANK Group. A separate 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. References in this risk report to governing bodies (Board of Managing Directors and Supervisory Board), committees, or organizational units relate to DZ BANK. If the governing bodies, committees, or organizational units of subsidiaries are meant, however, this is indicated by stating the name of the relevant subsidiary.

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

The disclosure of **non-financial risks** in accordance with section 315c HGB in conjunction with section 289c HGB is included in the separate combined non-financial report of the DZ BANK Group and DZ BANK, which forms part of the Sustainability Report. The report analyzes the impact of the activities of the entities in the DZ BANK Group on economic units and persons outside the DZ BANK Group. The concept of risk in section 315c HGB therefore fundamentally differs from the standard concept of risk as defined in Basel Pillar 2, which is concerned with risks that affect the entities in the DZ BANK Group themselves. The risks as defined in Basel Pillar 2 are disclosed in this risk report. Non-financial risks subject to regulatory standards comprise reputational risk and operational risk. Details on the management of these risks are included in chapters VII.13 and VII.19 'Reputational risk' and in chapters VII.14 and VII.20 'Operational risk'.

DZ BANK Group

2 Summary

2.1 Risk management system

2.1.1 Regulatory framework for risk management

The DZ BANK Group's risk management system takes into account the statutory requirements specified in section 25 (1) of the German Supervision of Financial Conglomerates Act (FKAG) in conjunction with section 25a of the German Banking Act (KWG) and the German Minimum Requirements for Risk Management for Banks and Financial Services Institutions (MaRisk BA). Furthermore, in light of the different business models in place in parts of the DZ BANK Group, other specific legal requirements have also been observed. These include sections 26 and 27 of the German Act on the Supervision of Insurance Undertakings (VAG) in conjunction with the German Minimum Requirements for the System of Governance of Insurance Undertakings (MaGo) 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 the DZ BANK Group designed the risk management system, it followed the guidance provided by the EBA and the European Insurance and Occupational Pensions Authority (EIOPA), together with the pronouncements of the Basel Committee on Banking Supervision (BCBS) and the FSB on risk management issues.

2.1.2 Fundamental features of risk management

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.

DZ BANK and its subsidiaries have a **risk management system** that is updated on an ongoing basis in line with changes to the business and regulatory environment. The risk management system is designed to enable them to identify material risks – particularly risks to their ability to continue as a going concern – at an early stage and to initiate the necessary control measures. The main elements of the risk management system are organizational arrangements, methods, IT systems, the limit system based on economic risk-bearing capacity, stress testing of all material risk types, and internal reporting.

The risk management system is based on the **risk appetite statement** – the fundamental document for determining risk appetite in the DZ BANK Group – and the specific details and additions in **risk strategies**, which are consistent with the business strategy and are approved by the Board of Managing Directors. The risk appetite statement contains risk policy guidelines and strategy requirements that are applicable throughout the group. It also sets out quantitative requirements reflecting risk appetite.

The DZ BANK Group strives to avoid **concentrations of risk** that are not the conscious result of business policy.

The methods used to **measure risk** are an integral element of the risk management system. They are regularly reviewed, refined where necessary, and adapted to changes in internal and external requirements. Risk model calculations are used to manage the DZ BANK Group.

The tools used for the purposes of risk management are also designed to enable the DZ BANK Group to respond appropriately to **significant market movements**. For example, the market data used for the centralized, model-driven measurement of market risk is updated every trading day and significant market movements therefore lead to an immediate increase in the volatility of risk factors and, consequently, changes in market risk. In addition, changes in credit ratings and correlations affect the modeled level of credit risk. Conservative crisis scenarios for short-term and medium-term liquidity are intended to ensure that liquidity risk management takes adequate account of market crises.

2.1.3 KPIs

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

The key risk management figures used in respect of **liquidity** are the minimum liquidity surplus, the liquidity coverage ratio (LCR), and the net stable funding ratio (NSFR). The key risk management figures used in respect of **capital** are economic capital adequacy, the coverage ratio for the financial conglomerate, the regulatory capital ratios, the leverage ratio, and the metrics for the minimum requirement for own funds and eligible liabilities (MREL). These metrics are the MREL ratio as a percentage of risk-weighted assets, the MREL ratio as a percentage of the leverage ratio exposure, the subordinated MREL ratio as a percentage of risk-weighted assets, and the subordinated MREL ratio as a percentage of the leverage ratio exposure.

2.1.4 Management units and sectors

The DZ BANK Group is managed using the main types of risk, taking into account particular features relating to DZ BANK and its material subsidiaries (also referred to below as management units). Where a subsidiary acts as the parent company of a subgroup, the entire subgroup comprising the parent company plus its subsidiaries and second-tier subsidiaries is considered to be the management unit.

The management units represent the operating segments in the consolidated financial statements of the DZ BANK Group and form the core of the financial services group. All entities in the DZ BANK Group are integrated into the groupwide risk management system. Risk is managed groupwide on a consolidated basis. From a risk perspective, the 'DZ BANK' management unit equates to the central institution and corporate bank operating segment and the holding function.

The management units are deemed to be material in terms of their contribution to the DZ BANK Group's aggregate risk and are directly incorporated into the group's risk management system. The other subsidiaries and investee entities of DZ BANK are integrated into the risk management system either indirectly as part of equity investment risk or directly as part of other types of risk. This is decided for each of them annually.

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

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

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

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

Insurance sector:
– R+V

DZ BANK and **DZ HYP** have elected to apply the **liquidity waiver** pursuant to article 8 of the Capital Requirements Regulation (CRR). The waiver enables the LCR and NSFR to be applied at the level of a single liquidity subgroup consisting of DZ BANK and DZ HYP. This means that it is no longer necessary to comply with the regulatory liquidity requirements at the level of the two individual institutions.

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

2.2 Risk factors and risks

The entities in the DZ BANK Group are exposed to a number of risk factors. These include adverse factors concerning the entity's environment that either affect multiple types of risk (general risk factors) or are limited to specific types of risk (specific risk factors). Disclosures on **general risk factors** can be found in chapter VII.4. The **specific risk factors** are shown in the risk-type-specific chapters of this risk report.

The main features of the directly managed **risks** in the Bank and Insurance sectors and how they break down across the **operating segments** reported in note 33 of the notes to the consolidated financial statements are shown in Fig. VII.1 and Fig. VII.2. The risks shown there correspond to the outcome of the risk inventory check and reflect the risks that are material to the DZ BANK Group.

To ensure that the presentation of the disclosures remains clear, the risk management system disclosures included in the risk report are limited to the main material entities in the group (indicated in Fig. VII.1 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 risk report cover all the management units included in the internal reporting system (indicated additionally in Fig. VII.1 by a dot on a light gray background).

2.3 Risk profile and risk appetite

The DZ BANK Group's **business model** and the associated business models used by the management units (see chapter I.1 in 'DZ BANK Group fundamentals') determine the risk profile. The main risks associated with the business models are shown in Fig. VII.1 and Fig. VII.2. The businesses operated by the management units that have a significant impact on the risk profile are described under 'Business background and risk strategy' within the chapters of the risk report covering the different risk types.

The values for the measurement of **liquidity and capital adequacy** presented in Fig. VII.3 and Fig. VII.4 reflect the liquidity risks and the risks backed by capital assumed by the DZ BANK Group. They illustrate the **risk profile** of the DZ BANK Group. The values for these KPIs are compared against the (internal) threshold values specified by the Board of Managing Directors – also referred to below as **risk appetite** – and against the (external) minimum targets laid down by the supervisory authorities. The KPIs are explained in more detail later in this risk report.

The **MREL ratio as a percentage of the leverage ratio exposure** and the **subordinated MREL ratio as a percentage of the leverage ratio exposure** were added to the liquidity and capital adequacy KPI systems at the start of 2023.

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

Risks

	Risk type	Definition	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)	– Follow-up funding risk – Collateral risk – Fair value risk – Drawdown risk – Termination risk – New business risk – Repurchase risk – Intraday risk – Foreign currency funding risk
	RISK COVERED BY CAPITAL		
Financial risks	**Credit risk** – Traditional credit risk – Issuer risk – Replacement risk	Risk of losses arising from the default of counterparties (borrowers, issuers, other counterparties) and of losses in connection with the recovery of loans, advances, receivables, or collateral	General credit risk factors: – Increase in the concentration of volume in counterparties, industries, or countries – Accumulation of exposures with longer terms to maturity Specific credit risk factors: – Negative macroeconomic and environmental trends – Physical and transition risks related to climate and the environment
Financial risks	**Equity investment risk**	Risk of losses arising from negative changes in the fair value of that portion of the long-term equity investments portfolio for which the risks are not included in other types of risk	Increased requirement for the recognition of impairment losses on the carrying amounts of investments – as a result of impaired carrying amounts – as a result of a lack of information in the case of non-controlling interests
Financial risks	**Market risk** – Interest-rate risk – Equity risk – Fund price risk – Currency risk – Commodity risk – Spread risk and migration risk – Asset-management risk – Market liquidity risk	– Risk of losses that could arise from adverse changes in market prices or in the parameters that influence prices (market risk in the narrow sense of the term) – Risk of losses that could arise from adverse changes in market liquidity such 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)	General market risk factors: – Changes in the yield curve – Changes in credit spreads – Changes in exchange rates – Changes in share prices Specific market risk factors: – A further unexpected rise in interest rates – Risks to the global economy
Financial risks	**Technical risk of a home savings and loan company**[2] – New business risk – Collective risk	– Risk of a negative impact from possible variances compared with the planned new business volume (new business risk) – Risk of a negative impact that could arise from variances between the actual and forecast performance of the collective building society operations caused by significant long-term changes in customer behavior unrelated to changes in interest rates (collective risk)	– Decline in new business – Changed customer behavior (unrelated to changes in interest rates)
Financial risks	**Business risk**	Risk that financial performance is not in line with expectations, and this is not covered by other types of risk	– Costs of regulation – Competition based on pricing and terms
Non-financial risks	**Reputational risk**[3]	Risk of losses from events that damage confidence, mainly among customers (including the cooperative banks), shareholders, employees, the labor market, the general public, and the supervisory authorities, in the entities in the Bank sector or in the products and services that they offer	– Decrease in new and existing business – Backing of stakeholders is no longer guaranteed – Materialization of the risks assessed in connection with ESG risks
Non-financial risks	**Operational risk**	Risk of losses from human behavior, technological failure, weaknesses in process or project management, or external events	– Compliance risk including conduct risk: Violations of legal provisions; failure to comply with corporate policies – Legal risk: Violations of legal provisions or failures in applying such provisions; adverse changes in the legal environment – Information risk including ICT risk: Failure to maintain the confidentiality, integrity, availability, or authenticity of information or data – Security risk: Inadequate protection of individuals, premises, assets, or time-critical processes – Outsourcing risk: Disruptions to outsourced processes and services – Project risk: Failure to complete projects on schedule

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

Risks

Risk management KPIs disclosed		**DZ BANK**	**BSH**	**DZ HYP**	**DZ PRIVATBANK**	**TeamBank**	**UMH**	**VR Smart Finanz**
– Liquid securities – Unsecured short-term and medium-term funding – Minimum liquidity surplus – LCR – NSFR	Chapter VII.6.2.6 Chapter VII.6.2.6 Chapter VII.6.2.7 Chapter VII.6.3.3 Chapter VII.6.3.4	●	●	●	●	●		●
– Lending volume – Risk capital requirement for credit risk	Chapters VII.8.6 to VII.8.9 Chapter VII.8.10	●	●	●	•	●		•
– Carrying amounts of investments – Risk capital requirement for equity investment risk	Chapter VII.9.5 Chapter VII.9.5	●	●	•		●	•	•
– Value-at-risk for market risk – Risk capital requirement for market risk	Chapter VII.10.7.1 Chapter VII.10.7.2	●	●	●	•	•	●	•
Risk capital requirement for the technical risk of a home savings and loan company	Chapter VII.11.5		●					
Risk capital requirement for business risk	Chapter VII.12.6	●		•	•	•		•
		●	●	●	●	●	●	●
– Losses from operational risk – Risk capital requirement for operational risk	Chapter VII.14.7 Chapter VII.14.8	●	•	•	●	•	●	•

Management unit disclosures in the risk report:

● Quantitative and qualitative disclosures

• Quantitative disclosures

Not relevant

FIG. VII.2 – RISKS IN THE INSURANCE OPERATING SEGMENT AND SECTOR

	Risk type	Definition	Risk factors	Risk management KPIs disclosed	
	RISK COVERED BY CAPITAL PURSUANT TO SOLVENCY II				
Financial risks	**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	– Adverse change in the calculation assumptions for life insurance over the lifetime of the contract – Increase in claim events as a result of pollution and climate change	– Claims rates and settlements in non-life insurance – Overall solvency requirement	Chapter VII.16.6 Chapter VII.16.7
Financial risks	– 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	– Higher drawdown of benefits by health insurance policyholders – Increase in claim events as a result of pollution and climate change		
Financial risks	– 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	– Unexpected rise in claims incurred, e.g. due to weather-related natural disasters attributable to climate change – Rise in claims incurred as a result of silent cyber risk		
Financial 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 assets, liabilities, and financial instruments that have an impact on the value of the assets and liabilities of the entity	It becomes difficult to generate a guaranteed rate of return because of a narrowing of spreads on investments The fair values of investments fall because of – a further unexpected rise in interest rates – a widening of spreads on investments – the issuer's transition risk	– Lending volume – Overall solvency requirement	Chapter VII.17.4 Chapter VII.17.5
Financial risks	**Counterparty default risk**	Risk of losses due to unexpected default or deterioration in the credit standing of counterparties or debtors of insurance or reinsurance companies over the subsequent twelve months	Deterioration of counterparties' financial circumstances	– Lending volume – Overall solvency requirement	Chapter VII.18.4
Non-financial risks	**Reputational risk**[1]	Risk of losses that could arise from damage to the reputation of R+V or of the entire industry as a result of a negative perception among the general public	– Decrease in new and existing business – Backing of stakeholders is no longer guaranteed – Materialization of the risks assessed in connection with ESG risks		
Non-financial risks	**Operational risk**	Risk of losses arising from inadequate or failed internal processes, personnel, or systems, or from external events	– Legal and compliance risk: Violations of legal provisions or failures in applying such provisions; adverse changes in the legal environment; violations of statutory provisions; failure to comply with corporate policies – Information risk, including ICT risk: Malfunctions or breakdowns in IT systems – Security risk: Business interruptions could result in lasting disruptions to processes and workflows – Outsourcing risk: Disruptions to outsourced processes and services – Project risk: Failure to complete projects on schedule	Overall solvency requirement	Chapter VII.20.4
	RISK COVERED BY CAPITAL PURSUANT TO SOLVENCY I				
	Risks from entities in other financial sectors	The entities in other financial sectors mainly consist of pension funds and occupational pension schemes	Generally corresponding to the risk factors for risks backed by capital pursuant to Solvency II	Overall solvency requirement	Chapter VII.21

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

In addition, an **internal observation threshold** was introduced for each KPI included in Fig. VII.3 and Fig. VII.4 at the start of 2023. These observation thresholds mark the transition point from a comfortable risk situation to a state of heightened alert, whereas the minimum thresholds represent a mandatory internal limit that must be maintained. Both thresholds are elements of the risk appetite statement. The internal minimum thresholds in the risk appetite statement largely represent the warning thresholds in the recovery plan. They are defined by the Board of Managing Directors and presented to the Supervisory Board's Risk Committee for acknowledgement. Depending on the situation and significance, the Chief Risk Officer, the Chief Financial Officer, the relevant committee of the Board of Managing Directors, or the full Board of Managing Directors may initiate operational measures if observation thresholds are crossed. If the minimum thresholds are crossed, the escalation mechanisms set out in the recovery plan are triggered.

FIG. VII.3 – LIQUIDITY AND CAPITAL ADEQUACY KPIS OF THE DZ BANK GROUP

	Measured figure		External minimum target		Internal minimum threshold		Internal observation threshold	
	Dec. 31, 2023	Dec. 31, 2022	2023	2022	2023	2022	2023	2022
LIQUIDITY ADEQUACY								
DZ BANK Group (economic perspective)								
Minimum liquidity surplus (€ billion)[1]	18.5	14.3	0.0	0.0	4.0	4.0	5.0	
DZ BANK banking group (normative perspective)								
Liquidity coverage ratio (LCR, percent)	145.8	145.9	100.0	100.0	110.0	110.0	120.0	
Net stable funding ratio (NSFR, percent)	126.5	122.3	100.0	100.0	106.0	105.0	107.0	
CAPITAL ADEQUACY								
DZ BANK Group (economic perspective)								
Economic capital adequacy (percent)	213.8	222.4	100.0	100.0	120.0	120.0	140.0	
DZ BANK financial conglomerate (normative perspective)								
Coverage ratio (percent)	154.6	151.2	100.0	100.0	113.0	110.0	121.0	
DZ BANK banking group (normative perspective)								
Common equity Tier 1 capital ratio (percent)[2]	15.5	13.7	9.8	9.0	11.3	10.0	12.5	
Tier 1 capital ratio (percent)[2]	17.7	15.2	11.7	10.8	13.3	11.9	14.3	
Total capital ratio (percent)[2]	20.1	18.0	14.1	13.2	15.8	14.3	16.8	
Leverage ratio (percent)[2]	6.2	4.7	3.0	3.0	4.0	4.0	4.3	
MREL ratio as a percentage of risk-weighted assets[3]	42.4	38.3	25.1	25.1	26.8	26.8	27.1	
MREL ratio as a percentage of the leverage ratio exposure	14.9	11.9	7.3	7.3	9.7		10.0	
Subordinated MREL ratio as a percentage of risk-weighted assets[3]	31.0	28.5	23.8	23.8	26.6	25.5	27.1	
Subordinated MREL ratio as a percentage of the leverage ratio exposure	10.9	8.9	7.1	7.1	9.7		10.0	

Not available

1 The measured value relates to the stress scenario with the lowest minimum liquidity surplus.
2 The external minimum targets are the binding regulatory minimum capital requirements. Further details can be found in chapter VII.7.3.3.
3 Calculated as the ratio of the total of regulatory own funds and eligible bail-in-able liabilities to the total risk exposure amount.

With the entry into effect of **IFRS 17** (previous standard: IFRS 4) on January 1, 2023, the accounting treatment of insurance contracts, in particular the treatment of liabilities to policyholders recognized under equity and liabilities, has been changed at R+V. The first regulatory key figures affected by the transition to IFRS 17 were those reported as at June 30, 2023 following the review of the interim consolidated financial statements. Until this point, a temporary accounting effect had applied, as only financial instruments that are predominantly recognized on the asset side of the balance sheet were measured at fair value under IFRS 9 as at December 31, 2022.

Fig. VII.5 shows the material regulatory key figures affected by the implementation of IFRS 17, assuming for regulatory purposes that the new standard had already been applied as at December 31, 2022 (column ‘Dec. 31, 2022 including effect of IFRS 17’), and, as a comparison, the actual regulatory key figures reported for this balance sheet date.

The other key figures included in Fig. VII.3 are not affected by the transition to IFRS 17. The coverage ratio for the DZ BANK financial conglomerate and economic capital adequacy are based on the provisions of Solvency II, meaning that both assets and equity and liabilities are already measured at fair value. The LCR and the minimum liquidity surplus are also unaffected by the transition. The LCR involves only a comparison of liquid assets and net outflows, while the minimum liquidity surplus is based on a cash flow analysis that is independent of the accounting treatment.

FIG. VII.4 – LIQUIDITY AND CAPITAL ADEQUACY KPIS (NORMATIVE PERSPECTIVE) OF DZ BANK

	Measured figure		External minimum target		Internal observation threshold	
	Dec. 31, 2023	Dec. 31, 2022	2023	2022	2023	2022
LIQUIDITY ADEQUACY						
Economic perspective						
Minimum liquidity surplus of DZ BANK (€ billion)[1]	4.8	4.2	0.0	0.0	1.86	
Minimum liquidity surplus of the liquidity subgroup (€ billion)	6.8	7.8	0.0	0.0	1.86	
Normative perspective						
Liquidity coverage ratio (LCR) of the liquidity subgroup (percent)	143.1	142.7	100.0	100.0	115.0	
Net stable funding ratio (NSFR) of the liquidity subgroup (percent)	119.0	113.4	100.0	100.0	106.0	
CAPITAL ADEQUACY						
Normative perspective						
Common equity Tier 1 capital ratio (percent)[2]	14.6	14.8	7.7	7.0	10.3	
Tier 1 capital ratio (percent)[2]	17.6	16.6	9.2	8.5	11.8	
Total capital ratio (percent)[2]	21.4	20.3	11.2	10.5	13.8	
Leverage ratio (percent)[2]	6.8	6.3	3.0	3.0	4.3	

Not available

1 The measured value relates to the stress scenario with the lowest minimum liquidity surplus.
2 The external minimum targets are the binding regulatory minimum capital requirements. Further details can be found in chapter VII.7.3.3.

FIG. VII.5 – LIQUIDITY AND CAPITAL ADEQUACY KPIS (NORMATIVE PERSPECTIVE) OF THE DZ BANK BANKING GROUP, TAKING ACCOUNT OF THE IFRS 17 EFFECT AS AT DECEMBER 31, 2022

	Dec. 31, 2023	Dec. 31, 2022 including effect of IFRS 17[1]	Dec. 31, 2022
Liquidity adequacy of the DZ BANK banking group			
Net stable funding ratio (NSFR, percent)	126.5	122.0	122.3
Capital adequacy of the DZ BANK banking group			
Common equity Tier 1 capital ratio (percent)	15.5	15.1	13.7
Tier 1 capital ratio (percent)	17.7	16.6	15.2
Total capital ratio (percent)	20.1	19.1	18.0
Leverage ratio (percent)	6.2	5.6	4.7
MREL ratio as a percentage of risk-weighted assets	42.4	37.9	38.3
MREL ratio as a percentage of the leverage ratio exposure	14.9	12.7	11.9
Subordinated MREL ratio as a percentage of risk-weighted assets	31.0	28.8	28.5
Subordinated MREL ratio as a percentage of the leverage ratio exposure	10.9	9.7	8.9

1 The values differ from those shown in the risk report in the 2023 interim group management report due to retrospective measurement adjustments.

2.4 Solvency and risk-bearing capacity

The **solvency** of DZ BANK and its subsidiaries was never in jeopardy at any point during the reporting period. They also complied with regulatory requirements for liquidity adequacy. By holding ample liquidity reserves, the group aims to be able to protect its liquidity against any threats in the event of a crisis.

The DZ BANK Group remained within its economic **risk-bearing capacity** in 2023 and also complied with regulatory requirements for capital adequacy on every reporting date.

3 Fundamental principles of risk management

3.1 Risk culture

The DZ BANK Group's risk culture is shaped by the high degree of responsibility assumed by the Cooperative Financial Network for its members and for society, by the values of sustainability, stability, and diversity, and by a strong culture of dialogue. The priority for the day-to-day handling of risk is compliance with strategic and associated operating requirements.

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

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

3.2 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 within their risk capacity when implementing their business models and business objectives. The term 'risk appetite' equates to the term 'risk tolerance' used by the supervisory authorities in a disclosure context. Risk capacity is the maximum risk that the DZ BANK Group can take on based on its capital adequacy, liquidity adequacy, capacity for risk management and control, and regulatory restrictions. Risk capacity is therefore largely determined by the DZ BANK Group's available internal capital, own funds, and available liquid assets. Risk capacity should always exceed risk appetite. The difference between risk capacity and risk appetite reflects the DZ BANK Group's need for security.

The **risk appetite statement** formulates risk policy principles on risk tolerance in the DZ BANK Group. The principles are overarching statements that are consistent with the business model and the risk strategies. The qualitative principles are supplemented by quantitative key figures, for which threshold values are set internally. The values for the KPIs and the internal threshold values are shown in Fig. VII.3. The overall risk report is used to monitor the internal threshold values.

3.3 Risk strategies

The **systematic controlled assumption of risk in relation to target returns** is an integral part of corporate control in the DZ BANK Group. The activities resulting from the business model require the ability to identify, measure, assess, manage, monitor, and communicate 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.

For each of the material risks, the Board of Managing Directors draws up risk strategies that are linked to the **business strategy**. The risk strategies each encompass the main risk-bearing business activities, the objectives of risk management (including the requirements for accepting or preventing risk), and the action to be taken to attain the objectives. The risk strategies are each valid for one calendar year.

The annual updating of the risk strategies is integrated with the **strategic planning process** and is carried out by the Group Risk Controlling, Group Risk Control & Services, and Group Finance divisions in close consultation with other relevant divisions at DZ BANK and its subsidiaries.

The risk strategies are described in the chapters covering the individual risk types in this risk report.

3.4 Risk-oriented corporate governance

3.4.1 Governance structure

The DZ BANK Group's **risk management system** builds on the risk appetite statement and risk strategies. It is based on three lines of defense that are interlinked and well established in the monitoring and control environment. Fig. VII.6 shows the governance structure for risk management. R+V has implemented a modified governance structure because it is subject to different regulatory requirements.

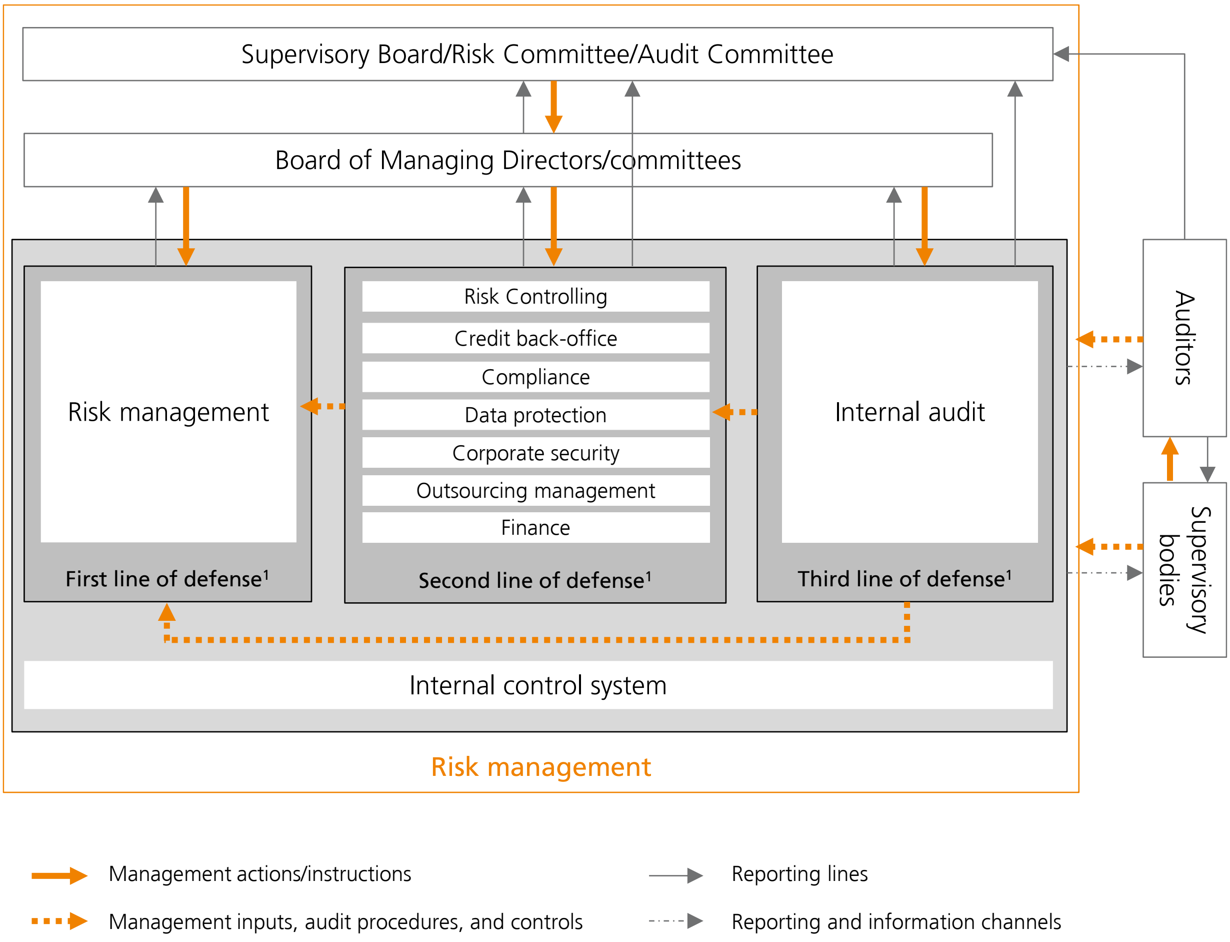
The **three-lines-of-defense model** clarifies the understanding of risk management within the DZ BANK Group and sets out the roles and responsibilities. The interaction between the three lines of defense is intended to provide the basis for effective groupwide risk management. The tasks of the individual lines of defense are as follows:

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

Second line of defense:
- Establishment and enhancement of a framework for risk management
- Monitoring of compliance with the framework in the first line of defense and related reporting to the Supervisory Board and Board of Managing Directors
- Second vote in credit decisions as defined in MaRisk BA and other specific legal requirements, such as KAMaRisk
- Development and monitoring of principles for compliance with data protection requirements and structuring and monitoring of corporate security and external procurement management (referred to as outsourcing management at the level of the DZ BANK Group). These rules do not limit the data protection officers' freedom to operate independently.
- The tasks listed are primarily carried out by the Group Risk Controlling, Group Risk Control & Services, Credit, Compliance, Group Finance, and Group Financial Services divisions. They are also part of the remit of the Group IT Governance department.
- The Group Risk Controlling, Group Risk Control & Services, and Credit divisions together form the risk management function.

Third line of defense:
- Process-independent examination and assessment of risk management and control processes in the first and second lines of defense
- Reporting to the Board of Managing Directors, Supervisory Board, and Audit Committee
- Communication with external control functions
- Tasks in the third line of defense are primarily carried out by Group Audit.

FIG. VII.6 – GOVERNANCE STRUCTURE OF RISK MANAGEMENT IN THE DZ BANK GROUP



1 The names reflect corporate functions; they are not necessarily identical to the names of these functions in the organizational structure.

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

Risk management is an integral component of governance and is therefore taken into account in the general management approach, in the management of subsidiaries via appointments to key posts, and in the DZ BANK Group's committees. The governance of the DZ BANK Group is described in chapter I.2.2 in 'DZ BANK Group fundamentals'.

3.4.2 Risk management

Risk management refers to the operational **implementation of the risk strategies** 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. The divisions responsible for risk management in the first line of defense are separated in terms of both organization and function from the divisions in the second and third lines of defense.

3.4.3 Risk control

The Group Risk Controlling and Group Risk Control & Services divisions, which form DZ BANK's central risk control function, are responsible for **identifying, measuring, and assessing** risk in the DZ BANK Group. This role includes early detection, full recording of data (to the extent that this is possible), and internal monitoring for all material risks. The risk control function lays down the fundamental requirements for the risk measurement methods to be used throughout the group and coordinates implementation with the risk control functions in the other management units. This structure is designed to ensure that risk is managed consistently throughout the group. DZ BANK's risk control function also draws up groupwide rules for the credit risk processes.

Both at DZ BANK and in the other management units, the risk control function is responsible for the transparency of risks assumed and aims to ensure that all risk measurement methods used are up to date. In cooperation with the other management units, the risk control function at DZ BANK therefore prepares groupwide **risk reports** covering all material types of risk. The risk reports are compiled for the Supervisory Board and the Board of Managing Directors and for the other management units.

The risk control units in the management units **monitor** compliance with the limits defined for the minimum liquidity surplus and with the entity-related limits that have been set based on the risk capital allocated by DZ BANK.

3.4.4 Credit back-office division

The Credit divisions of the entities in the Bank sector form the back office within the meaning of MaRisk BA. They are responsible for aspects of identifying, measuring, monitoring, and managing credit risk. These aspects include analyzing the risk (including producing ratings), approving or rejecting a credit decision with the back office's 'second vote', ensuring compliance with the credit risk strategy, and identifying and appropriately assessing the risks from loans to members of the governing bodies.

The responsibilities of the back office also comprise the ongoing monitoring of loan exposures, including identifying and processing non-performing exposures and deciding on measures to be implemented if limits are exceeded, as well as the management of loan collateral. In the case of exposures that are relevant for management, the exposure throughout the group is taken into account and appropriate management guidance is given to the management units.

3.4.5 Compliance

Compliance function

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 with 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, the entities in the DZ BANK Group, and their employees against breaches of legal provisions and requirements. The compliance function is also responsible for mitigating risks arising from non-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 material entities in the DZ BANK Group. This framework lays down rules on cooperation between the individual compliance functions and sets out their authority and responsibilities. The compliance framework comprises the compliance policy of the DZ BANK Group and compliance standards.

The compliance policy sets out 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. Special circumstances may arise because R+V is subject to different legal and regulatory requirements. The DZ BANK Group's compliance framework is reviewed annually and on an ad hoc basis to check that it is up to date.

Further disclosures relating to compliance risk can be found in chapters VII.14.5.1 and VII.20.3.1.

Code of conduct

The risk culture principles (see chapter VII.3.1) are mirrored in the DZ BANK Group's code of conduct. The code of conduct represents a framework for the group entities. Its content is implemented in the management units by means of internal regulations and policies that are tailored to their respective core businesses and entity-specific requirements.

The code of conduct encompasses the responsibility to stakeholders who are directly affected by the management unit concerned. These stakeholders include customers, business partners, shareholders, and employees. Compliance with social and ethical standards also forms part of the code of conduct, as do aspects of sustainability.

The subsidiaries of DZ BANK have undertaken to comply with DZ BANK's standards on preventing money laundering, the financing of terrorism, and other criminal offenses where required by law. The measures required by the German Anti-Money Laundering Act (GwG) have been put in place and implemented. They are reviewed regularly to check that they are up to date and, if necessary, amended. No corruption is tolerated, either in the entities of the DZ BANK Group or at business partners or other third parties. The DZ BANK Group implements appropriate organizational arrangements designed to ensure compliance with all applicable sanctions and embargoes.

Data protection

The entities in the DZ BANK Group have introduced suitable precautions aimed at ensuring that they comply with data protection provisions relating to customers, business partners, and employees. The data protection officers required by law have been appointed and their names have been submitted to the competent data protection authorities. Standard data protection principles have been issued within the DZ BANK Group. 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. The Data Protection Officers working group in the DZ BANK Group generally meets three times a year. The working group deals with current issues relating to data protection.

3.4.6 Corporate security

The entities in the DZ BANK Group take into account the relevant regulatory requirements in the following areas of corporate security:

- Information security
- Business continuity management (contingency and crisis management)

The regulatory requirements are implemented in all of the group's subsidiaries by means of written specifications and compliance is monitored by DZ BANK.

Information security

The aim of information security is to safeguard the confidentiality, integrity, authenticity, and availability of the data and information (information assets) used in business processes. Technical and organizational measures must be taken to adequately protect these information assets against unauthorized access, disclosure, or modification and against loss or theft.

To manage information security, the **DZ BANK Group** has established a groupwide information security management system (Group ISMS) based on ISO/IEC 27001:2013.

DZ BANK has implemented an information security management system (ISMS). The rules that it contains, along with the methodological framework that it provides, are also based on the ISO/IEC 27001:2013 standard. The ISMS is designed to ensure the confidentiality, integrity, availability, and authenticity of the data and information (information assets) used in DZ BANK's core processes, management processes, and support processes. 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.

Further disclosures relating to information risk, including ICT risk, can be found in chapters VII.14.5.3 and VII.20.3.2.

Business continuity management

A groupwide business continuity management system has been set up to implement regulatory requirements throughout the group and to mitigate security risk relating to time-critical processes. Group standards are applied to address the regulatory minimum requirements for this system, and a governance process is used to track compliance with the standards.

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

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

Further disclosures relating to security risk can be found in chapters VII.14.5.4 and VII.20.3.3.

3.4.7 Outsourcing management

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

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

Further disclosures relating to outsourcing risk can be found in chapters VII.14.5.5 and VII.20.3.4.

3.4.8 Finance

DZ BANK's **finance function** comprises the Group Finance, Bank Finance, and Group Financial Services divisions. These divisions are responsible for managing the DZ BANK Group and DZ BANK from a commercial-law, regulatory, and business perspective. This includes, in particular, preparing the consolidated and separate financial statements and undertaking regulatory reporting.

From a regulatory perspective, the Group Finance and Group Financial Services divisions are responsible – as part of the tasks specified for risk management governance under the three-lines-of-defense model – for the complete and consistent groupwide and bank-wide preparation, reporting, management, and monitoring of the key figures required under the EU Financial Conglomerates Directive and Basel Pillar 1.

The internal management reporting process is cross-functional and used to report to the Supervisory Board, the Board of Managing Directors, and the subsidiaries. The finance function provides and enhances the requisite IT systems to ensure that it can receive the data it needs. Commercial-law and regulatory matters are handled with the assistance of dedicated organizational units.

The aforementioned tasks are carried out by the finance or risk control functions in the subsidiaries.

3.4.9 Control functions

Internal audit

The internal audit departments of the management units are responsible for control and monitoring tasks. Independently of individual processes and with a focus on risk, they review and assess compliance with statutory and regulatory requirements and the effectiveness and appropriateness of risk management in general and the internal control system in particular. They also check that all activities and processes are carried out properly, regardless of whether they are outsourced or not. The internal audit departments also ensure that problems identified in audit findings are rectified.

The internal audit departments at the entities in the DZ BANK Group report to the chief executive officer or other senior managers of the entity concerned.

DZ BANK's internal audit department is responsible for internal audit tasks at group level. These tasks include, in particular, the design and 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 general parameters, the operational details of which are set out in a separate group audit manual. DZ BANK's internal audit department also carries out audit activities for selected subsidiaries under service agreements.

Supervisory Board

The Board of Managing Directors reports in detail to the Supervisory Board of DZ BANK once a year about the updating of the risk strategies and the status and further development of the risk management system of DZ BANK and the DZ BANK Group. Using the overall risk report, the Board of Managing Directors reports to the Supervisory Board about the risk situation four times a year. At the same intervals, the Board of Managing Directors also reports portfolio-specific and exposure-specific management information and reports on the credit portfolio using the credit risk report. The Supervisory Board is also regularly informed about significant investment exposures. The Supervisory Board discusses these issues with the Board of Managing Directors, advises it, and monitors its management activities. The Supervisory Board is involved in decisions of fundamental importance.

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

At least quarterly, the Board of Managing Directors makes the centrally produced risk reports available to the members of the Risk Committee and the other members of the Supervisory Board. The chairman of the Risk

Committee informs the full Supervisory Board about the main content of these reports no later than at its next meeting. In addition, the Audit Committee regularly examines the effectiveness of the internal control system, risk management system, and internal audit. It passes on important information to the other Supervisory Board members in the Audit Committee Chairman's reports at Supervisory Board meetings and by distributing the minutes from Audit Committee meetings to the other Supervisory Board members.

External control functions

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

The **supervisory authorities**, particularly the banking and insurance supervisory authorities, also conduct risk-based audits.

3.4.10 General internal control system

The objective of the internal control systems operated in the entities of the DZ BANK Group is to ensure the effectiveness and efficiency of business activity and compliance with the relevant legal provisions by means of suitable basic principles, action plans, and procedures.

DZ BANK has a bank-wide internal control system that is able to adapt to changing business and operating environments. The methodology of this control system is based on the Internal Control – Integrated Framework of the Committee of Sponsoring Organizations of the Treadway Commission (COSO), a comprehensive and internationally accepted framework for the appropriate design of internal control systems.

As part of the control system, regular updates and assessments are carried out in respect of the internal controls for reducing material risk in the business processes documented in the written set of procedural rules. The outcome of the assessments provides a statement on the appropriateness and effectiveness of the bank-wide internal control system for the Board of Managing Directors and Supervisory Board. The organizational and technical measures integrated into DZ BANK's operational and organizational structure are the starting point for the design of the controls.

The internal control system for the (consolidated) financial reporting process, which is described in chapter VII.3.4.11 below, is a sub-system of the bank-wide internal control system.

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

Overall responsibility for (consolidated) financial reporting lies with DZ BANK's Group Finance division, 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 instructions and rules are audited to assess whether they remain appropriate and are amended in line with changes to internal and external requirements.

Resources and methods for minimizing risk

The group's financial reporting process is decentralized. Responsibility for preparing and checking the quantitative and qualitative information required for the consolidated financial statements lies with the organizational units used for this purpose in the entities of the DZ BANK Group. DZ BANK implements the relevant controls and checks in respect of data quality and compliance with the DZ BANK Group rules.

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

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

Consolidated financial reporting is based on mandatory workflow plans agreed between DZ BANK's Group Finance division and the individual accounting departments of the subsidiaries. These plans set out the procedures for collating and generating the quantitative and qualitative information required for the preparation of statutory financial reports. The plans also apply to the financial reports prepared for DZ BANK.

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

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

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

Information technology

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

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

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

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

Ensuring and improving effectiveness

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

3.5 Risk management tools

3.5.1 Accounting basis for risk management

Accounting basis for risk measurement

The transaction data that is used to prepare the DZ BANK Group's consolidated financial statements forms the basis for the measurement of risk in the Bank sector and Insurance sector. Similarly, the transaction data used by the entities in the DZ BANK Group to prepare separate financial statements and subgroup financial statements is also used for the measurement of risk in the management units. 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 risk report.

The line items in the consolidated financial statements significant to risk measurement are shown in Fig. VII.7. The information presented is also applicable to the measurement of risk for the separate financial statements of DZ BANK and the measurement of its risk, which does not include the technical risk of a home savings and loan company or the risks incurred by the Insurance sector.

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

A further breakdown of the line items in the consolidated financial statements used to determine **credit risk** is given in chapter VII.8.6.2.

The investments used for the purposes of measuring **equity investment risk** are the following items reported in note 54 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 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 issuer and credit spreads using available market data whereas the accounting treatment uses liquid bond prices. If no liquid prices are available for bonds, issuer and credit spreads are also used to measure bonds for accounting purposes. With the exception of these differences, the disclosures relating to **market risk** reflect the fair values of the assets and liabilities concerned.

The measurement for the **technical risk of a home savings and loan company** is based on the loans and advances to banks and customers (home savings loans) and also the home savings deposits (deposits from banks and customers) described in notes 62 and 63 of the notes to the consolidated financial statements.

Insurance contract 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 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 in the Bank sector, **business risk** (Bank sector), and **reputational risk** (Bank sector and Insurance sector) are measured without a direct link to balance sheet line items reported in the consolidated financial statements. On the other hand, **operational risk in the Insurance sector** is based on insurance contract liabilities.

The calculation of **liquidity risk** is derived from future cash flows, which in general terms are determined from all of the on-balance-sheet and off-balance-sheet items in the consolidated financial statements.

Accounting basis for risk coverage

The link between the counterbalancing capacity, which is used to determine economic liquidity adequacy, and the consolidated balance sheet is described in chapter VII.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 chapter VII.7.2.1.

3.5.2 Risk measurement

Framework

Risk management in the DZ BANK Group is based on a **resource-oriented perspective of liquidity and capital**. The group uses this approach to implement the regulatory requirements for the internal liquidity adequacy assessment process (ILAAP) and the internal capital adequacy assessment process (ICAAP). This involves dovetailing between the economic and normative perspectives within the ILAAP and ICAAP.

FIG. VII.7 – RISK-BEARING LINE ITEMS IN THE CONSOLIDATED FINANCIAL STATEMENTS[1]

		BANK SECTOR												INSURANCE SECTOR									
		Credit risk				Market risk								Actuarial risk			Market risk						
						General market risk																	
Consolidated financial statements		Traditional credit risk	Issuer risk	Replacement risk	**Equity investment risk**	Interest-rate risk	Equity risk	Fund price risk	Currency risk	Commodity risk	Spread risk and migration …	Asset-management risk	**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**	**Operational 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																•	•	•	•	•	•	
	Property, plant and equipment, investment property, and right-of-use assets				•																		
	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 contract liabilities													•	•	•	•						•

1 The details for liquidity risk are not provided here for reasons of clarity as liquidity risk is generally determined on the basis of all line items in the consolidated financial statements.

A distinction is also made between **economic and normative liquidity adequacy and between economic and normative 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**. There is no capital requirement in connection with 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).

R+V (Insurance sector) is not material with regard to liquidity risk in the DZ BANK Group. This is because liquidity is typically tied up in liabilities with maturities of five years or more in insurance business.

Economic capital adequacy

In the **Bank sector**, the **risk capital requirement** is calculated for credit risk, equity investment risk, market risk, the technical risk of a home savings and loan company, operational risk, and business risk in order to ascertain economic capital adequacy. This risk capital requirement is generally calculated as value-at-risk with a holding period of 1 year and a confidence level of 99.9 percent.

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

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

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

Normative perspective

The normative perspective is a forward-looking multi-year analysis of regulatory KPIs for liquidity adequacy and capital adequacy that are used to manage the DZ BANK banking group and its entities. It comprises the following management dimensions: monitoring of the actual figures for regulatory KPIs, liquidity planning, funding planning, capital planning, and adverse stress tests.

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. They also help to identify and quantify specific risks and potential risk concentrations in the DZ BANK Group or in individual portfolios and to assess risk factors, vulnerabilities, and threats.

The stress tests include scenarios for the purposes of liquidity management, capital planning, and internal capital and risk management. Stress tests are also carried out as part of bank recovery and resolution planning. Furthermore, the DZ BANK Group takes part in supervisory stress tests organized by the EBA and ECB. The outcome of the stress tests provides guidance for the management of risk, business planning, and decisions on liquidity measures or corporate action.

3.5.4 Limitation principles

The DZ BANK Group has implemented a system of limits to ensure that it retains an adequate level of liquidity and maintains its risk-bearing capacity. A system of limits and pre-set threshold values aims to ensure that the **liquidity surplus** at the level of the DZ BANK Group does not become a shortfall and that an adequate level of liquidity is guaranteed. In the case of **risks backed by capital**, the limits take the form of risk limits or volume limits, depending on the type of business and type of risk. Whereas risk limits in all types of risk restrict the risk capital requirement measured with an economic model, volume limits are applied additionally in lending and trading transactions to limit credit risk. Risk management is also supported by the setting of limits for relevant key performance indicators.

3.5.5 Hedging objectives and hedging transactions

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

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

DZ BANK uses derivatives to hedge **interest-rate risk**. It uses micro hedges between securities in the liquidity reserve and derivatives used for hedging in order to account for economic hedging in accordance with the provisions of section 254 HGB. Internal hedging instruments are included by means of the deputization principle.

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 **DZ BANK Group stress tests report**, which is also compiled on a quarterly basis, the overall risk report is the main channel through which risks incurred by the DZ BANK Group and the management units are communicated to the Supervisory Board's Risk Committee, the Board of Managing Directors, and the Group Risk and Finance Committee. Economic and regulatory key risk indicators are also made available to the Board of Managing Directors in a **monthly overall risk report**, which is intended to ensure that the Board is informed promptly about the overall risk situation. In addition, the Board of Managing Directors and the Supervisory Board's Risk Committee receive portfolio and exposure-related management information in the quarterly **credit risk report for the DZ BANK Group**. The Board of Managing Directors also receives monthly information on **liquidity risk** in the DZ BANK Group and in the management units.

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

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

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

3.5.7 Risk inventory check and appropriateness test

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

DZ BANK also conducts an annual **appropriateness test**, both for itself and at DZ BANK Group level. The appropriateness test may also be carried out at other times in response to specific events. The aim is to check whether the risk measurement methods used for all types of risk classified as material are in fact fit for purpose. The appropriateness test found that risk measurement in the DZ BANK Group is generally appropriate, although potential improvements to some aspects of risk measurement were identified.

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

3.6 Management of risk concentrations

Based on an analysis of portfolios, the sector-specific and cross-sectoral identification 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, which aim to provide a holistic view across all types of risk.

Standard processes are in place to manage **sector-specific risk concentrations** . Those processes are presented in the risk-type-specific chapters of this risk report. In the event of major, extraordinary events occurring in **cross-sectoral risk concentrations**, necessary management measures are initiated, coordinated, and monitored, for example by task forces made up of representatives from the risk management and risk control teams in the affected management units. The Board of Managing Directors is notified of such cases on an ad hoc basis. To support the cross-sectoral identification and management of risk, the members of the Board of Managing Directors of DZ BANK hold seats on the Supervisory Boards of its subsidiaries.

3.7 Recovery and resolution planning

In the reporting year, DZ BANK updated its **group recovery plan** for the DZ BANK Group in accordance with the requirements specified by banking supervisors and submitted it to the ECB. 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, various EBA guidelines, and the German Regulation on Minimum Requirements for the Design of Recovery Plans (MaSanV). The recovery plan is closely linked to the risk appetite statement of the DZ BANK Group as it uses the same KPIs. R+V prepares a hypothetical recovery plan in accordance with section 26 (1) VAG in conjunction with section 275 (1) VAG. **R+V's recovery plan** was voluntarily updated in 2023.

In accordance with article 7 (2) of Regulation (EU) No. 806/2014, the Single Resolution Board (SRB) is the European regulator responsible under the **Single Resolution Mechanism (SRM)** for the preparation of resolution plans and for all decisions in connection with the resolution of all institutions that are under the direct supervision of the ECB. A group resolution plan is drawn up for institutions that are subject to supervision at consolidated level. The SRB works closely with the national resolution authorities (this is BaFin in Germany).

The **resolution plan** is aimed at ensuring the resolvability of the banking group. In accordance with section 42 (1) SAG, the resolution authority (BaFin) can demand that the institution provide it with comprehensive assistance in connection with drawing up and updating the resolution plan. For this reason, DZ BANK supported the ongoing preparation of the resolution plan for the DZ BANK Group in 2023. It supplied the resolution authority with numerous analyses related to DZ BANK and completed standardized questionnaires.

4 General risk factors

The entities in the DZ BANK Group are exposed to a range of risk factors that affect multiple risk types. These general risk factors are presented below.

4.1 Regulatory risk factors

DZ BANK and its subsidiaries are exposed to changes in the regulatory environment. This applies especially to regulation of the financial services sector, which is subject to rapid change. The term ‘regulation’ refers to all aspects of intervention in the financial services industry involving the imposition of rules. Regulation may involve standards related to supervisory law, commercial law, capital markets law, company law, or tax law. Changes in the regulatory environment could have a negative impact on the business activities of DZ BANK and its subsidiaries.

4.1.1 Regulatory capital buffers

BaFin decided to introduce a sectoral systemic risk buffer of 2.0 percent of risk-weighted assets for domestic loans secured by residential real estate and to raise the countercyclical capital buffer rate for Germany from 0.0 percent to 0.75 percent. Since February 1, 2023, these two capital buffers are to be met entirely from common equity Tier 1 capital and result in higher minimum requirements for the common equity Tier 1 capital ratio, Tier 1 capital ratio, and total capital ratio.
All credit institutions in the Bank sector are affected by the countercyclical capital buffer. The sectoral systemic risk buffer affects DZ BANK, BSH, and DZ HYP. The two capital buffers also apply at the level of the DZ BANK banking group.

As at December 31, 2023, BaFin ordered the capital buffer for systemic risk of 4.5 percent enacted in Norway to be applied to exposures located in Norway. Accordingly, institutions must apply the systemic risk buffer if their risk-weighted exposures in Norway exceed NOK 5.0 billion (approximately €435 million). As at December 31, 2023, the risk-weighted exposures of the DZ BANK banking group and DZ BANK did not reach the threshold and the systemic risk buffer for exposures located in Norway has therefore not been applied to date.

There is a risk that, in the face of higher minimum requirements, it is not possible to obtain the necessary additional own funds needed to comply with the stricter requirements, it is possible to obtain them only at increased cost, or existing risk-weighted assets have to be scaled back. This could reduce profitability and limit the flexibility enjoyed by the management units in the Bank sector and by the DZ BANK Group as a whole in the operation of their business. However, this would only be the case if the capital ratios measured in the future were significantly lower than at present. This scenario is not currently foreseeable.

4.1.2 Switch in interest-rate benchmarks

The publication of US dollar Libor was discontinued by the administrator with effect from June 30, 2023. For the 1-month, 3-month, and 6-month tenors, a non-representative ‘synthetic US dollar Libor’ will be published until September 30, 2024, which can be used on an interim basis for existing business that is difficult to amend (‘tough legacy’).

Most of the outstanding transactions and contracts referencing US dollar Libor as well as measurement and risk calculation methods have been amended by DZ BANK as planned and in keeping with relevant deadlines so that they use SOFR-based interest rates and yield curves instead. Certain individual contracts were switched over after June 30, 2023 but before the end of the current interest period in which the interest rate is still based on US dollar Libor, or alternatively with the help of the synthetic US dollar Libor.

These steps were implemented in 2023, thereby completing the replacement of US dollar Libor at DZ BANK. Risks associated with this process will therefore no longer apply to the DZ BANK Group going forward. Further information on the switch in interest-rate benchmarks is contained in note 85 of the notes to the consolidated financial statements.

4.2 Macroeconomic risk factors

4.2.1 Geopolitical tensions and resulting trade friction

Some regions of the world are experiencing conflict that extends beyond their borders and is resulting in tensions between superpowers. It is impossible to rule out adverse financial effects on the real economy in the European Union (EU) including Germany.

The political implications of the war between **Israel and the terrorist organization Hamas** are much more far-reaching than previous disputes between the two sides. The biggest military, and economic, risk lies in Iran entering the war. That would pit the region's two largest armies against each other, and Israel's close ally, the USA, would in theory be prepared to intervene militarily if necessary. This would have serious consequences for the global economy. Major bottlenecks would be expected in the supply of crude oil and liquefied petroleum gas, which could send global market prices soaring and push up inflation again.

The economic impact of the **war in Ukraine** can be felt globally. Russia's invasion of Ukraine triggered the biggest commodity price shock since 1973 and caused one of the most serious interruptions to wheat supply in a century.

Attention has recently shifted back to the dispute between **China and Taiwan**, in which Taiwan believes it is at constant risk of invasion. The US reiterated its security guarantees for Taiwan in response to a more aggressive stance from the Chinese government and a series of military maneuvers. As China does not recognize Taiwan's independence, this dispute is likely to continue fueling tensions between China and the US. However, it is difficult to gauge China's willingness to escalate the dispute. There is also potential for conflict with other neighboring countries due to China's territorial claims in the South China Sea.

In addition, the protracted dispute on the **Korean peninsula** flares up repeatedly due to North Korea's nuclear weapons program and its many military provocations. Any escalation would directly affect the interests of the superpowers China and the US and could widen into a conflict with global consequences.

The aforementioned geopolitical tensions can **adversely affect global trade**. In addition to the effects of disrupted supply chains described in chapter V.1 of the outlook, there is a risk of a renewed escalation of trade disputes between the US, China, and the EU. This could have negative consequences for the global economy, and for the export-dependent German economy in particular. The sanctions imposed on Russia by western countries in response to the war in Ukraine create further potential for tension between the EU and the US on the one hand and, on the other, countries that either fail to implement these sanctions or only partially impose them, for example China. For companies in Germany, restrictions on global trade could lead to higher import prices and a shortage of input products, and conversely, cause a decline in exports.

The geopolitical tensions particularly affect **credit risk** and **equity investment risk** in the Bank sector and **market risk** in the Insurance sector.

4.2.2 Global economic downturn

In the last few months of 2023, the **Chinese economy** in particular struggled with the weakness in the global environment. Its exports fell sharply year on year, with exports to the US taking an especially big hit. However, that was not just due to weak demand but also because the US has already begun to progressively reduce its reliance on Chinese imports. China’s homegrown problems also hampered growth. The Chinese real estate market has been in crisis for a couple of years and investment in housing construction continues to slide. But demand for housing is also not there as there has been a deep loss of confidence among China’s population, which has increased its propensity to save. This is not only evident in the real estate market, it is also a key reason why the initial recovery from the COVID-19 pandemic dissipated so quickly and the Chinese economy is now experiencing a period of deflation.

The comparatively high level of stability of the **US economy** is attributable to vast government support programs. The annual US budget deficit is currently running at 7 percent of GDP. Because Congress will not tackle the problem in 2024, which is an election year, the high level of indebtedness is expected to persist. The potential re-election of Donald Trump would probably lead to more tax cuts and thus push up debt even further. A second term of office for Trump would also likely exacerbate existing trade disputes, with negative implications for Germany’s export-driven economy. If debt levels remain high in the US, the interest burden could grow and damage market confidence in the long term. This would, in turn, see capital spending fall, dampen market activity, and ultimately bring about a recession in the US. A weakening of the US economy would have far-reaching consequences for the world economy as the US plays a key role in global trade and is an important sales market for many countries. If US demand falls and economic uncertainty rises, other countries could also be impacted by lower exports and economic headwinds, potentially triggering a global recession.

A global recession would in particular affect **credit risk** and **equity investment risk** in the Bank sector and **market risk** in the Insurance sector.

4.2.3 Economic policy divergence in the eurozone

The ongoing **fiscal problems** in Spain, Italy, and Portugal have produced high levels of debt and mounting interest burdens. This is weighing on these countries’ budgets and limiting the financial headroom for capital investment and public spending.

The outlook is particularly negative for **Italy**. The return to rising interest rates has pushed up Italy’s funding costs substantially. A reduction in the ECB’s bond purchases or the absence of progress with bringing down government debt could make it much more difficult for Italy and its banks to access the capital markets.

In the last few years, the **expansionary monetary policy of the ECB**, and particularly its buying programs in various bond segments, largely prevented the structural problems in some European Monetary Union (EMU) member countries from being reflected in the capital markets. This may change as a result of the tightening of monetary policy and the expiry of the pandemic emergency purchase program. The ECB has developed the transmission protection instrument so that it can intervene in the markets in order to counteract any excessive rise in risk premiums. However, if it is unable to do so, the risk premiums of more highly indebted member states could increase sharply, which would make it considerably more difficult for these countries to obtain funding through the capital markets.

The effects of economic policy divergence in the eurozone particularly impact on **market risk** in the Insurance sector.

4.2.4 Economic slowdown in Germany

In 2023, GDP in Germany fell by 0.3 percentage points compared with 2022. The **phase of weakness in the German economy**, with growth at around zero, could well continue for the time being, especially given the dampening effect of elevated interest rates.

There is also a risk that **structural problems**, such as labor shortages and persistently high energy prices, could cause inflation to rise again, and that the resulting inflation may not just be a temporary phenomenon but could remain firmly above the ECB's inflation target for an extended period. This would be particularly problematic if the higher prices, combined with the reduction in manufacturing output, made consumers reluctant to spend and wages simultaneously rose as this would result in a wage/price spiral. This could ultimately lead to a protracted period of stagflation, i.e. a combination of elevated inflation, stagnant output and demand, and rising unemployment. Moreover, the ECB's latitude for tackling inflation is probably more limited than in the past, not least because the pandemic has resulted in further increases in government debt in vulnerable eurozone countries.

Stagflation may impact on **credit risk** and **equity investment risk** in the Bank sector and on **market risk** in the Insurance sector, in particular. As at the reporting date, no stagflation-related increase in these risks was evident.

4.2.5 Correction in real estate markets

The real estate markets are suffering from the jump in prices for construction work and building materials coupled with much higher interest rates. Elevated interest rates are increasing the financial burden on real estate buyers, while inflation is reducing the income that households and investors have available for repayments. Transaction activity is very muted, with moderate declines in market values.

In the commercial real estate market, project developers and property developers are especially affected by the increasing costs of construction and borrowing. With the market for property development and project development work largely at a standstill, there is heightened marketing risk for plots of land. Furthermore, uncertainty persists about the effect of economic trends and inflation and about structural changes in terms of demand for space. This uncertainty particularly affects hotel real estate, office real estate, department stores, shopping malls, and inner-city commercial properties mainly used for retail/wholesale businesses not offering day-to-day essentials.

These developments mainly relate to **credit risk** and **equity investment risk** in the Bank sector, and **market risk** in the Insurance sector.

4.2.6 Unpredictable interest-rate market

Scenarios involving interest-rate cuts

Following **interest-rate hikes** by the Federal Reserve Board (Fed) and the ECB in the past two years, market interest rates have reached levels last seen prior to the financial crisis. Interest rates are having an effect on the rate of inflation, which fell more rapidly than anticipated by the markets at the end of 2023 due to the weak state of the economy and base effects in energy prices. With the central banks' inflation target of 2 percent moving back within reach, interest rates could fall more quickly than expected over the coming year. If interest rates are cut too quickly, there is a risk that inflationary effects, such as a wage/price spiral, may push inflation back up.

A reduction in interest rates could negatively impact on net interest income and net interest margin in the **Bank sector**. In the **Insurance sector**, a fall in interest rates would have a positive valuation effect on R+V's portfolio of interest-bearing exposures in the near term. A renewed period of low interest rates could, in the medium term, pose additional challenges for R+V in its life insurance business in respect of the guaranteed returns that it needs to generate.

Scenarios involving interest-rate hikes

US public debt rose significantly in 2023. This was accompanied by a substantial fall in demand for US government bonds from institutional investors. If this trend continues, the disparity between supply and demand will increase and lead to rising, structurally higher yields. This would exacerbate concerns about a fiscal policy crisis in the US if the budget deficit remains high, and the sustainability of US government debt levels could be called into question. In the event of a renewed interest-rate hike in the US, it is likely that interest rates would also rise in the eurozone, which would call the sustainability of government debt levels of some European countries into question too. Unexpectedly strong **economic growth in Europe** could also lead to an interest-rate hike in the eurozone.

Higher rates of interest could lead to cash outflows in collective building society operations, thereby increasing liquidity risk. In the **Bank sector**, a further rapid rise in interest rates could heighten market risk. Fair value losses on the securities portfolios of BSH and UMH could impact on DZ BANK's capital. In the **Insurance sector**, a rise in interest rates would also result in fair value losses on investments. There would also be a risk that policyholders could increasingly allow existing life insurance contracts to lapse and that new business declines.

4.3 Rating downgrades for DZ BANK

For the entities in the DZ BANK Group, their own credit rating is an important element in any comparison with competitor banks. A downgrade or even just the possibility of a downgrade in the rating for a management unit could have a detrimental effect in all entities in the DZ BANK Group on the relationship with customers and on the sale of products and services.

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

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

If the credit rating for a management unit were to fall out of the range covered by the top four rating categories (investment-grade ratings, disregarding rating subcategories), the operating businesses of all the entities in the DZ BANK Group could be adversely affected. This could also lead to an increase in the **liquidity requirement in relation to derivatives** and to a rise in **funding costs**. The effects of downgrades of long-term ratings are discussed in the chapter covering the measurement of liquidity risk (see chapter VII.6.2.5).

The rating agencies S&P Global Ratings, Moody's, and Fitch Ratings confirmed **DZ BANK's ratings** in 2023. The outlooks for the ratings also remained stable.

5 ESG risks

5.1 Expansion of ESG risk management

ESG risks are defined as events or circumstances in the climate-related and environmental ('E'), social ('S'), or corporate governance ('G') spheres that, if they materialized, would definitely or potentially have an adverse impact on the financial position or financial performance of the DZ BANK Group and on its reputation. ESG risks are also referred to as sustainability risks.

The areas of focus include climate-related and environmental risks resulting from climate change. These risks comprise both physical risks, such as more frequent natural disasters and floods, and transition risks, which can arise particularly as a result of legislative initiatives and changes in consumer behavior. ESG risks primarily have medium- to long-term effects.
The DZ BANK Group does not classify ESG risks as a risk type in their own right. In accordance with the regulatory definitions, it instead views them as drivers of the classic financial and non-financial risk types. Economic, societal, and (geo)political events and conditions are examples of risk factors.

These ESG risk factors are analyzed as part of the **risk inventory check**. This makes it possible to assess each year which potentially material risk factors in the climate-related and environmental, social, and corporate governance spheres the DZ BANK Group is exposed to. The analysis was refined and backed up by quantitative data in 2023. Potentially material ESG risk factors affect the risk types credit risk, operational risk, and reputational risk in the Bank sector and actuarial risk and market risk in the Insurance sector.

ESG risks are **managed** centrally at the level of the DZ BANK Group and on a decentralized basis at the level of the management units. DZ BANK is currently working on implementing various regulatory requirements regarding the management of ESG risks as part of its sustainability umbrella program. The main program requirements are the Guide on climate-related and environmental risks published by the ECB, the EBA's Guidelines on loan origination and monitoring, the delegated regulation on the EU taxonomy, and the ESG disclosure requirements issued by the EBA.

Having participated in the ECB's climate stress test in 2022, DZ BANK has gradually integrated sustainability risks in its internal stress test. With the help of exploratory scenario analyses, the internal stress test examines the impact of physical and transition climate-related risks on the main types of risk affected, taking the channels of impact into account.

DZ BANK also uses an **internal classification tool** based on the 17 sustainable development goals (SDGs) of the United Nations to assess the sustainability of the lending business. The tool measures the positive and adverse SDG impacts of DZ BANK's business from an ESG perspective. This primarily relates to the traditional corporate customer lending business, in which the positive impacts outweigh the adverse impacts overall. Building on this, DZ BANK has set itself the target of ensuring that, by 2026, at least two-thirds of the volume of lending to corporate customers make a positive contribution to at least one of the sustainable development goals.

5.2 Climate-related and environmental risks

The significant risks in relation to the climate and environmental aspect are physical climate-related and environmental risks and transition risks.

5.2.1 Physical climate-related and environmental risks

The physical climate-related and environmental risks may relate to acute events, for example more frequent natural disasters such as flooding, or (chronic) negative effects attributable to long-term climate change.

Losses in the **lending business** may arise, for example, if the recoverability of collateral for loan exposures is adversely impacted by climate events. Further information on the impact on credit risk if physical climate-related and environmental risks were to materialize is provided in chapter 8.3.2.

In the Insurance sector, **non-life actuarial risk** (catastrophe risk) at R+V is the main type of risk that could be significantly affected by physical climate-related risk. Specifically, in any one year, the actual impact from the size and frequency of losses could exceed the forecast impact. Details can be found in chapters VII.16.2 and VII.16.5.

In both the Bank sector and the Insurance sector, physical climate-related risk could also give rise to **operational risk**, for example in connection with the non-availability of buildings or IT systems due to weather or environmental events. This type of security risk is described for the Bank sector in chapter VII.14.5.4 and for the Insurance sector in chapter VII.20.3.3.

5.2.2 Transition risks

Transition risks are a major risk factor. They may occur in connection with the switch to a lower-carbon and more environmentally friendly economy, particularly if business partners in industries with particular relevance to climate change do not transition to the necessary extent or with the necessary speed. The causes of transition risk include political conditions and transformation targets, changes to legislation, changes in consumer preferences, and the accompanying technological shift.

The transition to a low-emission economy is resulting in a changed business and regulatory environment that creates risks for the real economy and could have a negative impact on the financial system and on banks. As a result, climate-related transition risks have a substantial impact on the DZ BANK Group's customers and, in turn, have an indirect impact on the DZ BANK Group too. The medium-term nature of these effects means that they are particularly relevant to the lending business. Furthermore, negative effects from transition risks on the reputation of the DZ BANK Group and DZ BANK cannot be ruled out.

Transition risks are relevant to **credit risk** in the Bank sector (see chapter VII.8.3.2), to **market risk** in the Insurance sector (see chapter VII.17.3.3), and to **reputational risk** (see chapter VII.13.3) and **operational risk** in both sectors.

As a result of transition effects, there is a risk in the **lending business** that the earnings power of corporate finance borrowers could diminish. These effects could lead to a deterioration of the borrowers' credit quality and thus to higher impairment losses. Further information on the significance of climate-related and environmental risks is provided in chapter VII.8.3.2.

5.3 Social risks and corporate governance risks

Social risks could arise due to inadequate standards for upholding DZ BANK Group employees' **basic rights** and for **protecting them against discrimination** or due to inappropriate **customer practices**. If social risks materialize, employees may bring financial claims against entities in the DZ BANK Group or employees may leave who are particularly crucial to the success of the business. Ineffective or disruptive **business processes** may also lead to the loss of key employees. Other potential sources of social risk are unfair, opaque, or improper business practices in respect of customers, especially if these lead to changes in customer behavior or in demand.

Social risk may also have a financial impact in the long term with regard to borrowers and business partners. At individual loan level, social risk in DZ BANK's lending business is assessed as part of the **lending processes**. For example, it is prohibited to maintain business relationships with customers if significant breaches of human rights in their business practices cannot be ruled out.

Potential causes of **corporate governance risks** include **governance structures** that are inadequate or lack transparency. Another possibility is if an entity has an inadequate **code of conduct** or does not have one at all. These shortcomings may weaken employees' confidence in the effectiveness of the entity's senior management and lead to ineffective business processes. A lack of, or only inadequate, measures to tackle **money laundering** and all forms of **corruption** (acceptance of advantages, granting of advantages, active bribery, and passive bribery) constitute further forms of corporate governance risk. They may damage the DZ BANK Group entities' reputation among employees, customers, and business partners.

Corporate governance risks can also arise for **borrowers and business partners** if there are indications that the company in question is not being run in an orderly fashion. The relevant factors include suspected corruption, tax evasion proceedings, and ongoing antitrust proceedings. Similarly to social risk, the risk here lies in the effects of possible judicial proceedings and in a potential drop in revenue as a result of declining demand. The lending process is designed to ensure that transactions with customers that do not satisfy the minimum corporate governance requirements defined by the DZ BANK Group are prohibited. Checks for critical corporate governance aspects, such as in the anti-corruption and competition/tax categories, are conducted and evaluated in a standardized manner.

Social and corporate governance risks alike may have negative effects on the **reputation** of individual entities in the DZ BANK Group or on the DZ BANK Group as a whole.

5.4 Management of ESG risks in the loan origination and monitoring process

ESG risks may adversely impact on – and compound – reputational risk, credit risk, and other risk types. The section below explains how ESG risks are taken into consideration in credit risk processes.

The DZ BANK Group has developed sector-specific, groupwide exclusion criteria for **lending activities** in order to prohibit lending that does not satisfy the minimum ESG requirements or entails a greater reputational risk for the DZ BANK Group. Among the excluded industries are arms trading, arms production (mines, anti-personnel mines, depleted uranium munitions, cluster bombs, and nuclear, biological, and chemical weapons), the sex industry (pornography, prostitution), and controversial gambling. Moreover, project funding for new coal-fired power plants cannot be provided. In addition, it is prohibited to enter into business relationships with customers if significant breaches of human rights or significant breaches of environmental standards in their business practices cannot be ruled out.

DZ BANK applies further sector-specific requirements – **sector criteria** – for certain industries that are particularly vulnerable from a sustainability perspective. These criteria specify the details to be reviewed with reference to international industry-specific conventions, recognized standards and certification, and optimum production processes.

The **ad hoc exclusion criteria committee** supports DZ BANK in the interpretation of exclusion criteria and sector criteria in its lending decisions. Its members are points of contact for the Credit, Corporate Banking, Structured Finance, and Strategy & Group Development divisions and meet weekly.

At DZ BANK, loan applications are systematically assessed against relevant sustainability criteria as part of the credit check process. Factors of relevance to the financing arrangement in question are assessed in relation to social, ethical, and environmental risks using the **ESG checklist**, which is based on the ten principles of the UN Global Compact. The ESG checklist helps to gauge the sustainability efforts of a customer or project and determines the reputational impact on DZ BANK. It also enables possible negative environmental impacts (such as air pollution and water shortages), including on biodiversity, to be identified and mitigated. Various asset-specific ESG checklists exist for corporates, project finance (aligned or not with the Equator Principles), finance companies, and countries. The Equator Principles are a voluntary set of guidelines adopted by banks to ensure compliance with environmental and social standards in project finance.

In addition to gauging the ESG-related reputational impact on DZ BANK, the processes for the extension and monitoring of loans also involve assessing the effects of ESG aspects on customers' credit risk. DZ BANK has used the **ESG credit risk score** for this purpose since October 2023. This score supplements the credit rating for corporate customers by providing an additional relative statement on creditworthiness with respect to ESG risks. The ESG credit risk score encompasses transition and physical environmental risks, social risks, and corporate governance risks, providing a separate subscore for each risk type.

The findings from application of the ESG tools (check against the exclusion criteria and sector criteria, ESG checklist, ESG credit risk score) are factored to varying degrees into the separate **ESG vote** within the loan application process. The aim is to provide decision-makers with an overview of the customer's ESG aspects so that they can be taken into account in the lending decision.

The management of ESG-related risks in **R+V's** investment process is described in chapter VII. 17.3.3.

6 Liquidity adequacy

6.1 Strategy

The management of liquidity adequacy is an integral component of business management in the DZ BANK Group and the management units. 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 normative (regulatory) perspective. Whereas the economic perspective takes into account the requirements of the ECB Guide to the ILAAP and MaRisk BA, the normative perspective – while also taking account of the ECB

Guide to the ILAAP – additionally applies the requirements from the CRR and the German national requirements for the implementation of the Capital Requirements Directive (CRD) in KWG.

Economic liquidity adequacy is managed on the basis of the internal liquidity risk model, which takes account of the impact on liquidity of other risks when measuring liquidity risk. Liquidity risk is significantly influenced by the risks that are backed by capital and those that are not backed by capital. In particular, reputational risk is relevant to liquidity risk. The DZ BANK Group fulfills the regulatory liquidity adequacy requirements by managing economic liquidity adequacy.

6.2 Economic perspective

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

6.2.1 Definition

Liquidity risk is the risk that cash and cash equivalents will not be available in sufficient amounts to ensure that payment obligations can be met. It is therefore defined as insolvency risk.

6.2.2 Business background and risk strategy

The activities of DZ BANK and the management units BSH, DZ HYP, DZ PRIVATBANK, TeamBank, VR Smart Finanz, and the liquidity subgroup consisting of DZ BANK and DZ HYP (due to the liquidity waiver) are relevant to the level of liquidity risk in the DZ BANK Group.

Specifying and monitoring risk appetite for liquidity risk are key aspects of the liquidity risk strategy, which aims to establish a binding basis for implementing these specifications at operational level.

The operations of the entities in the DZ BANK Group are governed by the principle that liquidity risk must only be assumed if it is in compliance 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 by the key figures and internal threshold values in the risk appetite statement and by the stress scenarios defined for risk measurement in the economic perspective within the ILAAP. The stress scenarios also take into account the specific MaRisk BA requirements for the structure of stress scenarios at capital-market-oriented banks.

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

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

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

6.2.3 Risk factors

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

- Funding is withdrawn but cash nevertheless still flows out when legally due (**follow-up funding risk**).
- Derivatives result in greater collateral requirements that involve cash outflows (**collateral risk**).
- Changes in the fair value of financial instruments mean that less liquidity can be generated (**fair value risk**).
- Cash is paid out earlier than expected because drawing rights are exercised (**drawdown risk**).
- Cash outflows are earlier than expected or cash inflows later than expected because termination rights are exercised (**termination risk**).
- New business is entered into on a significant scale, resulting in cash outflows (**new business risk**).
- Products are repurchased on a significant scale, resulting in cash outflows (**repurchase risk**).
- The liquidity requirement to ensure intraday payment obligations can be satisfied is greater than expected (**intraday risk**).
- There has been a negative impact on opportunities for funding in foreign currencies, for example the generation of currency-related liquidity through currency swaps (**foreign currency funding risk**).

These and other events are incorporated into the calculation of liquidity risk as **stress scenarios** (see chapter VII.6.2.5).

6.2.4 Organization, responsibility, and risk reporting

Organization and responsibility

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

Liquidity risk control in the DZ BANK Group is coordinated by the Group Risk Control 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 intragroup 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 by liquidity risk control at DZ BANK on a daily basis to the **members of the Board of Managing Directors** of DZ BANK responsible for the Group Treasury and Group Risk Controlling divisions. 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 in the unsecured money markets. This is reported to the **Asset/Liability Committee** and the **Board of Managing Directors** on a monthly basis. These reports make a distinction between customers and banks, ensuring that any possible concentration risk as regards sources of liquidity can be clearly identified at an early stage.

6.2.5 Risk management

Measurement of liquidity risk

DZ BANK uses an **internal risk model** to determine liquidity risk for the DZ BANK Group and DZ BANK over a time horizon of 1 year. Using this model, four stress scenarios and one risk scenario are simulated on a daily basis. In addition to DZ BANK, all other entities in the DZ BANK Group that are material in terms of liquidity risk are integrated into the groupwide measurement of this risk.

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 financial year. 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.

DZ BANK's internal liquidity risk model is validated using an **appropriateness test** independently of the organizational unit responsible for developing the model. Furthermore, the model is adjusted in line with changes in the market, products, and processes. Validation is carried out for each entity in the DZ BANK Group and aggregated at group level.

Liquidity risk stress tests

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 are defined as follows:

- **Downgrading**: Long-term ratings awarded by Standard & Poor's, Moody's, and Fitch Ratings to one or more entities in the DZ BANK Group downgraded by one notch. The downgrade is triggered by a deterioration in profitability or in the earnings forecast or by a preceding loss of confidence among customers and banks.

- **Corporate crisis**: Serious entity-specific crisis, for example caused by reputational damage. The main consequences of this scenario could be a considerable negative impact on customer behavior and the downgrading by three notches of the long-term ratings awarded by all of the aforementioned rating agencies.

- **Market crisis**: Turmoil in global money and capital markets. The primary feature of this scenario is a sudden, sharp fall in the value of assets traded in these markets. The scenario assumes, for example, a loss of confidence among money market players, which could lead to a liquidity squeeze.

- **Combination crisis**: Analysis of a combination of bank-specific and market-related factors. However, it does not constitute a mere aggregation of the two stress scenarios arising from a market crisis and a corporate crisis. Instead, the interaction between the two scenarios is taken into account. The combination crisis assumes that the financial sector would be particularly badly affected. The underlying scenario is also based on a deterioration in the reputation of the entities in the DZ BANK Group. It assumes there would only be very limited access to unsecured funding from customers, banks, and institutional investors over the forecast period of 1 year.

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.

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. In addition, **adverse stress tests** are carried out to provide a forward-looking assessment of liquidity risk. They involve analyzing whether the DZ BANK Group would be able to ensure an adequate level of liquidity even in the event of exceptional, but plausible, developments over a medium-term horizon. The adverse stress test scenarios underlying this forecast are also used in ICAAP stress testing.

Management of limits for liquidity risk

Liquidity risk is monitored and managed with the aim of ensuring economic liquidity adequacy at every measurement date. This is based on the minimum liquidity surplus calculated for the four stress scenarios with defined limits. The Board of Managing Directors has set, at the level of the **DZ BANK Group**, a limit for liquidity risk (€1.0 billion; December 31, 2022: €1.0 billion) and an internal observation threshold (€5.0 billion; December 31, 2022: €4.0 billion) that is higher than the limit.

The Board of Managing Directors has also specified a limit for each management unit. The limit for both **DZ BANK** and the **liquidity subgroup** was €0.86 billion as at December 31, 2023 (December 31, 2022: €0.7 billion). As at January 1, 2023, an internal observation threshold of €1.86 billion was set for both of them for the first time.

The limits and the observation thresholds are **monitored** by the liquidity risk control function at DZ BANK both at group level and also for the management units.

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

Liquidity risk mitigation

Within liquidity management activities, measures to reduce liquidity risk are initiated by the treasury units of the subsidiaries. Active liquidity risk management is made possible by holding 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 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 for all significant products. The transfer pricing system takes into account the holding period and market liquidity of the products and has an impact on risk/return management.

6.2.6 Quantitative variables in liquidity risk

Liquid securities

The available liquid securities have a significant influence on the level of the minimum liquidity surplus. Liquid securities are a component of the **counterbalancing capacity** and are largely held in the portfolios managed by DZ BANK's Group Treasury and Capital Markets Trading divisions or in the portfolios of the treasury units at the subsidiaries of DZ BANK. Only bearer bonds are counted 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 as liquid securities if 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.

Liquid securities represent a large proportion of the counterbalancing capacity and make a major contribution to maintaining solvency 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.

Fig. VII.8 shows the liquidity value of the liquid securities that would result from secured funding or if the securities were sold.

As at December 31, 2023, the total liquidity value at the level of the **DZ BANK Group** was €37.3 billion (December 31, 2022: €35.4 billion). The total liquidity value attributable to **DZ BANK** as at December 31, 2023 was €26.9 billion (December 31, 2022: €26.6 billion). The increase in liquid securities eligible as collateral for central bank loans mainly resulted from early repayment of targeted longer-term refinancing operations (TLTRO), which led to a substantial reduction in the volume of pledged collateral. The decline in liquid securities eligible for GC Pooling resulted from a reduction in reverse repo transactions.

Unsecured short- and medium-term funding

Other than liquid securities, the main factors determining the minimum liquidity surplus are the availability and composition of the sources of funding.

The DZ BANK Group has a diversified funding base for operational liquidity. A considerable portion is accounted for by money market activities resulting from the cash-pooling function with the **local cooperative banks**. Under these arrangements, the cooperative banks can invest excess liquidity with DZ BANK at any time. Conversely, if the cooperative banks need liquidity, they can obtain it from DZ BANK. Overall, this regularly results in a liquidity surplus in the DZ BANK Group and at DZ BANK, which provides one of the main bases for short-term funding in the unsecured money markets.

FIG. VII.8 – LIQUID SECURITIES

€ billion	DZ BANK Group Dec. 31, 2023	DZ BANK Group Dec. 31, 2022	DZ BANK Dec. 31, 2023	DZ BANK Dec. 31, 2022
Liquid securities eligible for GC Pooling (ECB Basket)[1]	**15.8**	22.3	**9.9**	17.4
Securities in own portfolio	20.5	16.0	12.0	8.4
Securities received as collateral	5.9	17.4	5.9	17.4
Securities provided as collateral	-10.6	-11.1	-8.0	-8.4
Liquid securities eligible as collateral for central bank loans	**17.9**	9.1	**13.6**	5.5
Securities in own portfolio	18.0	16.7	13.2	11.8
Securities received as collateral	3.5	4.1	3.5	4.1
Securities provided as collateral	-3.6	-11.7	-3.2	-10.3
Other liquid securities	**3.7**	3.9	**3.5**	3.7
Securities in own portfolio	3.3	3.7	3.0	3.4
Securities received as collateral	0.6	0.3	0.6	0.3
Securities provided as collateral	-0.2	-0.1	-0.1	-0.1
Total	**37.3**	**35.4**	**26.9**	**26.6**
Securities in own portfolio	41.8	36.4	28.3	23.6
Securities received as collateral	9.9	21.8	9.9	21.8
Securities provided as collateral	-14.4	-22.9	-11.3	-18.7

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

Corporate customers and **institutional customers** are another important source of funding for covering operational liquidity requirements in the DZ BANK Group. In the context of liquidity risk, corporate customers are those customers that are not banks and are not classified as institutional customers.

For funding purposes, the management units also issue **money market products based on debt certificates** under a standardized groupwide multi-issuer euro commercial paper program through the offices and branches in Frankfurt am Main, New York, Hong Kong, London, and Luxembourg. DZ BANK also runs a US-dollar-denominated commercial paper program for Frankfurt am Main. Key repo and securities lending activities, together with the collateral management process, are managed centrally in DZ BANK's Group Treasury division.

Funding on the **interbank market** is not strategically important, either to the DZ BANK Group or to DZ BANK.

The range of funding sources in the unsecured money markets is shown in Fig. VII.9.

FIG. VII.9 – UNSECURED SHORT-TERM AND MEDIUM-TERM FUNDING

€ billion	DZ BANK Group Dec. 31, 2023	DZ BANK Group Dec. 31, 2022	DZ BANK Dec. 31, 2023	DZ BANK Dec. 31, 2022
Deposits	**99.7**	**98.7**	**85.3**	**84.2**
Deposits of local cooperative banks	59.7	57.3	59.1	56.6
Current account deposits of other customers	40.0	41.4	26.1	27.6
Money market borrowing	**59.8**	**57.1**	**57.9**	**54.5**
Central banks, interbank, and customer banks	7.8	9.4	7.8	9.3
Corporate customers and institutional customers	36.2	33.6	36.0	32.8
Certificates of deposit/commercial paper	15.8	14.1	14.1	12.3

The changes in the composition of the sources of funding compared with December 31, 2022 arose because customers and investors were more focused on diversification than in the previous year due to the interest-rate situation. The changes included reallocations from current account deposits to fixed-term deposits, which were made in light of ECB monetary policy measures.

Further information on liquidity management and funding can be found in chapter II.5 of the business report.

The **maturity analysis of contractual cash inflows and cash outflows** is set out in note 87 of the notes to the consolidated financial statements. However, the cash flows in these disclosures are not the same as the expected and unexpected cash flows used for internal liquidity risk management.

6.2.7 Risk position

Economic liquidity adequacy is assured if none of the four stress scenarios with defined limits exhibit a negative value for the key risk indicator 'minimum liquidity surplus'. Fig. VII.10 shows the results of measuring liquidity risk. The results are based on a daily calculation and comparison of forward cash exposure and counterbalancing capacity. The values reported are the values that occur on the day on which the liquidity surplus calculated over the forecast period of 1 year is at its lowest point.

FIG. VII.10 – LIQUIDITY UP TO 1 YEAR IN THE STRESS SCENARIOS WITH DEFINED LIMITS: MINIMUM LIQUIDITY SURPLUSES FOR THE DZ BANK GROUP

	Forward cash exposure		Counterbalancing capacity		Minimum liquidity surplus[1]	
€ billion	Dec. 31, 2023	Dec. 31, 2022	Dec. 31, 2023	Dec. 31, 2022	Dec. 31, 2023	Dec. 31, 2022
Downgrading	-43.6	-39.1	90.6	67.8	46.9	28.7
Corporate crisis	-45.6	-30.2	64.1	44.5	18.5	14.3
Market crisis	-47.9	-32.9	78.9	57.6	31.0	24.7
Combination crisis	-47.4	-31.8	72.1	51.4	24.7	19.6

1 The values with an orange background are the minimum liquidity surplus in the squeeze scenario.

The reduction in the forward cash exposure and the increase in the counterbalancing capacity mainly resulted from the early repayment of TLTRO.

The liquidity risk value measured for the **DZ BANK Group** as at December 31, 2023 for the stress scenario with defined limits with the lowest minimum liquidity surplus (squeeze scenario) was €18.5 billion (December 31, 2022: €14.3 billion). The liquidity risk value attributable to **DZ BANK** as at December 31, 2023 was €4.8 billion (December 31, 2022: €4.2 billion). The liquidity risk value attributable to the liquidity subgroup as at December 31, 2023 was €6.8 billion (December 31, 2022: €7.8 billion). The change in the minimum liquidity surplus was largely due to a multitude of individual changes in the underlying exposures on which the calculation of the minimum liquidity surplus is based.

The minimum liquidity surplus for the DZ BANK Group, DZ BANK, and the liquidity subgroup exceeded the **external minimum targets** laid down by the supervisory authorities, the **internal observation thresholds**, and the **internal minimum thresholds**. The target/threshold values are shown in Fig. VII.3 and Fig. VII.4.

The minimum liquidity surplus as at December 31, 2023 for all management levels – the DZ BANK Group, DZ BANK, and the liquidity subgroup – was positive in the stress scenarios with defined limits. This is due to the fact that the counterbalancing capacity was above the cumulative cash outflows on each day of the defined forecast period in every scenario, which indicates that the cash outflows assumed to take place in a crisis could be comfortably covered. The limits for the minimum liquidity surplus at all management levels were thus adhered to.

The rise in interest rates during the reporting year led to significant movements in the market for interest-rate derivatives and to funding changes, making the DZ BANK Group's minimum liquidity surplus more volatile. **A further unexpected rise in interest rates**, which is described as a risk factor affecting all types of risk in chapter VII.4.2.6, could potentially result in the continuation in 2024 of the effects described for 2023 and may even cause them to become more pronounced.

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 rating downgrade** could not be ruled out.

Crystallization of liquidity risk causes an unexpected **reduction in the liquidity surplus**, with potential negative consequences for DZ BANK's financial position and enterprise value. If a crisis were to occur in which the circumstances were more serious or the combination of factors were significantly different from those assumed in the stress scenarios, there would be a risk of **insolvency**.

6.3 Normative perspective

6.3.1 Regulatory framework

The normative perspective is based on the liquidity ratios required under Basel Pillar 1. Its objective is to assess the DZ BANK banking group's ability to comply with regulatory minimum requirements (plus an internally specified management buffer). Internal liquidity risk management is supplemented by the liquidity coverage ratio (LCR) and the net stable funding ratio (NSFR) calculated in line with the CRR requirements.

6.3.2 Organization, responsibility, and reporting

The **Group Financial Services** division calculates the liquidity ratios reported for supervisory purposes resulting from the CRR and Commission Delegated Regulation (EU) 2015/61 for the liquidity subgroup and, using the corresponding values for the management units, for the DZ BANK banking group.

Both the **Asset/Liability Committee** and the **Board of Managing Directors** are notified of the LCR and the NSFR each month.

6.3.3 Liquidity coverage ratio

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. DZ BANK reports the LCR of the liquidity subgroup and that of the 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 LCR figure for the **DZ BANK banking group** and **DZ BANK** (including DZ HYP) can be found in Fig. VII.11.

FIG. VII.11 – LIQUIDITY COVERAGE RATIOS AND THEIR COMPONENTS

	DZ BANK banking group		DZ BANK (including DZ HYP)[1]	
	Dec. 31, 2023	Dec. 31, 2022	Dec. 31, 2023	Dec. 31, 2022
Total liquidity buffer (€ billion)	125.6	122.0	105.8	103.7
Total net liquidity outflows (€ billion)	86.1	83.6	74.0	72.6
LCR (percent)	**145.8**	**145.9**	**143.1**	**142.7**

1 DZ BANK and DZ HYP form a liquidity subgroup pursuant to article 8 CRR.

The slight decrease in the LCR for the **DZ BANK banking group** from 145.9 percent as at December 31, 2022 to 145.8 percent as at December 31, 2023 resulted from the LCR's greater sensitivity in respect of the increased net liquidity outflows. This effect outweighs the greater increase in the liquidity buffer and the associated increase in excess liquidity cover (calculated by deducting the net liquidity outflows from the liquidity buffer).

The expansion of the liquidity buffer was mainly due to the growth of balances with central banks on the back of higher volumes of unsecured funding. In particular, deposits from banks in the Cooperative Financial Network and corporate customers increased, which – given their low outflow factors of 25 percent and 40 percent respectively compared with the associated rise in the liquidity buffer – led to a lower rise in weighted net liquidity outflows. As the LCR is more sensitive to changes in liquidity outflows than to changes in the liquidity buffer, the two opposing effects resulted in an overall reduction in the KPI.

As at the reporting date, the **external minimum target** laid down by the supervisory authorities, the **internal observation threshold**, and the **internal minimum threshold** for the LCR were exceeded for both the DZ BANK banking group and DZ BANK (including DZ HYP). The target/threshold values are shown in Fig. VII.3 and Fig. VII.4.

6.3.4 Net stable funding ratio

The net stable funding ratio has a long-term focus and is intended to identify mismatches between the maturity structures of assets-side and liabilities-side business. The 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.

The NSFR calculated for the **DZ BANK banking group** and **DZ BANK** (including DZ HYP) is shown in Fig. VII.12.

Excess cover in relation to the NSFR is the difference between the available stable funding and the required stable funding.

The rises in the NSFR for the DZ BANK banking group and DZ BANK (including DZ HYP) are attributable to an increase in excess cover. The greater excess cover is mainly the result of an increase in available stable funding sources, which in turn is chiefly due to a higher volume of deposits from the Cooperative Financial Network and the privileged inclusion of certain own issues. The overall rise was partly offset by an increase in funding requirements relating to loans and advances and the early repayment of outstanding TLTRO tranches.

FIG. VII.12 – NET STABLE FUNDING RATIO AND ITS COMPONENTS

	DZ BANK banking group		DZ BANK (including DZ HYP)[1]	
	Dec. 31, 2023	Dec. 31, 2022	**Dec. 31, 2023**	Dec. 31, 2022
Available stable funding (weighted equity and liabilities; € billion)	287.9	269.5	212.7	199.6
Required stable funding (weighted assets; € billion)	227.6	220.3	178.7	176.1
Excess cover/shortfall (€ billion)[2]	60.3	49.2	34.0	23.5
NSFR (percent)	**126.5**	**122.3**	**119.0**	**113.4**

1 DZ BANK and DZ HYP form a liquidity subgroup pursuant to article 8 CRR.
2 Excess cover = positive values, shortfall = negative values.

As at the reporting date, the **external minimum target** laid down by the supervisory authorities, the **internal observation threshold**, and the **internal minimum threshold** for the NSFR were exceeded for both the DZ BANK banking group and DZ BANK (including DZ HYP). The target/threshold values are shown in Fig. VII.3 and Fig. VII.4.

7 Capital adequacy

7.1 Strategy, organization, and responsibility

7.1.1 Strategy

The management of capital adequacy is an integral component of business management in the DZ BANK Group and the management units. 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 normative perspective. Whereas the economic perspective takes into account the requirements of the ECB Guide to the ICAAP and MaRisk BA, the normative perspective – while also taking account of the ECB Guide to the ICAAP – additionally applies the requirements from the CRR and the German national requirements for the implementation of the CRD.

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

All management units are included in the groupwide management of capital adequacy. Management of economic and normative capital adequacy aims to ensure that the assumption of risk is consistent with the capital resources of the DZ BANK Group, the DZ BANK financial conglomerate, and the DZ BANK banking group.

7.1.2 Organization and responsibility

The **Board of Managing Directors of DZ BANK** defines the corporate objectives of the DZ BANK Group and DZ BANK in terms of both risks and returns and, in managing the risk profile, strives for an appropriate ratio between risk and risk coverage potential. DZ BANK is responsible for risk and capital management, and for compliance with capital adequacy at group level.

The management of economic and normative capital adequacy is based on internal target values. To avoid any unexpected adverse impact on **target values and capital ratios** and ensure that any changes in risk are consistent with corporate strategy, groupwide economic limits and risk-weighted assets are planned 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. Any corresponding measures to raise capital are approved by the Asset/Liability Committee or recommended to the Board of Managing Directors for approval. The implementation of the measures is then coordinated by **Group Treasury** at DZ BANK.

At DZ BANK, the **Group Finance** division is responsible for monitoring and reporting on regulatory capital adequacy. Regular monitoring is designed to ensure that the applicable minimum regulatory requirements for solvency are met at every reporting date. Monitoring takes place monthly for the DZ BANK financial conglomerate, the DZ BANK banking group, and DZ BANK, and at least quarterly for the R+V Versicherung AG insurance group. The Board of Managing Directors and the supervisory authority are notified of the results within the monthly reports on capital management.

7.2 Economic perspective

Owing to the close ties between the management of economic capital adequacy at DZ BANK and that of the DZ BANK Group, the information below also applies to DZ BANK.

7.2.1 Measurement methods

The **economic perspective** is an internally defined management perspective aimed at ensuring that all of the DZ BANK Group's material capital risks are fully backed by capital plus an internally specified management buffer. The economic perspective is based on the assumption that an institution will continue to operate as a going concern.

The economic perspective is based on internal risk measurement methods that take into account all types of risk that are material with regard to capital adequacy. The methods selected ensure that risk capital management is integrated across the group.

In the **risk-bearing-capacity analysis**, the risk capital requirement is compared with the available internal capital. The risk capital requirement is determined by aggregating the capital required for the various risk types relevant to the DZ BANK Group.

Available internal capital is the economic value of equity. The equity used to determine available internal capital is the equity recognized on the balance sheet as calculated in accordance with the relevant accounting standards, plus/minus reserves and liabilities in respect of assets and liabilities, measured at present value. Adjustments are also made, in particular the deduction of components of additional Tier 1 capital.

The available internal capital is determined as follows:
– The available internal capital of 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 of 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 available internal capital is reviewed on a quarterly basis and, to some extent, on a monthly basis.

The Board of Managing Directors determines the risk capital requirement **limits** for the year on the basis of the available internal capital. If necessary, the limits can be adjusted during the year, e.g. if economic conditions change.

The purpose of the **capital buffer** is to cover the lack of precision in some areas of risk measurement. A distinction is made between centralized and decentralized capital buffer requirements. Decentralized capital buffer requirements are managed within the limits for the individual risk types, whereas the centralized capital buffer is managed on the basis of a limit covering all sectors and risk types.

R+V uses two measures defined by the supervisory authorities – the transitional measure on technical provisions and the volatility adjustment – for individual personal insurance companies. The transitional measure on technical provisions is a time-limited measure designed to make it easier for insurance companies to transition from Solvency I to the current regulatory regime, Solvency II. The volatility adjustment, which can be used indefinitely, prevents a brief phase of heightened market volatility from affecting the valuation of long-term insurance guarantees. Both measures have a positive impact on economic capital adequacy.

7.2.2 Traffic light system

Economic capital adequacy is monitored and managed using a traffic light system based on the ratio of available internal capital to aggregate risk (expressed as a percentage). The switch from green to amber in the traffic light system (**amber threshold**) is set at the internal threshold value for economic capital adequacy specified in the risk appetite statement, which in 2023 was unchanged compared with the previous year at 120.0 percent. The amber threshold serves as an early-warning indicator. The **red threshold**, i.e. the borderline between amber and red in the traffic light system, was set at 110.0 percent in the year under review, again unchanged compared with 2022. The threshold values for economic capital adequacy are reviewed annually and adjusted if necessary.

7.2.3 Risk-bearing capacity

Retrospective recalculation of the overall solvency requirement

The annual recalculation of the overall solvency requirement took place as at December 31, 2022 owing to scheduled changes to the parameters for the risk measurement procedures carried out in the second quarter of 2023 for the Insurance sector on the basis of R+V's 2022 consolidated financial statements and the updating of actuarial assumptions. The recalculation reflects updated measurements of insurance liabilities based on annual actuarial analyses and updates to parameters in the risk capital calculation. Because of the complexity and the amount of time involved, the parameters are not completely updated in the in-year calculation and an appropriate projection is made.

The recalculation led to changes in the available internal capital, the key risk indicators at the level of the DZ BANK Group, and economic capital adequacy. The figures as at December 31, 2022 given in this risk report have been restated accordingly and are not directly comparable with the figures in the 2022 risk report.

Available internal capital and limit

The DZ BANK Group's **available internal capital** as at December 31, 2023 stood at €32,290 million. The comparable figure as at December 31, 2022 was €30,879 million.

The **limit** derived from the available internal capital was specified at €19,698 million as at December 31, 2023 (December 31, 2022: €22,215 million).

As at December 31, 2023, **aggregate risk** was calculated at €15,102 million. The comparable figure as at December 31, 2022 was €13,886 million. The increase was primarily driven by higher market risk and business risk in the Bank sector.

Economic capital adequacy

As at December 31, 2023, the **economic capital adequacy ratio** for the DZ BANK Group was calculated at 213.8 percent. The comparable figure as at December 31, 2022 was 222.4 percent. As at the reporting date, the ratio was above the **external minimum target**, the **internal observation threshold**, and the **internal minimum threshold**. The target/threshold values are shown in Fig. VII.3.

In the case of the risk types in the Bank sector and Insurance sector, the risk capital requirement also contains any decentralized **capital buffer requirement** that has been assigned. To simplify matters, only the terms 'risk capital requirement' and 'overall solvency requirement' will be used in the remainder of this risk report. These include the decentralized capital buffer requirement.

Fig. VII.13 provides an overview of economic capital adequacy and its components.

The limits and risk capital requirements for the **Bank sector**, broken down by risk type, are shown in Fig. VII.14.

FIG. VII.13 – ECONOMIC CAPITAL ADEQUACY OF THE DZ BANK GROUP

	Dec. 31, 2023	Dec. 31, 2022
Available internal capital (€ million)[1]	32,290	30,879
Limit (€ million)	19,698	22,215
Aggregate risk (€ million)[1]	15,102	13,886
Economic capital adequacy (percent)[1]	**213.8**	**222.4**

1 Value as at December 31, 2022 after recalculation of R+V's overall solvency requirement. Different values were stated in the 2022 risk report.

FIG. VII.14 – LIMITS AND RISK CAPITAL REQUIREMENTS IN THE BANK SECTOR

	Bank sector				DZ BANK			
	Limit		Risk capital requirement		Limit		Risk capital requirement	
€ million	Dec. 31, 2023	Dec. 31, 2022	Dec. 31, 2023	Dec. 31, 2022	Dec. 31, 2023	Dec. 31, 2022	Dec. 31, 2023	Dec. 31, 2022
Credit risk	4,988	6,387	3,971	3,766	2,760	2,854	2,359	2,254
Equity investment risk	1,281	1,230	998	997	795	767	664	632
Market risk	6,470	6,680	4,169	3,730	3,000	3,175	1,757	1,481
Technical risk of a home savings and loan company[1]	820	785	730	698				
Business risk[2]	450	280	363	43	410	235	335	43
Operational risk	1,148	1,112	978	966	651	625	550	554
Total (after diversification)	**14,218**	**15,380**	**10,471**	**9,485**				

Not relevant

1 Including business risk and reputational risk of BSH.
2 Apart from that of BSH, reputational risk is contained in the risk capital requirement for business risk.

Fig. VII.15 sets out the limits and overall solvency requirements for the **Insurance sector**, broken down by risk type, and includes policyholder participation features. The definition of the limits and determination of overall solvency requirements take into account the ability to offset deferred taxes against losses (which arises where deferred tax liabilities can be eliminated in the loss scenario). Diversification effects between the risk types are also taken into consideration. Owing to these effects of correlation, the overall solvency requirement and limit for each risk type are not cumulative.

FIG. VII.15 – LIMITS AND OVERALL SOLVENCY REQUIREMENTS IN THE INSURANCE SECTOR

	Limit		Overall solvency requirement	
€ million	Dec. 31, 2023	Dec. 31, 2022	Dec. 31, 2023	Dec. 31, 2022[1]
Life actuarial risk[2]	1,060	1,200	946	1,060
Health actuarial risk	285	300	253	167
Non-life actuarial risk	1,900	3,000	1,707	1,878
Market risk	3,695	3,880	3,376	3,415
Counterparty default risk	245	350	219	224
Operational risk	700	1,000	629	598
Risks from entities in other financial sectors	225	180	210	135
Total (after diversification)	**4,800**	**6,155**	**4,241**	**3,930**

1 Values after recalculation of the overall solvency requirement. Different values were stated in the 2022 risk report.
2 Reputational risk is implicitly included in the overall solvency requirement for life actuarial risk (lapse risk).

In addition to the figures shown in Fig. VII.14 and Fig. VII.15, the aggregate risk includes **a centralized capital buffer requirement across all types of risk**, which was calculated at €391 million as at December 31, 2023 (December 31, 2022: €470 million). The corresponding **limit** was unchanged year on year at €680 million. The decrease in the centralized capital buffer requirement was predominantly due to the annual adjustment of the measurement of the longevity risk resulting from provisions for pensions and other post-employment benefits in the Bank sector to the higher discount rate.

7.2.4 Possible impact from crystallized risk covered by capital

If risk were to materialize and associated losses be incurred, there would be a risk that the risk capital requirement would exceed the available internal capital and the DZ BANK Group would thus **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. 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. If there is also insufficient capital to meet the level of protection demanded by the supervisory authority, this authority could initiate action, which in extreme cases could lead to the **resolution** of DZ BANK or its subsidiaries.

7.3 Normative perspective

7.3.1 Regulatory framework

The normative perspective is based on the capital ratios laid down by the supervisory authorities. It comprises three management dimensions: monitoring of actual regulatory KPIs, capital planning, and adverse stress tests.

Whereas the monitoring of actual and projected figures, together with capital planning, in the baseline scenario focuses on the current regulatory ratios and their changes in probable scenarios, the analysis of these ratios in adverse scenarios is based on capital planning and the quarterly adverse stress tests.

From the normative perspective, the DZ BANK Group's risk-bearing capacity is assured if, in the medium term, the group is in a position to meet all regulatory minimum solvency requirements, even in crisis situations. An internal management buffer over and above the regulatory requirements for each ratio is also included in order to ensure that the group has an adequate level of capital.

The normative perspective is an integral part of the ICAAP. The key risk indicators in the normative perspective are specified by the regulatory requirements, mainly the CRR and the CRD, but the selection and specific design of the scenarios are internal decisions. With due regard to regulatory and supervisory guidance, such as the ECB Guide to the ICAAP and the EBA Guidelines on stress testing, the DZ BANK Group selects and simulates scenarios that adequately reflect the vulnerabilities of the business models operated in the group. The scenarios to be analyzed are determined at least once a year.

The regulatory ratios presented below are used as part of the internal management of the DZ BANK financial conglomerate, the DZ BANK banking group, and DZ BANK. The procedures used to determine these ratios are those that are required under the CRR transitional guidance.

7.3.2 DZ BANK financial conglomerate

The DZ BANK financial conglomerate comprises the DZ BANK banking group and the R+V Versicherung AG insurance group.

FKAG forms the main legal basis for the supervision of the DZ BANK financial conglomerate. The calculation methodology for the coverage ratio is taken from Commission Delegated Regulation (EU) No. 342/2014 in conjunction with article 49 (1) CRR. The financial conglomerate coverage ratio is the ratio between the total of own funds in the financial conglomerate and the total of solvency requirements for the conglomerate. The resulting ratio must be at least 100.0 percent.

The changes in the coverage ratio and in the own funds and solvency requirements of the DZ BANK financial conglomerate are shown in Fig. VII.16.

FIG. VII.16 – REGULATORY CAPITAL ADEQUACY OF THE DZ BANK FINANCIAL CONGLOMERATE[1]

	Dec. 31, 2023[2]	Dec. 31, 2022[3]
Own funds (€ million)	39,884	36,458
Solvency requirements (€ million)	25,805	24,119
Coverage ratio (percent)	**154.6**	**151.2**

1 The values for the DZ BANK banking group included in the calculations were determined in accordance with the CRR transitional guidance.
2 Preliminary figures.
3 Final figures.

The rise in the coverage ratio calculated for the DZ BANK financial conglomerate from 151.2 percent as at December 31, 2022 to 154.6 percent as at December 31, 2023 was attributable, in particular, to the increase in own funds. The effects that led to this change in the coverage ratio were attributable to the DZ BANK banking group and the R+V Versicherung AG insurance group (see also chapter VII.7.3.3 and chapter VII.7.3.4).

The preliminary coverage ratio calculated for the financial conglomerate as at December 31, 2023 was higher than the **external minimum target** laid down by the supervisory authorities, the **internal observation threshold**, and the **internal minimum threshold**. The target/threshold values are shown in Fig. VII.3.

7.3.3 DZ BANK banking group

The banking group for regulatory purposes pursuant to section 10a KWG in conjunction with articles 11 and 18 CRR consists of DZ BANK as the superordinated entity plus other institutions, financial institutions, and ancillary services undertakings that qualify as subsidiaries according to article 4 (1) no. 16 CRR. Insurance companies and companies not in the financial sector are not required to be consolidated in the banking group for regulatory purposes. In this context, R+V is fully consolidated for commercial-law purposes but is not included in the banking group for regulatory purposes.

Procedure for determining regulatory risk-weighted assets

The entities in the DZ BANK banking group use the following methods to calculate the regulatory risk-weighted assets in accordance with the CRR:

- **Credit risk**: Primarily the foundation internal ratings-based (IRB) approach, the IRB approach for the retail business and, in some cases, the Standardized Approach to credit risk
- **Market risk**: Predominantly the group's own internal models and, to a minor extent, the Standardized Approaches
- **Operational risk**: Primarily the Standardized Approach

Regulatory capital ratios

The regulatory **own funds** of the **DZ BANK banking group** as at December 31, 2023 determined in accordance with the CRR transitional guidance amounted to a total of €30,647 million (December 31, 2022: €24,719 million). This equated to a rise in own funds of €5,928 million compared with the end of 2022, mainly comprising an increase in common equity Tier 1 capital of €4,870 million and an increase in additional Tier 1 capital of €1,143 million.

The biggest factors contributing to the rise in **common equity Tier 1 capital** from €18,762 million as at December 31, 2022 to €23,632 million as at the reporting date were the initial application of IFRS 17 at R+V at €3,851 million and the profit – calculated net of all dividends assumed by the supervisory authority and charges, and verified in accordance with Decision (EU) 2015/656 of the ECB – of €1,214 million as at December 31, 2023.

The rise of €1,143 million in **additional Tier 1 capital**, from €2,150 million as at December 31, 2022 to €3,293 million as at December 31, 2023, was due to the AT1 bond issued by DZ BANK in 2023.

Tier 2 capital declined from €3,807 million as at December 31, 2022 to €3,722 million as at December 31, 2023, a year-on-year decrease of €85 million. In the second half of 2023, Tier 2 capital totaling €271 million was issued. This was offset by amortization of existing Tier 2 capital instruments and negative effects from the utilization of the IFRS 9 transitional guidance pursuant to article 473a CRR.

The rise of €14,769 million in **risk-weighted assets** from €137,379 million as at December 31, 2022 to €152,148 million as at December 31, 2023 was largely attributable to the initial application of IFRS 17 and the associated positive effect on the equity-accounted long-term equity investment of DZ BANK in R+V. The latter led to an increase in risk-weighted assets of €18,838 million. The rise in risk-weighted assets was partly offset by a reduction in the capital charges for operational risk (€1,510 million) and market risk (€2,686 million) and the reduction in deferred tax assets (€2,676 million), which stemmed from temporary differences between carrying amounts on the IFRS balance sheet and in the tax accounts.

As at December 31, 2023, the DZ BANK banking group's **common equity Tier 1 capital ratio** was 15.5 percent, an increase of 1.8 percentage points compared with December 31, 2022 (13.7 percent). The **Tier 1 capital ratio** of 17.7 percent calculated as at the reporting date was 2.5 percentage points higher than the figure as at December 31, 2022 (15.2 percent). The **total capital ratio** also went up, from 18.0 percent as at December 31, 2022 to 20.1 percent as at December 31, 2023.

The aforementioned capital ratios take into account the supervisory authority's assumed dividend payout ratio for 2023 in accordance with Decision (EU) 2015/656 of the ECB. Using the actual dividend planned and based on DZ BANK's dividend policy, the common equity Tier 1 capital ratio would amount to 15.8 percent as at the reporting date.

Fig. VII.17 provides an overview of the regulatory capital ratios for the DZ BANK banking group and for DZ BANK.

FIG. VII.17 – REGULATORY CAPITAL RATIOS[1]

	DZ BANK banking group		DZ BANK	
	Dec. 31, 2023	Dec. 31, 2022	Dec. 31, 2023	Dec. 31, 2022
Capital				
Common equity Tier 1 capital (€ million)	23,632	18,762	14,871	15,259
Additional Tier 1 capital (€ million)	3,293	2,150	3,043	1,900
Tier 1 capital (€ million)	**26,925**	**20,912**	**17,914**	**17,159**
Total Tier 2 capital (€ million)	3,722	3,807	3,836	3,794
Own funds (€ million)	**30,647**	**24,719**	**21,751**	**20,953**
Risk-weighted assets				
Credit risk including long-term equity investments (€ million)	138,249	119,283	93,332	92,608
Market risk (€ million)	4,683	7,369	4,296	6,944
Operational risk (€ million)	9,217	10,727	4,110	3,630
Total (€ million)	**152,148**	**137,379**	**101,738**	**103,182**
Capital ratios				
Common equity Tier 1 capital ratio (percent)	15.5	13.7	14.6	14.8
Tier 1 capital ratio (percent)	17.7	15.2	17.6	16.6
Total capital ratio (percent)	20.1	18.0	21.4	20.3

1 In accordance with the CRR transitional guidance.

Regulatory minimum capital requirements specified by the SREP

The minimum capital requirements that the DZ BANK banking group had to comply with in 2023 under the Supervisory Review and Evaluation Process for Basel Pillar 2 (SREP) comprised those components of Pillar 1 laid down as mandatory by law and those individually specified by the banking supervisor.

Institution-specific requirements under the additional capital requirements in Pillar 2, determined in the outcome of the SREP conducted for the DZ BANK banking group in 2022, also had to be satisfied. In this process, the banking supervisor specifies a mandatory add-on (**Pillar 2 requirement**) that is factored into the external minimum targets for the capital ratios and into the basis of calculation used to determine the threshold for the maximum distributable amount (MDA). Distributions are restricted if capital falls below the MDA threshold.

In addition to this mandatory component, there is a recommended own funds amount under Pillar 2 (**Pillar 2 guidance**), which likewise is determined from the SREP, but unlike the mandatory component relates only to common equity Tier 1 capital. Failure to comply with the own funds guidance under Pillar 2 does not constitute a breach of regulatory capital requirements. Nevertheless, this figure is relevant as an early-warning indicator.

BaFin has classified DZ BANK as an other systemically important institution (O-SII). The DZ BANK banking group had to comply with an **O-SII capital buffer** (comprising common equity Tier 1 capital) as defined in section 10g (1) KWG at a level of 1.0 percent in 2023.

The minimum capital requirements applicable to **DZ BANK** comprised those components of **Pillar 1** laid down as mandatory by law and those individually specified by the banking supervisor. Pillar 2 add-ons are currently not relevant to DZ BANK.

The mandatory minimum capital requirements relevant to the DZ BANK banking group and DZ BANK under the SREP, and their components, are shown in Fig. VII.18.

FIG. VII.18 – REGULATORY MINIMUM CAPITAL REQUIREMENTS ACCORDING TO THE SREP

	DZ BANK banking group		DZ BANK	
Percent	**2023**	2022	**2023**	2022
Minimum requirement for common equity Tier 1 capital	**4.50**	4.50	**4.50**	4.50
Additional Pillar 2 capital requirement	**1.02**	0.96		
Capital conservation buffer	**2.50**	2.50	**2.50**	2.50
Countercyclical capital buffer[1]	**0.69**	0.05	**0.67**	0.03
Systemic risk buffer[1]	**0.19**		**–**	
O-SII capital buffer	**1.00**	1.00		
Mandatory minimum requirement for common equity Tier 1 capital	**9.90**	9.00	**7.67**	7.03
Minimum requirement for additional Tier 1 capital[2]	**1.50**	1.50	**1.50**	1.50
Additional Pillar 2 capital requirement[2]	**0.34**	0.32		
Mandatory minimum requirement for Tier 1 capital	**11.75**	10.82	**9.17**	8.53
Minimum requirement for Tier 2 capital[2]	**2.00**	2.00	**2.00**	2.00
Additional Pillar 2 capital requirement[2]	**0.46**	0.43		
Mandatory minimum requirement for total capital	**14.20**	13.25	**11.17**	10.53

Not available

1 The amount of the countercyclical capital buffer and the systemic risk buffer is recalculated at each reporting date. Unlike the other reported values, which apply to the entire financial year, the countercyclical capital buffers shown for 2023 and 2022 relate solely to the reporting dates. The systemic risk buffer was not relevant in 2022.
2 The minimum requirement and additional capital requirement can also be satisfied with own funds from higher categories.

Compared with December 31, 2022, the minimum capital requirements were up by 0.95 percentage points as at the reporting date. This is primarily due to an increase in the additional capital requirements in Pillar 2 from January 1, 2023 and an increase in the countercyclical capital buffer and the introduction of the systemic risk buffer from February 1, 2023. In a general administrative act dated January 31, 2022, BaFin raised Germany's countercyclical capital buffer rate from 0.0 percent to 0.75 percent. In a general administrative act dated March 30, 2022, BaFin then introduced a systemic risk buffer for the domestic residential real estate sector of 2 percent of the risk-weighted assets attributable to these exposures.

Compliance with the minimum capital requirements

The **internal threshold values** and **external minimum targets** applicable at the level of the DZ BANK banking group for the common equity Tier 1 capital ratio, the Tier 1 capital ratio, and the total capital ratio were exceeded at the level of the DZ BANK banking group and DZ BANK as at December 31, 2023. The target/threshold values are shown in Fig. VII.3 and Fig. VII.4.

Leverage ratio

The leverage ratio shows the ratio of a bank's Tier 1 capital to its total exposure. In contrast to credit-risk-related capital requirements for which the assumptions are derived from models, the individual exposures in the calculation of the leverage ratio are not allocated their own risk weight but are generally included in the total exposure without any risk weight at all.

The leverage ratio of the **DZ BANK banking group** determined in accordance with the CRR transitional guidance went up by 1.5 percentage points from 4.7 percent as at December 31, 2022 to 6.2 percent as at December 31, 2023. This was mainly due to a sharp rise of €6.0 billion in Tier 1 capital in connection with the implementation of IFRS 17 at R+V. Conversely, the total exposure declined by €8.3 billion.

The dividend payout ratio for 2023 assumed by the supervisory authority in accordance with Decision (EU) 2015/656 of the ECB was used to calculate the leverage ratio. Using the actual dividend planned and based on DZ BANK's dividend policy, the leverage ratio would amount to 6.3 percent as at the reporting date.

DZ BANK's leverage ratio as at December 31, 2023 was calculated at 6.8 percent (December 31, 2022: 6.3 percent). The rise of 0.5 percentage points was attributable to a decline of €10.9 billion in the total exposure and an increase of €755 million in Tier 1 capital.

The lower limits applicable to the DZ BANK banking group and DZ BANK in respect of the regulatory capital ratios – the **external minimum target**, the **internal observation threshold**, and the **internal minimum threshold** – were all exceeded as at the reporting date. The target/threshold values are shown in Fig. VII.3 and Fig. VII.4.

Minimum requirement for own funds and eligible liabilities

The Bank Recovery and Resolution Directive (BRRD), Implementing Regulation (EU) No. 806/2014 establishing a Single Resolution Mechanism, and the transposition of the BRRD into German law in the form of SAG created the legal basis at European and national level for a single resolution mechanism for banks and the regulatory MREL ratio as a percentage of risk-weighted assets.

The MREL requirements are intended to ensure that banks hold a sufficiently large volume of own funds and liabilities that can be 'bailed-in' to make it possible at all times to carry out an orderly resolution. 'Bail-in-able' liabilities are those that provide for creditors to take an interest in losses incurred and recapitalization if a bank gets into financial difficulties, enabling resolution to take place on the basis of the bail-in and other instruments without recourse to government help and without jeopardizing the stability of the financial system.

The DZ BANK banking group's **MREL ratio as a percentage of risk-weighted assets** is the ratio of the total of the regulatory own funds of the DZ BANK banking group and the eligible external MREL liabilities of DZ BANK to the total risk exposure amount (risk-weighted assets) of the DZ BANK banking group.

Since January 1, 2023, the **MREL ratio as a percentage of the leverage ratio exposure** has been used alongside the MREL ratio as a percentage of risk-weighted assets for the purposes of managing the DZ BANK banking group. This MREL ratio is the ratio of the total of the regulatory own funds of the DZ BANK banking group and the eligible external, subordinated MREL liabilities of DZ BANK to the leverage ratio exposure of the DZ BANK banking group.

MREL ratio

The MREL ratio as a percentage of risk-weighted assets measured for the DZ BANK banking group was 42.4 percent as at December 31, 2023 (December 31, 2022: 38.3 percent). The year-on-year increase in this key figure was attributable to a rise of €4,163 million in MREL-eligible senior preferred liabilities and growth in own funds of €5,928 million. As at December 31, 2023, the MREL volume stood at €64,533 million, which was up by €11,892 million compared with December 31, 2022.

As at December 31, 2023, the MREL ratio as a percentage of the leverage ratio exposure was 14.9 percent (December 31, 2022: 11.9 percent). The rise in this ratio was attributable to an increase in the MREL volume.

The **external minimum targets**, **internal observation thresholds**, and **internal minimum thresholds** applicable to the two MREL ratios were exceeded as at December 31, 2023. The target/threshold values and measured values are shown in Fig. VII.3.

Subordinated MREL ratio

The **subordinated MREL ratio as a percentage of risk-weighted assets** is the ratio of the total of the regulatory own funds of the DZ BANK banking group and the eligible external, subordinated MREL liabilities of DZ BANK to the total risk exposure amount (risk-weighted assets) of the DZ BANK banking group. As at December 31, 2023, this key figure stood at 31.0 percent (December 31, 2022: 28.5 percent). The rise in the subordinated MREL ratio as a percentage of risk-weighted assets was predominantly driven by the substantial growth of the subordinated volume, which – in turn – was mainly attributable to an increase of €2,485 million in the portfolio of senior non-preferred liabilities and an increase of €5,928 million in own funds.

Since January 1, 2023, the **subordinated MREL ratio as a percentage of the leverage ratio exposure** has been used alongside the subordinated MREL ratio as a percentage of risk-weighted assets for the purposes of managing the DZ BANK banking group. It is the ratio of the total of the regulatory own funds of the DZ BANK banking group and the eligible external, subordinated MREL liabilities of DZ BANK to the leverage ratio exposure of the DZ BANK banking group. As at December 31, 2023, the subordinated MREL ratio as a percentage of the leverage ratio exposure was 10.9 percent (December 31, 2022: 8.9 percent). The rise in this ratio was also attributable to the marked increase in the subordinated volume.

The **external minimum targets**, **internal observation thresholds**, and **internal minimum thresholds** applicable to the two subordinated MREL ratios were exceeded as at December 31, 2023. The target/threshold values and measured values are shown in Fig. VII.3.

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.

R+V uses two measures defined by the supervisory authorities – the transitional measure on technical provisions and the volatility adjustment – for individual personal insurance companies. Both measures have a positive impact on regulatory and economic capital adequacy. Further disclosures on these measures can be found in chapter VII.7.2.1.

The preliminary figure for the **regulatory risk-bearing capacity** of the R+V Versicherung AG insurance group as at December 31, 2023 was calculated at 230.2 percent. The coverage ratio was thus above the external minimum target of 100.0 percent, which was the same target as had applied in 2022. The final figure as at December 31, 2022 was 212.7 percent (preliminary figure given in the 2022 risk report: 219.8 percent). Fig. VII.19 shows how the solvency requirements are covered by eligible own funds.

FIG. VII.19 – REGULATORY CAPITAL ADEQUACY OF THE R+V VERSICHERUNG AG INSURANCE GROUP

	Dec. 31, 2023[1]	Dec. 31, 2022[2]
Own funds (€ million)	18,379	15,918
Solvency requirements (€ million)	7,982	7,484
Coverage ratio (percent)	**230.2**	**212.7**

1 Preliminary figures.
2 Final figures. The preliminary figures were stated in the 2022 risk report.

The changes in the regulatory risk-bearing capacity are primarily due to movements in interest rates and equities in the capital markets in 2023. The increase in solvency requirements is primarily attributable to higher actuarial risk.

The **recalculation of the overall solvency requirement** described in chapter VII.7.2.3 for economic risk-bearing capacity 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 2022. The prior-year figures as at December 31, 2022 given in this risk report have been restated accordingly and are not directly comparable with the figures in the 2022 risk report.

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, liquidity, and risk from potential **crisis scenarios** that are exceptional, but plausible, and particularly relevant to the DZ BANK Group's value drivers and risk factors. The **KPIs** relating to economic and regulatory capital adequacy are analyzed in this context. However, the stress tests also reflect events that go beyond the methods established for calculating capital adequacy. The term 'adverse stress tests' encompasses those stress scenarios that represent negative macroeconomic trends or events from the perspective of the DZ BANK Group. In this context, 'adverse' indicates that the scenarios may be particularly disadvantageous or even harmful.

Adverse stress tests can provide information on whether the level of capital resources – especially the buffer held to cover crisis situations – is also sufficient to cover various types of moderate to serious crisis scenario. The stress test results also facilitate an assessment of the extent to which the analyzed value drivers and risk factors are material for the DZ BANK Group.

The methods used are designed so that the specific features of R+V's business model and its risk and capital management systems are taken into account when determining the results of stress testing in the DZ BANK Group.

For the adverse stress tests, DZ BANK has put in place a system of threshold values as an **early-warning mechanism**. The threshold values for the scenarios across all risk types are monitored in the ongoing reporting system. These early-warning signals trigger various risk management processes so that there can be an early response to the potential risks highlighted by the stress tests. Control measures potentially available for the crisis scenario in question are also taken into account so that there is a comprehensive, critical evaluation of the stress test results.

The adverse stress tests are carried out quarterly. The results are submitted in the DZ BANK Group stress tests report and are noted by the **Board of Managing Directors** and by the DZ BANK **Supervisory Board's Risk Committee**.

7.4.2 Reverse stress tests

Reverse stress tests complement the adverse stress tests and are used to investigate which of the hypothetical scenarios could conceivably be sufficiently plausible and relevant to jeopardize the ability of the DZ BANK Group to **continue as a going concern**.

'Reverse' indicates that the tests are in the opposite direction and distinguishes them from the adverse stress tests.

In adverse stress tests, scenarios are defined and the corresponding KPIs determined in order to assess whether there is a sufficient level of capital resources available to cover moderate or serious crisis scenarios. Reverse stress tests, on the other hand, examine which scenarios would have to occur to jeopardize the DZ BANK Group's ability to continue as a going concern.

In reverse stress tests, the risk particularly to the regulatory KPIs is simulated with scenarios in which it would no longer be feasible to **continue the business model** or in which the business model would prove to be no longer sustainable. In the case of reverse stress tests, the priorities are therefore as follows: firstly, to identify relevant scenario approaches that could have the potential to jeopardize the bank's ability to continue as a going concern, and secondly, to estimate the probability and plausibility of a specific, sufficiently serious scenario of this nature.

Reverse stress tests are generally carried out annually. The results are submitted in the DZ BANK Group stress tests report and are noted by the **Board of Managing Directors** and by the DZ BANK **Supervisory Board's Risk Committee**.

7.4.3 Scenario analyses in the risk types

The quarterly report on stress tests in the DZ BANK Group is supplemented by a credit risk stress test in the normative perspective and by various scenario analyses in the risk types in the economic perspective. These analyses serve as a link between vulnerabilities and sensitivities, and between potential events and adverse scenarios. The scenario analyses also enhance the risk quantification for each risk type by including an alternative perspective.

In the scenario analyses, specific vulnerabilities, risk concentrations, or events are examined in detail for each type of risk by simulating economic losses and comparing them against the relevant risk limit.

Scenario analyses in the risk types are carried out quarterly. The results are submitted in the DZ BANK Group stress tests report and are noted by the **Board of Managing Directors** and by the DZ BANK **Supervisory Board's Risk Committee**.

Bank sector

8 Credit risk

8.1 Definition

Credit risk is defined as the risk of losses arising from the default of counterparties (borrowers, issuers, other counterparties) or from the migration of the credit ratings of these counterparties, or of losses in connection with the recovery of loans, advances, receivables, or collateral.

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** refer to securities business in the banking book and trading book, money market business, transactions involving tradable loans and advances (such as promissory notes), currency transactions, transactions involving derivatives, and transactions involving commodities (such as precious metals).

In **traditional lending business**, credit risk arises mainly in the form of default risk and migration risk. In this context, default risk refers to the risk that a customer may be unable to settle receivables arising from loans or advances made to the customer (including lease receivables) or make overdue payments. It also includes risks arising from contingent liabilities (such as issued guarantees and indemnities). The calculation of the exposure encompasses loan facilities promised to third parties and any existing overdrawn accounts in addition to loans that have already been drawn down. Migration risk is a sub-risk within traditional credit risk and reflects the risk of changes in fair value caused by a change in the rating for a borrower (rating migration).

Credit risk in connection with **trading activities** arises in the form of default risk, which can be subdivided into issuer risk, replacement risk, and settlement risk, depending on the type of transaction involved.

Issuer risk is the risk of incurring losses from the default of issuers of tradable debt or equity instruments (such as bonds, shares, profit-participation certificates), losses from a default in connection with the underlying instrument in derivatives (for example, credit or equity derivatives), or losses from a default in connection with investment fund units or their underlying instruments.

Replacement risk on derivatives is the risk of a counterparty defaulting during the term of a trading transaction.

Transaction processing risk is a default risk subcategory of replacement risk. It is factored into the exposure calculation for replacement risk. Transaction processing risk arises in connection with both delivery-versus-payment (DVP) settlement and unilateral payments in a trading transaction. It arises when the counterparty in a trading transaction cannot perform its contractual obligation.

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.

Recovery risk forms part of credit risk. It cannot be determined as an exposure amount but increases the risk capital requirement for traditional credit risk, issuer risk, and replacement risk. Recovery risk results from uncertainty regarding the recovery rate for existing collateral and uncertainty regarding the recovery rate for unsecured receivables (or partial receivables).

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 refers to sovereign risk (the risk arising from exposure to a government itself) or the risk that the quality of the overall exposure in a country may be impaired as a result of country-specific events (country-related borrower risk). In this case, it is not viewed as a separate risk type but as a component of credit risk and is thus recorded within traditional credit risk, issuer risk, and replacement risk.

8.2 Business background and risk strategy

The DZ BANK Group is exposed to considerable credit risk in the Bank sector. The lending business is one of the most important core activities of the entities in the Bank sector. In its role as the central institution, DZ BANK covers a **broad range of lending business**, either in partnership with the local cooperative banks or in direct business, and provides its customers with financing solutions. Its customers include the local cooperative banks themselves, corporate customers, retail customers, the public sector, international companies, and banks and institutions both in Germany and abroad.

Default risk from traditional lending business arises primarily at DZ BANK, BSH, DZ HYP, and TeamBank. The risk results from the specific transactions in each management unit and therefore has varying characteristics in terms of diversification and size in relation to the volume of business.

Default risk relating to trading transactions arises from issuer risk, particularly in connection with the trading activities and investment business of DZ BANK. Replacement risk arises for the most part at DZ BANK and DZ PRIVATBANK.

The entities in the Bank sector pursue a decentralized business policy aimed at promoting the cooperative banks and are bound by the core strategic guiding principle of a **'network-oriented central institution and financial services group'**. The business and risk policy for the credit-risk-bearing core businesses in the group is formulated on the basis of risk-bearing capacity. The credit risk strategy therefore forms the basis for credit risk management and reporting across the whole group and ensures that there is a standard approach to credit risk within the group. It takes into account the business models of each of the management units.

The management units aim to ensure that their credit portfolios always have **a sound credit quality and risk structure**. One of the objectives is to make sure that the portfolios remain highly diversified going forward.

8.3 Risk factors

8.3.1 General credit risk factors

Key values used in determining credit risk include the concentrations of lending volume in terms of counterparties, sectors, country groups, and residual maturities, and the credit quality structure of the credit portfolio. **Significant concentrations of volume** in counterparties, sectors, or countries increase the risk that an accumulation of credit risk will become critical, for example if there are defaults among greater concentrations of counterparties or, in economic crises, defaults in sectors or countries with significant concentrations in the credit portfolio.

The term of loan agreements is also a key credit risk factor because the probability of a deterioration in credit rating and therefore of a counterparty default during the term of an agreement generally increases over time. Particularly in the case of an **accumulation of exposures that have longer terms to maturity** and a non-investment-grade rating, there is a danger that the credit risk will materialize and the recognition of impairment losses will become necessary.

8.3.2 Specific credit risk factors

In addition to the general risk factors, **negative macroeconomic and environmental trends** could lead to higher credit risk, more defaults among individual counterparties, and therefore to a greater requirement for the recognition of impairment losses in the lending business.

The biggest threats to general borrower credit quality stem from the adverse factors described in chapter VII.4.2. If the macroeconomic trends described there persist for a while longer yet, or escalate, credit risk in the Bank sector would likely rise significantly.

The lending exposures affected to differing extents by these macroeconomic risk factors are described in chapters 8.7 (Credit portfolios particularly affected by negative macroeconomic conditions), 8.8 (Credit portfolios particularly affected by acute global crises), and 8.9 (Credit portfolios with increased risk content).

There is also a risk that collateral for loan exposures could become impaired as a result of transition risk or if physical climate-related and environmental risks were to materialize. In addition, transition effects could diminish the earnings power of corporate finance borrowers. A resulting deterioration of the borrowers' credit quality could lead to a greater requirement for the recognition of impairment losses.

8.4 Organization, responsibility, and 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 termination, 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 the risk structure of credit portfolios and changes therein and form the basis for managing credit risk.

The **credit risk report** keeps the Board of Managing Directors, the Group Risk and Finance Committee, and the Supervisory Board's Risk Committee informed of the economic capital required to cover credit risk. In addition to providing management with recommendations for action, internal reporting also includes an in-depth analysis of the portfolio structure in regard to risk concentrations based on key risk characteristics such as credit rating class, industry, country group, and the lending volume to single borrowers. In addition, the report includes details on specific exposures. In the context of the risk limit, the credit value-at-risk is also included in the credit risk report.

8.5 Risk management

8.5.1 Rating systems

Use and characteristics of the rating systems

The generation of internal credit ratings for the counterparties of entities in the Bank sector helps to provide a solid basis for lending decisions in the management of transactions, in that the expected losses from defaults in the lending business are then factored into pricing. In addition, internal ratings are used to incorporate the credit quality of the counterparties when calculating unexpected losses in the credit portfolio.

The **VR rating system** used as standard throughout the Cooperative Financial Network aims to ensure that all the entities in the network apply a sophisticated uniform methodology producing ratings that are comparable.

DZ BANK primarily uses rating systems in its credit risk management system to assess major corporations, banks, investment funds, and project finance (slotting approach). The internal assessment approach is also used to evaluate the liquidity lines and credit enhancements made available by DZ BANK to programs for the issuance of asset-backed commercial paper (ABCP). These rating systems have been approved by the competent supervisory authority for the purposes of calculating regulatory capital using the **foundation IRB approach** or the **slotting approach**.

For **internal management purposes**, DZ BANK uses further rating systems to assess SMEs (German Mittelstand), countries, asset finance, acquisition financing, agricultural businesses, public-sector entities, not-for-profit organizations, foreign SMEs, and insurance companies.

Most of the other entities in the Bank sector use the DZ BANK rating systems for banks, countries, and major corporations. Rating systems for specific business segments are also used by individual subsidiaries.

Development and expansion of rating systems

All internal rating systems and those approved by the banking supervisor for solvency reporting were validated in the reporting year. The new VR rating system for major corporations and a substantially revised version of the rating system for local cooperative banks were introduced.

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. VII.20 shows DZ BANK's credit rating master scale and matches the internal credit ratings to the ratings used by Moody's, Standard & Poor's, and Fitch Ratings. 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 chart can only be used as a starting point for comparison between internal and external credit ratings.

DZ BANK rating desk

The VR rating systems for banks and countries are also available to DZ BANK subsidiaries and the cooperative banks. Users can enter into a master agreement to access the ratings via an IT application (Rating Desk), which is available throughout the Cooperative Financial Network, in return for the payment of a fee. Any accessed ratings are first validated by the entities in the Bank sector or the cooperative banks before they are included in the user's credit procedures.

FIG. VII.20 – BANK SECTOR: DZ BANK'S VR CREDIT RATING MASTER SCALE AND EXTERNAL CREDIT RATINGS

		External rating classes			
Internal rating class	Average default probability	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	DPD default				Default
5B	Specific loan loss allowance / internal neutralization of interest / rating-related sale with significant loss / further bank-internal criteria				
5C	Distressed restructuring				
5D	Insolvency				
5E	Direct impairment / workout				
NR	Not rated				

8.5.2 Lending business pricing

The management units in the Bank sector use **risk-adjusted pricing** as a key decision-making criterion for the management of the lending business. Adequate standard risk costs and risk-adjusted capital costs are taken into account. The methods used by the management units to manage the lending business reflect the particular features of their products and business.

To ensure that lending business remains profitable, **standard risk costs** are determined in the management of individual transactions in many parts of the Bank sector. The purpose of these costs is to cover average expected losses from borrower defaults. The aim is to ensure that the net loss allowances recognized in the financial statements are covered on average over the long term in an actuarial-type approach by the standard risk costs included in the pricing.

In addition to standard risk costs, **economic and regulatory costs of capital** based on the capital requirement are integrated into the contribution margin costing carried out by the entities in the Bank sector. This enables the Bank sector 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.

8.5.3 Management of exposure in traditional lending business

Measuring exposure in traditional lending business

Individual lending exposures are managed on the basis of an analysis of gross lending exposure. The period taken into account in this case is equivalent to the monitoring cycle of 1 year. Together with risk-related credit-portfolio management, volume-oriented credit risk management is one of the components in the management of risk concentrations in the lending business.

In traditional lending business, the credit exposure or lending volume is generally the same as the nominal value of the total loan book and reflects the maximum volume at risk of default. The credit exposure is a gross value because risk-bearing financial instruments are measured before the application of any credit risk mitigation and before the recognition of any loss allowances. 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.

In building society operations, nominal amounts are used as a basis for measuring the gross lending volume. In addition, loans and advances to customers in building society operations are reduced by the associated deposits.

Limit system for managing exposures in traditional lending business

Limits are set in the relevant entities in the Bank sector for individual borrowers and groups of connected customers. Counterparties are also managed centrally at the level of the Bank sector, depending on the limit level and credit rating.

As a prerequisite for prompt monitoring of limits, suitable **early-warning processes** have been established in the management units that are of material significance for the Bank sector’s credit risk. In this context, financial covenants are often incorporated into loan agreements to act as early-warning indicators for changes in credit standing and as a tool for the proactive risk management of lending exposures.

In addition, processes have been set up in the Bank sector to handle instances in which limits are **exceeded**. Such excess exposures must be approved by the relevant level of authority in the management units concerned and in accordance with applicable internal requirements; measures to reduce them must also be initiated 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.

8.5.4 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, while derivatives are measured at fair value and, in respect of settlement risk, at the cash-flow-based accepted value.

The fair value of a securities exposure is used to determine the **issuer risk**. Risks relating to the underlying instruments in derivative transactions are also included in issuer risk.

At the level of the Bank sector, **replacement risk** is generally determined on the basis of fair value, taking into account appropriate add-ons. At **DZ BANK**, which is of particular significance as far as replacement risk is concerned, these add-ons are determined primarily according to each individual transaction as part of a portfolio simulation. The portfolio simulation models future exposures, taking into account a large number of risk factors. The add-ons for the remaining derivatives not included in the portfolio simulation are determined on the basis of a product-specific allocation, which also takes into account specific risk factors and residual maturities. Transaction processing risk is additionally factored into the exposure calculation for replacement risk. This risk is largely determined as the net present value of the reciprocally required performance.

With regard to exchange-traded derivatives, the replacement risk vis-à-vis the customer in customer brokerage business consists of the actual collateral exchanged (the variation margin for the daily settlement of profits and losses, and the initial margin as the collateral to be provided in advance to cover the loss risk), the fair value, and additional collateral requirements. To calculate the replacement risk vis-à-vis stock exchanges, additional potential for changes in value or add-ons for individual transactions are also taken into consideration. Where legally enforceable, netting agreements and collateral agreements are used at counterparty level for all derivatives in order to reduce exposure. In the case of repos and securities lending transactions, haircuts are applied instead of add-ons. Unsecured money market transactions are measured at fair value.

As regards **settlement risk**, the risk amount is the expected payment due. Settlement risk is recognized for the specified settlement period. It takes into account the amount and timing of outstanding cash flows for the purposes of managing the risk associated with settlement by the two parties at points of time in the future. These future cash flows are already factored into the replacement risk through the fair value measurement and are therefore included in the risk capital requirement. As a result, settlement risk does not need to be covered with risk capital in addition to that for the other types of credit risk related to trading activities.

Limit system for managing trading exposure

DZ BANK has established an exposure-oriented **limit system** related to credit ratings to limit the default risk arising from trading business. Replacement risk is managed via a structure of limits broken down into maturity bands. Unsecured money market transactions are subject to separate limits. The transaction processing risk forming part of the replacement risk is included in the shortest maturity band. A daily limit is set in order to manage settlement risk. A specific limit for each issuer or, in certain circumstances, a general limit is determined as the basis for managing issuer risk. The specific limit can also be broken down into seniority bands; in the case of asset-backed securities, the specific limit can be broken down into rating bands. Issuer risk relating to cover assets is subject to separate limits, as are settlement risk and replacement risk attaching to cover assets. Issuer risk in connection with the trading book and issuer risk in connection with the banking book are subject to separate limits. The material subsidiaries have their own comparable limit systems.

The standardized methodology for measuring and monitoring trading exposure at DZ BANK (**post-transaction control**) is included in an IT-supported limit monitoring system, to which all relevant trading systems are directly or indirectly connected. A second IT system is used solely for most of the **pre-transaction control**. This functionality is currently being migrated to the system used for post-transaction control. 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. The material subsidiaries have their own comparable processes.

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.

8.5.5 Management of risk concentrations and correlation risks

Identifying risk concentrations

One of the Bank sector's key concerns in the management of credit risk is to avoid undesirable concentrations and correlations of risks in the credit portfolio. To this end, it has established credit risk strategies, policies, and principles that must be applied in the various areas of business. The main structural elements are managed on this basis with the aim of ensuring that the credit portfolio is appropriately diversified. The structural elements include specifications for rating-related maximum exposures, strategic borrower limits, restriction of areas of business to specified countries or regions, maturity limits, specific requirements for certain operating segments and industries, and requirements relating to collateral, loan agreement clauses, and key credit-risk-related figures.

Measurement and monitoring of risk concentrations

The structural requirements include general parameters to ensure that the credit portfolio in the Bank sector is comprehensively diversified. They therefore provide important guidance for managing new business. The ongoing monitoring of potential risk concentrations is also of fundamental importance. With this in mind, the Bank sector's credit portfolio is constantly checked for concentrations in terms of asset class, area of business, industry, country, country group, residual maturity, size category, and rating class. Significant attention is also paid to monitoring concentrations linked to individual borrowers. Exposures are analyzed and managed using monitoring lists, particularly to identify if specified volume limits are exceeded.

Besides volume-oriented parameters, the credit value-at-risk for individual exposures and borrowers is a core parameter used in modeling concentration risk. A key factor is the possibility of a simultaneous default by a number of borrowers who share the same characteristics. This is why determining the correlated exposure to loss as a part of the calculation of the risk capital required for credit risk is essential for managing risk concentrations.

Risk concentrations in credit and collateral portfolios

In managing the traditional lending business and its trading business, DZ BANK takes into account the correlation between collateral and the borrower pledging the collateral or between the collateral and the counterparty whose replacement risk the collateral is intended to mitigate. If there is a significant positive correlation between the collateral and the borrower or the counterparty pledging the collateral, the collateral is disregarded or accorded a reduced value as collateral. This situation arises, for example, where a protection provider, garnishee, or issuer forms a group of connected clients or a similar economic entity with the borrower or counterparty.

Wrong-way risk in trading activities

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.

Other measures to prevent concentration risk and wrong-way risk in trading activities

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**. Both policies are explained in chapter VII.8.5.6.

If material specific wrong-way risk arises in connection with a bilateral OTC trading transaction, it is taken into account when the exposure is calculated.

The **Risk Committee** receives quarterly reports on relevant wrong-way risk and concentration risk arising in connection with derivatives and securities financing, including any necessary exposure adjustments.

8.5.6 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. In particular, collateral received reduces the credit value-at-risk (see chapter VII.8.5.8).

Collateral in line with the level of risk is generally sought where the rating category is 3B or below on the credit rating master scale and in medium-term or long-term financing arrangements. In addition, recoverable collateral equivalent to 50.0 percent of the finance volume is expected in the joint credit business with the local cooperative banks for new business entered into with SME customers in rating category 3E 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 limit defaults in these transactions, a decision on whether to obtain traditional collateral is 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, 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. Entities in the Bank sector also enter 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.

Credit derivatives, such as credit default swaps, are used to reduce the issuer risk arising on 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. For risk management purposes, the protection provided by credit derivatives is set against the reference entity risk, thereby mitigating it. The protection providers/counterparties in credit derivatives are financial institutions, namely investment-grade banks and funds in the VR rating classes 1A to 2E.

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 monitored 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), both collateral agreements for variation margin (Credit Support Annex to the ISDA Master Agreement and Collateralization Annex to the German Master Agreement for Financial Futures) and collateral agreements for initial margin are entered into as instruments to reduce credit exposure in OTC transactions.

DZ BANK's **collateral policy** regulates the economic aspects of collateral agreements and the responsibilities and authorization levels. This policy specifies contractual parameters, such as the type and quality of collateral, minimum transfer amounts, and delivery deadlines as permitted by regulatory requirements. As a rule, the collateral policy permits only collateral in the form of cash (in euros) to be accepted for mitigating risks arising from OTC derivatives on the basis of the Credit Support Annex or the German Collateralization Annex. General exceptions to this rule exist for older contracts entered into before the collateral agreement obligation came into force and, in particular, for contracts with local cooperative banks that permit thresholds and securities collateral. Securities collateral must be eligible as collateral with the ECB and have a minimum credit rating of A3 (Moody's) or A- (Standard & Poor's, Fitch Ratings). Exceptions to the standard conditions are approved on the basis of the authorization levels specified in the collateral policy.

High-grade collateral is also required for repo and securities lending transactions in compliance with generally accepted master agreements and DZ BANK's own internal **minimum requirements for bilateral reverse repo transactions and securities lending transactions**, although the range of collateral is somewhat broader here than in the case of OTC derivatives. There are a few individual exceptions for banks in the Cooperative Financial Network.

Furthermore, the minimum requirements applicable at DZ BANK exclude prohibited correlations and specify collateral quality depending on the credit rating of the counterparties. The relevant rules are monitored on a daily basis and any infringements of the requirements are reported each month to the Risk Committee.

DZ BANK regularly uses **bilateral collateral agreements**. Exceptions apply to cover assets and special-purpose entities, as the special legal status of the counterparties means that only unilateral collateral agreements can be usefully enforced, and to supranational or government entities. Any decision not to use a bilateral collateral agreement for counterparties not subject to the European Market Infrastructure Regulation (EMIR) rules must be approved by a person with the relevant authority.

Netting and collateralization generally result in a significant reduction in the exposure from trading business. IT systems are used to measure exposures and collateral. **Margining** is carried out on a daily basis for the vast majority of collateral agreements in accordance with the collateral policy requirements.

Collateral agreements generally include minimum transfer amounts and, in some cases, also **thresholds** that are independent of the credit rating. There are also some agreements with triggers based on the credit rating. In these agreements, for example, the unsecured part of an exposure is reduced in the event of a ratings downgrade or the borrower is required to make additional payments (for example, payments known as 'independent amounts'). The supervisory authorities have specified these contractual provisions as standard for EMIR-compliant agreements.

EMIR requires the exchange of an initial margin in bilateral OTC derivatives transactions in addition to the variation margin. The transfer of initial margin takes account of counterparty-specific thresholds.

Central counterparties

Under EMIR, 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 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 clearing 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. DZ 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 London Clearing House, Paris, (LCH S.A) via clearing broker Deutsche Bank.

8.5.7 Management of closely monitored and non-performing lending exposures

The following descriptions apply to **DZ BANK**. Where required, similar procedures have been implemented in the material **subsidiaries**, which adapt them to the characteristics of the risks faced in their particular business.

Management and monitoring

Early identification of risk is a key component of the management and monitoring of traditional lending business. The system for identifying risk at an early stage is designed to detect emerging risks at the earliest opportunity and return the affected lending exposures to acceptable levels of risk quality. Another objective is to minimize losses from loan defaults.

In order to identify risk at an early stage, criteria are defined as early-warning indicators that should show when exposures must become subject to special, closer monitoring (intensified loan management) and when lending exposures must be transferred to the specialist units responsible for loan restructuring and workout.

The following lists are maintained to closely monitor lending exposures that are subject to intensified management and lending exposures that are in default:
- The **yellow list** for exposures with latent risk
- The **watchlist** for exposures with heightened risk
- The **default list** for exposures with acute risk (exposures that are classified as in default and thus non-performing)

Borrowers are classified as in default and thus **non-performing** either if a material portion of their overall obligation under the loan agreement is past due by more than 90 consecutive calendar days or if it is unlikely that they will meet their payment obligations under the loan agreement in full without the management unit in the Bank sector that granted the loan having recourse to actions such as the recovery of any available collateral. This corresponds to the definition of default specified by the CRR. Borrowers in default are assigned a rating of between 5A and 5E on the VR credit rating master scale.

Non-performing loan exposures are also referred to by the abbreviation NPL. They are monitored using the following key figures:

– **Coverage ratio** (specific loan loss allowances plus collateral as a proportion of the volume of non-performing loans)
– **NPL ratio** (volume of non-performing loans as a proportion of total lending volume)

Workout units become involved at an early stage of identified difficulties. By providing intensified loan management for critical exposures and applying problem-solving strategies, these special units aim to establish the basis for securing and optimizing exposures with heightened risk.

Exposures with heightened risk are generally reviewed, updated, and reported on a quarterly basis. The process is also carried out at shorter intervals if required. This process is supported by IT systems. Prompt internal reporting focused on target groups is a key component of this approach.

Forbearance

Forbearance is a tool for managing non-performing exposures or those close to non-performing. Forbearance measures include **concessions** regarding the obligations under a loan agreement of a borrower in financial difficulties. Such concessions may consist of **contractual modifications**, such as adjustments to covenants or changes to the interest rate, repayment structure, or loan maturity. They may also amount to **refinancing measures**, such as debt-equity swaps, further loan facilities, turnaround or bridging financing, or debt restructuring. The aim of such concessions is to ensure that borrowers who cannot satisfy the terms and conditions of their loan agreements because of their financial circumstances are placed in a position whereby they can repay the loans granted by DZ BANK.

Concessions qualify as forbearance measures if a borrower is found to meet one of the following **criteria** during the monitoring of credit risk:
– The borrower is included in the default list, watchlist, or yellow list with a rating of 4A.
– The borrower is classified with a rating of 4B or worse, regardless of whether the borrower is on one of the lists or not.
– Payments are past due by more than 30 days within a period of 3 months prior to the concession.

The borrower must satisfy all of the following criteria before **exiting forbearance status**:
– The borrower is classified as performing.
– The borrower has undergone a probation period of at least two years. In the case of borrowers who have recovered from a default, the probation period begins with their reclassification as ‘recovered’. Borrowers not previously in default begin the probation period when forbearance measures are initiated.
– The borrower has made regular interest payments or repayments of principal during at least half of the probation period.
– No payments are past due by more than 30 days.

Recognition of loss allowances

The description required by GAS 20 A1.7(c) of the methods used for recognizing loss allowances is included in note 5 of the notes to the consolidated financial statements.

8.5.8 Credit-portfolio management

Internal credit-portfolio models operated on a decentralized basis in the material management units are used together with value-at-risk methods to quantify unexpected losses from lending and trading business. The **credit value-at-risk** reduced by the expected loss is referred to as the risk capital requirement for transactions subject to credit risk. The risk capital requirement quantifies the risk of unexpected losses if default or migration events were to materialize.

Expected loss is calculated by multiplying the exposure at default (EAD) by the loss given default (LGD) and by the probability of default (PD). **Exposure at default** equates to the expected outstanding loan or receivable or the potential economic loss in respect of a counterparty if the counterparty defaults, without taking into account any collateral. **Loss given default** refers to the expected percentage loss on default of a borrower, whereby the loss is reduced by any proceeds anticipated from the recovery of **collateral**. **Probability of default** is the probability, calculated on the basis of historical data, that a borrower will not be able to meet their payment obligations within a particular, future period. For the purposes of credit-portfolio management in the Bank sector, this period is 1 year. The probability of default reflects the borrower's current rating and, in individual cases, also takes into account business-specific factors.

When determining credit value-at-risk, **recovery risk** is taken into account as the amount by which the actual loss deviates from the expected recovery rate or – in the case of transactions already in default – from the specific loan loss allowances. Existing netting agreements are included in the measurement of trading exposures subject to default risk.

The credit value-at-risk amounts determined for the management units are aggregated by DZ BANK at **Bank sector** level.

For the purposes of **managing** the credit portfolio, the credit value-at-risk and the decentralized capital buffer requirement are restricted by the **credit risk limit**. The calculation of the decentralized capital buffer requirement is explained in chapter VII.7.2.1. A **traffic light system** is used to monitor Bank sector management units' compliance with the limits specified for credit risk.

8.6 Lending volume

8.6.1 Definition of lending volume

One of the ways in which credit risk is managed is on the basis of the **lending volume**. In the traditional lending business, the lending volume is no more than the total amount of loans already drawn down, plus commitments to third parties. In the trading business (securities business, together with derivatives business and money market business), the lending volume largely equates to the exposure at default.

8.6.2 Reconciliation of lending volume to the consolidated financial statements

To reconcile the lending volume managed at Bank sector level with the lending volume reported on the balance sheet, the volume is broken down by traditional lending business, securities business, derivatives business, and money market business, because this breakdown corresponds to the classes of risks from financial instruments used for external reporting purposes.

Fig. VII.21 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. For some financial instruments, there are discrepancies in **recognition** and **measurement** between the internal management and external consolidated financial reporting figures owing to the focus on the risk content of the items.

Another reason for the discrepancies between the internal management figures and those in the external consolidated financial statements are differences in the **scope of consolidation**. These differences result from the fact that, in internal credit risk management, only the entities in the Bank sector that contribute significantly to the aggregate risk of the sector are included, whereas, in the consolidated financial statements, all entities subject to consolidation in the Bank sector are included.

The discrepancy in the **securities business** is mainly due to the variations in carrying amounts that arise because credit derivatives are offset against the issuer risk attaching to the underlying transaction in the internal management accounts, whereas such derivatives are recognized at their fair value as financial assets or financial liabilities held for trading in the consolidated financial statements.

The differences between the measurements in the **derivatives business** and those in the **money market business** arise because of differences in the treatment of offsetting items in internal risk management and in external financial reporting. Offsetting items are actually netted for the purposes of risk management, whereas netting of this nature is not permitted in the consolidated financial statements. In addition, add-ons are attached to the current fair values of derivative positions in the internal management accounts to take account of potential future changes in their fair value. By contrast, the external (consolidated) financial statements focus exclusively on the fair values determined on the valuation date, and, unlike in the internal accounts, collateral must not be recognized for risk mitigation purposes.

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

8.6.3 Asset class structure of the credit portfolio

The reporting to the Board of Managing Directors on concentrations of credit risk includes a presentation of the credit portfolio broken down by asset class.

This is done by dividing the credit portfolio into business-related homogeneous segments on the basis of characteristics such as industry code to reflect the sector, product type, and the rating system used to determine the credit rating. The characteristics are selected in such a way that the segments are subject to uniform risk factors.

In its role as central institution for the 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, which are assigned to the asset class **entities within the Cooperative Financial Network**, account for one of the largest loans and receivables items in the group’s credit portfolio.

DZ BANK also supports the cooperative banks in the provision of larger-scale funding to corporate customers. Corporate banking exposures relate to business with commercial customers, which is assigned mainly to one of the following asset classes: corporates, commercial real estate customers, and asset-based lending / project finance. The syndicated business resulting from the corporate customer lending business, the direct business of DZ BANK, the real estate lending business of DZ HYP and BSH, and DZ HYP’s local authority lending business determine the asset-class breakdown for the remainder of the portfolio.

The total lending volume of the **Bank sector** increased by 5 percent in the year under review, from €447.7 billion as at December 31, 2022 to €471.0 billion as at December 31, 2023. The rise in the lending volume was mainly due to an increase in volume in the ‘entities within the Cooperative Financial Network’ and ‘corporates’ asset classes, which went up by €15.7 billion and €4.7 billion respectively compared with the end of 2022.

FIG. VII.21 – BANK SECTOR: RECONCILIATION OF THE LENDING VOLUME

<table>
<tr><td rowspan="2">€ billion
Lending volume for internal management accounts</td><td colspan="2" rowspan="2"></td><td colspan="4">Reconciliation</td><td colspan="4" rowspan="2"></td></tr>
<tr><td colspan="2">Scope of consolidation</td><td colspan="2">Carrying amount and measurement</td></tr>
<tr><td></td><td>Dec. 31, 2023</td><td>Dec. 31, 2022</td><td>Dec. 31, 2023</td><td>Dec. 31, 2022</td><td>Dec. 31, 2023</td><td>Dec. 31, 2022</td><td colspan="2">Dec. 31, 2023</td><td colspan="2">Dec. 31, 2022</td></tr>
<tr><td rowspan="7">Traditional lending business</td><td rowspan="7">379.8</td><td rowspan="7">358.9</td><td rowspan="7">6.3</td><td rowspan="7">14.2</td><td rowspan="7">18.5</td><td rowspan="7">18.3</td><td rowspan="7">404.7</td><td>111.0</td><td rowspan="7">391.4</td><td>103.4</td></tr>
<tr><td>111.0</td><td>103.5</td></tr>
<tr><td>–</td><td>-0.1</td></tr>
<tr><td>200.4</td><td>198.8</td></tr>
<tr><td>202.6</td><td>200.8</td></tr>
<tr><td>-2.2</td><td>-2.0</td></tr>
<tr><td>93.3</td><td>89.1</td></tr>
<tr><td rowspan="4">Securities business</td><td rowspan="4">70.6</td><td rowspan="4">66.3</td><td rowspan="4">–</td><td rowspan="4">–</td><td rowspan="4">-17.8</td><td rowspan="4">-17.9</td><td rowspan="4">52.8</td><td>52.8</td><td rowspan="4">48.4</td><td>48.4</td></tr>
<tr><td>8.3</td><td>7.5</td></tr>
<tr><td>1.0</td><td>1.3</td></tr>
<tr><td>43.5</td><td>39.7</td></tr>
<tr><td rowspan="5">Derivatives business</td><td rowspan="5">13.1</td><td rowspan="5">15.4</td><td rowspan="5">-0.1</td><td rowspan="5">-0.3</td><td rowspan="5">-13.3</td><td rowspan="5">-19.1</td><td rowspan="5">-0.3</td><td>-0.3</td><td rowspan="5">-4.0</td><td>-4.0</td></tr>
<tr><td>0.9</td><td>1.6</td></tr>
<tr><td>16.5</td><td>21.5</td></tr>
<tr><td>-0.6</td><td>-0.4</td></tr>
<tr><td>-17.1</td><td>-26.6</td></tr>
<tr><td rowspan="6">Money market business</td><td rowspan="6">7.4</td><td rowspan="6">7.1</td><td rowspan="6">–</td><td rowspan="6">0.8</td><td rowspan="6">21.4</td><td rowspan="6">33.3</td><td rowspan="6">28.8</td><td>28.8</td><td rowspan="6">41.2</td><td>41.2</td></tr>
<tr><td>17.8</td><td>20.0</td></tr>
<tr><td>2.2</td><td>2.9</td></tr>
<tr><td>0.1</td><td>0.2</td></tr>
<tr><td>7.8</td><td>17.1</td></tr>
<tr><td>0.9</td><td>1.1</td></tr>
<tr><td>Total</td><td>471.0</td><td>447.7</td><td>6.2</td><td>14.7</td><td>8.8</td><td>14.6</td><td>486.0</td><td></td><td>477.0</td><td></td></tr>
<tr><td colspan="7"></td><td colspan="2">Balance as at Dec. 31, 2023</td><td>15.0</td><td>3.2%</td></tr>
<tr><td colspan="7"></td><td colspan="2">Balance as at Dec. 31, 2022</td><td>29.3</td><td>6.5%</td></tr>
</table>

Not relevant

DZ BANK accounted for most of the increase, which was driven by its lending business (primarily loans, money market lending, and development loans) with entities in the Cooperative Financial Network. Volumes in the Corporate Banking and Structured Finance divisions grew as well.

As at December 31, 2023, a significant proportion (41 percent) of the Bank sector's lending volume was concentrated in the financial sector (December 31, 2022: 39 percent). In addition to the local cooperative banks, the borrowers in this customer segment comprised banks from other sectors of the banking industry and other financial institutions.

Fig. VII.22 shows the breakdown of the credit portfolio by asset class.

As at December 31, 2023, a significant proportion (62 percent) of **DZ BANK's** lending volume was also concentrated in the **financials** asset class (December 31, 2022: 62 percent). The composition of this asset class is the same both at DZ BANK and in the Bank sector.

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: loss allowances for loans and advances to banks	59
Loans and advances to customers	
Loans and advances to customers excluding money market placements	51
of which: loss allowances for loans and advances to customers	59
Financial guarantee contracts and loan commitments	99
Bonds and other securities	
of which: financial assets held for trading/bonds excluding money market placements	53
of which: financial assets held for trading/promissory notes and registered bonds	53
of which: investments/bonds excluding money market placements	54
Derivatives	
of which: derivatives used for hedging (positive fair values)	52
of which: financial assets held for trading/derivatives (positive fair values)	53
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	53
of which: financial assets held for trading/money market placements	53
of which: investments/money market instruments	54

FIG. VII.22 – BANK SECTOR: LENDING VOLUME, BY ASSET CLASS

	Bank sector		DZ BANK	
€ billion	Dec. 31, 2023	Dec. 31, 2022	Dec. 31, 2023	Dec. 31, 2022
Entities within the Cooperative Financial Network	148.6	132.9	148.2	132.5
Financials	44.5	42.7	32.6	31.6
Corporates	80.9	76.1	75.3	70.7
Asset-based lending/project finance	12.7	11.9	12.7	11.9
Public sector	36.0	36.0	12.6	10.6
Real estate (commercial and retail customers)	118.4	119.0	–	–
Retail business (excluding real estate customers)	18.0	18.0	–	–
ABSs and ABCPs[1]	9.2	8.5	9.0	8.2
Other	2.6	2.7	1.0	1.0
Total	**471.0**	**447.7**	**291.5**	**266.6**

1 ABSs = asset-backed securities, ABCPs = asset-backed commercial paper.

8.6.4 Geographical structure of the credit portfolio (excluding Germany)

Fig. VII.23 shows the geographical distribution of the credit portfolio by country group. Borrowers based in Germany are not included in this breakdown. The relevant country for the assignment to a country group is the one in which the economic risk arises. As at December 31, 2023, 67 percent of lending in the Bank sector outside Germany (December 31, 2022: 66 percent) and 62 percent of lending by DZ BANK outside Germany (December 31, 2022: 60 percent) was concentrated in Europe.

FIG. VII.23 – BANK SECTOR: LENDING VOLUME, BY COUNTRY GROUP

	Bank sector		DZ BANK	
€ billion	Dec. 31, 2023	Dec. 31, 2022	Dec. 31, 2023	Dec. 31, 2022
Europe	54.5	50.3	39.7	36.6
of which: eurozone	35.1	31.5	23.8	21.2
North America	14.5	14.0	13.2	12.7
Central America	0.2	0.2	0.2	0.2
South America	1.0	1.0	1.0	1.0
Asia	7.8	7.3	7.6	7.1
Africa	1.3	1.3	1.3	1.3
Other	2.0	2.2	1.6	1.8
Total	**81.2**	**76.4**	**64.3**	**60.6**

8.6.5 Rating structure of the credit portfolio

In the **Bank sector**, the proportion of the total lending volume accounted for by rating classes 1A to 3A (investment grade) was 89 percent as at the reporting date (December 31, 2022: 87 percent). Rating classes 3B to 4E (non-investment grade) represented 10 percent (December 31, 2022: 11 percent). Defaults, represented by rating classes 5A to 5E, accounted for less than 1 percent of the total lending volume, as had also been the case at the end of 2022.

Rating classes 1A to 3A (investment grade) also dominated lending at **DZ BANK**, where they accounted for 92 percent of the total lending volume (December 31, 2022: 90 percent). Rating classes 3B to 4E (non-investment grade) represented 7 percent as at the reporting date (December 31, 2022: 9 percent). Defaults (rating classes 5A to 5E) accounted for less than 1 percent of the total lending volume as at December 31, 2023, as had also been the case at the end of 2022.

Fig. VII.24 shows the lending volume in the Bank sector and at DZ BANK by rating class according to the VR credit rating master scale.

FIG. VII.24 – BANK SECTOR: LENDING VOLUME, BY INTERNAL RATING CLASS

€ billion		Bank sector		DZ BANK	
		Dec. 31, 2023	Dec. 31, 2022	Dec. 31, 2023	Dec. 31, 2022
Investment grade	1A	31.9	29.5	15.6	11.9
	1B	6.2	8.5	4.1	5.0
	1C	162.7	146.6	154.1	139.2
	1D	14.4	13.2	9.1	5.8
	1E	23.9	18.1	13.2	6.4
	2A	25.4	19.4	12.6	7.3
	2B	33.5	26.6	14.6	11.1
	2C	27.7	28.5	13.6	13.8
	2D	32.2	32.9	11.6	12.9
	2E	35.4	41.2	12.7	15.7
	3A	23.6	26.8	5.8	10.0
Non-investment grade	3B	13.4	14.7	5.6	7.5
	3C	10.0	11.9	3.4	4.6
	3D	8.4	8.6	4.8	4.2
	3E	5.9	4.2	3.2	2.0
	4A	3.1	2.3	1.4	0.7
	4B	2.8	3.7	1.6	2.3
	4C	1.3	1.2	0.7	0.6
	4D	0.6	0.9	0.3	0.5
	4E	2.1	3.3	1.0	2.4
Default		3.8	3.1	2.2	2.0
Not rated		2.6	2.6	0.7	0.6
Total		**471.0**	**447.7**	**291.5**	**266.6**

8.6.6 Collateralized lending volume

Fig. VII.25 shows the breakdown of the collateralized lending volume at overall portfolio level by type of collateral.

FIG. VII.25 – BANK SECTOR: COLLATERAL VALUE, BY TYPE OF COLLATERAL

€ billion	Bank sector		DZ BANK	
	Dec. 31, 2023	Dec. 31, 2022	Dec. 31, 2023	Dec. 31, 2022
Guarantees, indemnities, risk subparticipation	7.0	7.4	1.7	1.8
Credit insurance	6.0	5.6	6.0	5.6
Land charges, mortgages, registered ship and aircraft mortgages	114.1	116.2	1.9	2.4
Pledged loans and advances, assignments, other pledged assets	2.0	2.0	1.2	1.2
Financial collateral	1.4	1.4	0.4	0.9
Other collateral	0.4	0.4	0.3	0.3
Total collateral	**130.8**	**133.0**	**11.4**	**12.2**
Lending volume	400.3	381.4	246.3	225.8
Uncollateralized lending volume	**269.5**	**248.3**	**234.8**	**213.5**
Collateralization rate (percent)	**32.7**	**34.9**	**4.6**	**5.4**

In the case of **traditional lending business**, lending volume is generally reported as a gross figure before the application of any offsetting agreements, whereas the gross lending volume in the **derivatives and money market business** is shown on a netted basis. In the derivatives and money market business, collateral values are relatively low and are in the form of personal and financial collateral. In the **securities business**, there is generally no further collateralization to supplement the collateral already taken into account. For this reason, securities business is not included in the presentation of the collateralized lending volume.

Total collateral value in the **Bank sector** fell from €133.0 billion as at December 31, 2022 to €130.8 billion as at December 31, 2023. The collateralization rate was 32.7 percent as at the reporting date (December 31, 2022: 34.9 percent).

At €11.4 billion, **DZ BANK's** total collateral value as at December 31, 2023 was also down year on year (December 31, 2022: €12.2 billion). The collateralization rate had declined to 4.6 percent as at the reporting date (December 31, 2022: 5.4 percent).

8.6.7 Volume of closely monitored and non-performing loans

Closely monitored loans and forborne exposure

Fig. VII.26 shows the volume of loans on the three monitoring lists – **yellow list**, **watchlist**, and **default list** – and the forborne exposure also included in these lists. A further item in the table shows the exposure managed as forborne but not subject to intensified loan management, i.e. not included in the lists.

FIG. VII.26 – BANK SECTOR: CLOSELY MONITORED LENDING VOLUME AND FORBORNE EXPOSURE

	Bank sector		DZ BANK	
€ million	Dec. 31, 2023	Dec. 31, 2022	Dec. 31, 2023	Dec. 31, 2022
Yellow list lending volume	**3,786**	3,458	**2,665**	2,608
of which: forborne exposure	626	151	463	149
Watchlist lending volume	**4,901**	6,221	**3,094**	4,458
of which: forborne exposure	999	919	741	763
Default list lending volume	**3,792**	3,124	**2,185**	2,021
of which: forborne exposure	1,473	1,536	884	1,063
Total lending volume on monitoring lists	**12,479**	12,804	**7,943**	9,086
of which: forborne exposure	**3,097**	2,606	**2,088**	1,975
Off-monitoring-list forborne exposure	327	394	–	–
Total forborne exposure[1]	**3,424**	2,999	**2,088**	1,975

1 Both on and off the monitoring lists.

The **closely monitored lending volume** in the **Bank sector** declined by 3 percent from December 31, 2022 to December 31, 2023. This is primarily attributable to a reduction of €1,144 million at DZ BANK. By contrast, the lending volume increased by €488 million at DZ HYP and by €263 million at TeamBank.

The **forborne exposure** rose from €2,999 million as at December 31, 2022 to €3,424 million as at December 31, 2023. The rise was mainly attributable to an increase of €552 million in the forborne exposure at DZ HYP.

At **DZ BANK**, the closely monitored lending volume as at December 31, 2023 was down by €1,144 million year on year, which constituted a decrease of 13 percent. This reduction was mainly attributable to a decline of €1,365 million in the lending volume on the watchlist. That lending volume, in turn, fell as a result of exposures being removed from the closely monitored category and some exposures being transferred to the yellow list or the default list. Ultimately, the yellow-list lending volume increased by €57 million and the default-list lending volume rose by €164 million.

Non-performing loans
As at December 31, 2023, the volume of non-performing loans (NPLs) in the **Bank sector** had risen to €3.8 billion from €3.1 billion as at December 31, 2022. This increase is chiefly due to the rise in non-performing loans of €461 million at DZ HYP, €164 million at DZ BANK, and €83 million at TeamBank. This caused the NPL ratio to advance from 0.7 percent as at December 31, 2022 to 0.8 percent as at December 31, 2023.

Non-performing loans at **DZ BANK** amounted to €2.2 billion as at December 31, 2023 (December 31, 2022: €2.0 billion). Due to the increase in the overall lending volume at DZ Bank, the NPL ratio fell to 0.7 percent (December 31, 2022: 0.8 percent).

Fig. VII.27 shows key figures relating to the volume of non-performing loans.

FIG. VII.27 – BANK SECTOR: KEY FIGURES FOR NON-PERFORMING LOANS

	Bank sector		DZ BANK	
	Dec. 31, 2023	Dec. 31, 2022	**Dec. 31, 2023**	Dec. 31, 2022
Total lending volume (€ billion)	471.0	447.7	291.5	266.6
Volume of non-performing loans (€ billion)[1]	3.8	3.1	2.2	2.0
Balance of loss allowances (€ billion)[2]	1.6	1.3	1.0	0.9
Coverage ratio (percent)[3]	79.7	75.7	78.8	75.5
NPL ratio (percent)[4]	0.8	0.7	0.7	0.8

1 Volume of non-performing loans excluding collateral.
2 IFRS specific loan loss allowances at stage 3, including provisions.
3 Loss allowances as specified in footnote 2, plus collateral, as a proportion of the volume of non-performing loans.
4 Volume of non-performing loans as a proportion of total lending volume.

8.7 Credit portfolios particularly affected by negative macroeconomic conditions
The following sections describe credit portfolios in which the effects of negative macroeconomic conditions were more noticeable than in the rest of the credit portfolios. The figures presented below are included in the disclosures for the lending volume as a whole (see chapter VII.8.6).

The credit risk stemming from the **economic divergence in the eurozone** has lessened considerably thanks to improvements in the credit ratings of Portugal, Italy, and Spain over the course of the year, which means that this portfolio is no longer a special focus of credit risk management. As a result, the disclosures on loans and advances in the Bank sector to corporate borrowers from eurozone periphery countries, which were made in the risk report of the 2023 interim group management report, have now been omitted.

8.7.1 Structural change in the automotive sector
The automotive sector has been in a state of upheaval for a number of years and faces certain challenges compared with other industries, such as low profit margins and a need for high levels of capital, coupled with long investment cycles. The European Parliament’s decision to end the sale of passenger cars with internal combustion engines by 2035 will, in the next few years, further accelerate the switch to alternative drives – especially electric vehicles – and keep the pressure on the industry to transform.

Car manufacturers’ production operations were particularly impacted by the supply chain disruptions that occurred in 2022 and were caused primarily by shortages of input products (especially semiconductors) and the war in Ukraine. Increased costs for commodities, energy, and transportation also weighed heavily on the industry.

Since the start of 2023, supply chains have stabilized and outstanding orders have been completed. As a result, global passenger car sales recovered in the first half of 2023, before plummeting new car orders – particularly in Germany – heralded a slowdown in demand in the second half of the reporting year. Nevertheless, registrations were up for the year as a whole, including in Germany, but the outlook for 2024 is muted.

The volume of lending in DZ BANK's automotive finance portfolio came to €5.3 billion as at December 31, 2023 (December 31, 2022: €5.0 billion). This portfolio includes loans to automotive suppliers, which are analyzed separately in chapter VII.8.9.3

8.7.2 Commercial real estate finance

Business model and macroeconomic risks

DZ HYP's lending business with corporates includes financing for hotels, office real estate, department stores, shopping malls, and inner-city commercial properties that are mainly used for retail/wholesale businesses not offering day-to-day essentials (retail/wholesale segment). In addition, DZ HYP provides financing to property developers and project developers. It also finances purchases of land for which development plans have been drawn up.

Since 2020, these asset classes have been impacted by a number of general and specific sources of uncertainty. Chief among them was the COVID-19 pandemic initially, although it no longer plays a significant role. Since 2023, the main risk factors have been the jump in prices for construction work and building materials, coupled with much higher interest rates. General political and macroeconomic headwinds are also adding to the uncertainty. Transaction activity was very muted, with predominantly moderate declines in market values in 2023.

The portfolios in question have so far proven to be crisis-resistant with no structural anomalies. Heightened requirements in terms of the underlying value and cash flow performance of the financed real estate have a risk-mitigating effect. Nevertheless, uncertainty persists for commercial real estate finance with regard to the viability of rents and to rising interest rates. This could adversely impact on cash flow, capital expenditure, and market values. For a return to a normal level, a significant and protracted economic recovery and a fall in inflation are required, as well as the sustained stabilization of interest rates.

Risks specific to individual real estate finance segments

In 2022, **hotel** occupancy was almost back at the levels seen before the pandemic and that level was maintained in 2023. The weak economy and high rate of inflation, combined with pressure from competitors and rising costs, continue to be material risk factors for hotel real estate.

Office real estate is subject to uncertainty in terms of the wishes of tenants going forward and their space requirements in light of the new ways of working that involve new space concepts and remote working. In addition, because a huge part of the value creation process of businesses takes place in office real estate, ongoing weakness in the economy can also have an adverse effect on this segment by causing business demand for office space to fall.

Department stores, shopping malls, and inner-city commercial properties that are mainly used for retail/wholesale businesses not offering day-to-day essentials have been seeing a concentration of demand in top locations for some time. The recent upward trend in rents on new contracts is tempered by the uncertainty caused by the sluggish economy and the sharp rise in consumer price levels. Higher energy costs are placing an additional strain on retailers.

Transaction levels in the **property development and project development** market are currently very muted. Prices for construction work and building materials have stabilized significantly but remain higher than at the start of 2021. With the market for property development and project development work largely at a standstill, there is now heightened marketing risk for **plots of land**.

Lending volume by finance segment

As at December 31, 2023, the volume of corporate loans extended by DZ HYP amounted to a total of €46.7 billion (December 31, 2022: €46.8 billion). Of this total, the following amounts were attributable to the aforementioned asset classes as at the reporting date (figures as at December 31, 2022 shown in parentheses):
- Hotel financing: €2.2 billion (€2.4 billion)
- Office real estate financing: €14.8 billion (€14.6 billion)
- Department store financing: €0.5 billion (€0.6 billion)
- Shopping mall financing: €2.6 billion (€2.7 billion)
- Financing for inner-city commercial properties mainly used for retail/wholesale businesses not offering day-to-day essentials: €0.9 billion (€0.8 billion)
- Property developer and project developer financing and financing for land purchases: €5.7 billion (€6.3 billion)

Financing for property developers and project developers and financing for land purchases also include certain portions of the financing for the aforementioned asset classes, in particular the financing of office real estate with a volume of €2.6 billion as at December 31, 2023 (December 31, 2022: €2.5 billion) and residential properties of €1.6 billion (December 31, 2022: €2.1 billion).

8.7.3 Financing for retail customer in the consumer finance business

The economic conditions described in chapter VII.4.2 also impact on the financial strength of retail customers. This was especially apparent in TeamBank's consumer finance business. Some key risk indicators deteriorated over the course of 2023. Among other things, this led to a rise in non-performing loans.

8.8 Credit portfolios particularly affected by acute global crises

The following sections describe credit portfolios in which the effects of acute global crises were more noticeable than in the rest of the credit portfolios. The figures presented below are included in the disclosures for the lending volume as a whole (see chapter VII.8.6).

The lending volume of the **Bank sector** in countries affected by global crises amounted to €4,182 million as at December 31, 2023 (December 31, 2022: €3,983 million). This equates to 0.9 percent of the total lending volume in the Bank sector as at the reporting date, which is unchanged year on year. Taking account of recoverable collateral, the net lending volume was €1,634 million as at December 31, 2023 (December 31, 2022: €1,688 million).

The exposure of **DZ BANK** in countries affected by global crises broke down as at the reporting date as follows (figures as at December 31, 2022 shown in parentheses):
- Gross lending volume: €4,142 million (€3,933 million)
- Equating to 1.4 percent of the total lending volume (1.5 percent)
- Net lending volume: €1,597 million (€1,643 million)

This exposure mainly comprised short-dated trade finance, project finance backed by export credit agencies, and syndicated bank loans.

Fig. VII.28 shows the breakdown of the net lending volume in countries affected by the various crises.

FIG. VII.28 – BANK SECTOR: NET LENDING VOLUME IN COUNTRIES PARTICULARLY AFFECTED BY ACUTE GLOBAL CRISES

	Bank sector		DZ BANK	
€ million	Dec. 31, 2023	Dec. 31, 2022	Dec. 31, 2023	Dec. 31, 2022
Net lending volume in countries affected directly by the war in Ukraine	**94**	139	**86**	136
of which: Russia	91	130	83	128
of which: Belarus	2	6	2	6
of which: Ukraine	2	2	2	2
Net lending volume in countries affected directly by the Israel-Hamas war	**432**	548	**431**	548
of which: Israel	1	5	1	5
of which: Iraq	2	–	2	–
of which: Egypt	58	144	57	144
of which: Turkey	371	399	371	399
Net lending volume in countries affected directly by the dispute between China and Taiwan	**1,107**	1,002	**1,080**	960
of which: China	1,008	923	982	881
of which: Taiwan	100	80	97	79
Total	**1,634**	1,688	**1,597**	1,643

8.9 Credit portfolios with increased risk content

The credit portfolios with increased risk content are analyzed separately because of their significance for the risk position. The figures presented below are included in the disclosures for the lending volume as a whole (see chapter VII.8.6).

8.9.1 Finance for cruise ships

Cruise ship companies benefited from strong growth in bookings and prices in 2023, which lifted their capacity utilization and booking figures to, or even above, the levels seen in 2019 before the pandemic. Thanks to this return to positive operating results and the comprehensive corporate action taken in the recent past, cruise ship companies' liquidity levels are largely comfortable once more. These companies do need to regain their former strength promptly so that they can service the debt they built up during the pandemic and pay for fleet expansions, some of which are already scheduled, and regain investment-grade credit status in the medium term. In the long term, the industry should continue to capitalize on the appeal of cruises compared with land-based trips in order to combat the effects of inflation, high marketing expenditure, and fluctuating fuel prices.

Cruise ship finance in the Bank sector is mainly brought together under **DZ BANK**. As at December 31, 2023, the volume of cruise ship finance amounted to €994 million (December 31, 2022: €1,052 million). Collateral worth €644 million was available as at December 31, 2023 (December 31, 2022: €722 million). Of this amount, €612 million was attributable to export credit insurance (December 31, 2022: €652 million).

8.9.2 Finance for cruise ship building

A distinction is made between cruise ship finance and the financing of cruise ship building. This segment, which only affects **DZ BANK** in the Bank sector, is still undergoing a large-scale transformation process. In consultation with the parties ordering cruise ships, a base level of capacity utilization has been secured for the period until 2025/2026 by spreading out orders on hand. Substantial reductions in production capacity and headcount are planned in order to counteract low capacity utilization over the medium term. Price renegotiations with cruise ship buyers helped to offset the impact of rising energy and procurement costs for the most part. Funding for the cost of the transformation process in this industry is backed by government guarantees. On the back of a number of challenging years, the credit quality of customers in this business segment remains troubled. This will likely still be the case in 2024, meaning that finance for cruise ship building continues to be classified as a portfolio with increased risk content.

The lending volume related to the financing of cruise ship building stood at €337 million as at December 31, 2023 (December 31, 2022: €332 million). Collateral worth €258 million was available as at December 31, 2023 (December 31, 2022: €181 million). Of this amount, €179 million was attributable to export credit insurance (December 31, 2022: €155 million).

8.9.3 Finance for automotive suppliers

In addition to the factors described in chapter VII.8.7.1 that apply to the automotive sector as a whole, conditions remain particularly challenging for automotive suppliers in Germany.

Historical data shows that the automotive supply industry is characterized by high capital requirements but has comparatively low margins and a relatively weak competitive position due to oligopoly-style structures in the automotive manufacturing industry.

It had become clear in 2022 that, compared with their suppliers, car manufacturers are significantly better positioned to be able to adapt to global supply chain disruptions, for example by changing their product mix. Financial performance in the automotive supply industry hinges primarily on the number of manufactured vehicles, which in 2023 was much higher year on year across Europe due to the backlog of orders being processed, but it was still well below its record level from 2017.

The technology and development expertise of major global suppliers will ensure that they remain the partner of choice for vehicle manufacturers around the world. Over the medium term, Asia is expected to be a significant source of growth stimulus in the coming years, even though growth rates in China are slowing. The same goes for Chinese manufacturers, who are operating more and more on a global scale. As new technologies and the demand associated with these often evolve in a very dynamic and unpredictable manner, such opportunities for growth also come with increased risks. The risks include the uncertainty surrounding future drive systems and vehicle designs, as well as geopolitical tensions, especially with regard to China. Against this backdrop, finance for automotive suppliers continues to be classified as a portfolio with increased risk content.

As at December 31, 2023, loans to companies in the automotive supply industry, which fall into **DZ BANK's** 'corporates' asset class, totaled €3,338 million (December 31, 2022: €3,113 million).

8.9.4 Finance for borrowers in the clothing and textile industry

The clothing and textile industry tends to be sensitive to changes in the economic environment and inflation, and is also marked by fierce competition. The industry suffered from lengthy store closures during the pandemic. Since the middle of 2022, high prices have particularly eroded household purchasing power, with risks concentrated in the mid-range price segment. Demand in the upper and lower price segments, by contrast, has fared better. High freight costs, increased commodity prices, and high energy and rental costs in brick-and-mortar retail, combined with the weak euro at the start of the retail season, led to a significant rise in costs and weighed heavily on the affected companies' financial performance. Current revenue growth is price-led or attributable to the release of pent-up demand following the end of the pandemic.

The decline in revenue (adjusted for inflation) seen in 2023 and the cautious consumer mood will likely continue in 2024 and affect all sales formats (brick-and-mortar retail and online sales). Deteriorating macroeconomic fundamentals do not make a turnaround likely in 2024 either. As a result, finance for borrowers in the clothing and textile industry is classified as a portfolio with increased risk content. Within the Bank sector, the lending exposure to the clothing and textile industry is concentrated at **DZ BANK**.

As at December 31, 2023, DZ BANK's lending volume in this industry was €1,690 million (December 31, 2022: €2,077 million).

8.9.5 Finance for borrowers in the construction industry and for home improvement stores

Given their above-average sensitivity (with a time lag) to changes in the wider economy and the fierce level of competition, the construction industry and home improvement stores have been battling several negative factors for quite a while.

The rise in construction costs, the current interest-rate environment, and the policy situation are placing a particular burden on residential construction. These factors have significantly depressed demand across the entire industry.

The number of completed homes is expected to keep falling in 2024 and the number of residential planning permissions is also expected to decline further. The forecast level of orders on hand in industrial, commercial, and public-sector construction has also been adjusted downward and therefore will not make up for the reduction in orders for residential construction. Overall, capacity utilization is expected to go down in the construction segment.

Since the middle of 2022, substantial price increases and the rise in interest rates have severely dampened the level of consumer demand experienced by **home improvement stores**. The situation has been further exacerbated by current geopolitical tensions and the resulting uncertainty spreading among consumers. In light of these developments, a turnaround in consumer demand is not currently foreseeable.

Against this backdrop, finance for borrowers in the construction industry and for home improvement stores is now classified as a portfolio with increased risk content.

The lending volume in this portfolio is mainly attributable to **DZ BANK**. DZ BANK's exposure as at December 31, 2023 amounted to €6,776 million (December 31, 2022: €5,985 million).

8.10 Risk position

8.10.1 Risks in the entire credit portfolio

The risk capital requirement for credit risk is based on a number of factors, including the size of single-borrower exposures, individual ratings, collateral, and the industry sector of each exposure.

As at December 31, 2023, the **risk capital requirement** in the Bank sector was €3,971 million (December 31, 2022: €3,766 million). The year-on-year rise was mainly attributable to DZ BANK. The corresponding **limit** was €4,988 million (December 31, 2022: €6,387 million). A scheduled review and adjustment of credit risk limits was carried out at the start of the year. At the level of the DZ BANK Group, the limits were reduced by €1,399 million to €4,988 million overall, in accordance with the risk limit utilization.

DZ BANK's credit value-at-risk as at December 31, 2023 amounted to €2,359 million (December 31, 2022: €2,254 million). The year-on-year rise in credit risk was mainly attributable to higher volumes of lending in business with cooperative banks. The corresponding **limit** was €2,760 million (December 31, 2022: €2,854 million).

Fig. VII.29 shows the credit value-at-risk together with the average probability of default and expected loss.

FIG. VII.29 – BANK SECTOR: FACTORS DETERMINING THE CREDIT VALUE-AT-RISK

	Bank sector		DZ BANK	
	Dec. 31, 2023	Dec. 31, 2022	**Dec. 31, 2023**	Dec. 31, 2022
Average probability of default (percent)	**0.3**	0.3	**0.2**	0.2
Expected loss (€ million)	**440**	460	**186**	217
Credit value-at-risk (€ million)	**3,971**	3,766	**2,359**	2,254

In the analysis of **individual concentrations**, the 20 counterparties associated with the largest credit value-at-risk accounted for 28 percent of the total credit value-at-risk in the **Bank sector** and 40 percent of the total credit value-at-risk at **DZ BANK** as at December 31, 2023. These shares were unchanged compared with the end of 2022 for the Bank sector and DZ BANK. In both cases, the counterparties almost exclusively comprised borrowers from the financial sector (including the cooperative banks) with an investment-grade rating.

8.10.2 Risks in the credit portfolios with increased risk content

The risk capital required in the **Bank sector** and at **DZ BANK** for credit portfolios exposed to increased credit risk is shown in Fig. VII.30.

FIG. VII.30 – BANK SECTOR: CREDIT VALUE-AT-RISK[1] FOR CREDIT PORTFOLIOS WITH INCREASED RISK CONTENT

	Bank sector		DZ BANK	
€ million	**Dec. 31, 2023**	Dec. 31, 2022	**Dec. 31, 2023**	Dec. 31, 2022
Finance for cruise ships	**2**	14	**2**	14
Finance for cruise ship building	**4**	3	**4**	3
Finance for automotive suppliers	**46**	32	**45**	31
Finance for borrowers in the clothing and textile industry	**10**	13	**9**	12
Finance for borrowers in the construction industry (including home improvement stores)	**50**	38	**35**	25

1 Excluding decentralized capital buffer requirement.

The decline in credit value-at-risk for **finance for cruise ships** was mainly attributable to improved economic conditions in the industry and resulting rating upgrades.

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. Equity investment risk also includes the risk of losses arising from negative changes in the fair value of the management units' real estate portfolios caused by a deterioration in the general real estate situation or specific factors relating to individual properties (such as vacancy, tenant default, loss of use).

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

The entities in the Bank sector hold long-term equity investments largely for strategic reasons, especially to cover markets, market segments, or parts of the value chain in which they themselves or the cooperative banks are not active. These investments therefore support the sales activities of the cooperative banks or help reduce costs by bundling functions. The investment strategy is continuously aligned with the needs of Cooperative Financial Network policy.

9.2 Risk strategy, responsibility, and reporting

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 the risk remains below the existing limits.

The **investment portfolio is managed** in line with the provisions of the equity investment risk strategy. At DZ BANK, these provisions are supplemented by rules and instructions, which stipulate, for example, that ongoing investment management and the monitoring of the performance of long-term equity investments are subject to MaRisk requirements.

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 Finance division is responsible for **supporting these investments**, whereas at BSH the task falls within the scope of the Central Services/Policy/International division and the Financial Controlling division. At TeamBank, the investments are mainly the responsibility of the Corporate Development division.

Equity investment risk in the Bank sector is **measured and monitored** by DZ BANK. The Board of Managing Directors is kept up to date through the overall risk reports.

9.3 Risk factors

Besides the macroeconomic risk factors described in chapter VII. 4.2, specific risk factors – such as the long-term equity investment's industry, the location of its registered office, and the amount of the investment – are key factors for determining equity investment risk. The possibility cannot be ruled out that a future impairment test on the long-term equity investments held by the entities in the Bank sector could lead to a significant reduction in the carrying amounts of these investments reported on the balance sheet. In the case of non-controlling interests, there is also a risk that key information may not be available or cannot be obtained promptly by virtue of the fact that the investment is a minority stake and this could result in a need to recognize impairment losses.

9.4 Risk management

The carrying amounts of the long-term equity investments are regularly tested for possible impairment in the last quarter of the financial year.

For the real estate directly owned by DZ BANK, the Bank Finance division and the central facility management team perform an impairment test every six months based on the carrying amounts and current valuation reports. If there are any indications during the course of the year of possible impairment, more frequent impairment tests are also carried out.

The risk capital requirement for the vast majority of the long-term equity investments is determined using a Monte Carlo simulation with a 1-year observation period and a confidence level of 99.9 percent (portfolio risk measurement). 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. For a minority of the long-term equity investments, a look-through approach is taken in which the individual risk types that exist in each long-term equity investment are measured (differentiated risk measurement).

9.5 Carrying amounts of long-term equity investments and risk position

The **carrying amounts of long-term equity investments** in the **Bank sector** relevant for the measurement of equity investment risk amounted to €3,046 million as at December 31, 2023 (December 31, 2022: €2,858 million). As at December 31, 2023, the carrying amounts of the long-term equity investments of **DZ BANK** came to €2,175 million (December 31, 2022: €1,880 million).

The **risk capital requirement** for equity investment risk in the **Bank sector** was calculated to be €998 million as at the reporting date (December 31, 2022: €997 million). The **limit** was €1,281 million (December 31, 2022: €1,230 million). The **risk capital requirement** for **DZ BANK** as at December 31, 2023 came to €664 million (December 31, 2022: €632 million) with a **limit** of €795 million (December 31, 2022: €767 million).

10 Market risk

10.1 Definition

Market risk in the Bank sector comprises market risk in the narrow sense of the term, and market liquidity risk.

Market risk in the narrow sense of the term – referred to below as market risk – is the risk of loss arising from adverse movements in market prices or in the parameters that influence prices. Market risk encompasses a number of risk subtypes, including interest-rate risk (interest-rate risk in the banking book, interest-rate risk in the trading book), spread risk (constantly monitored component) and migration risk (as intermittent spread risk), currency risk, equity risk, fund price risk, commodity risk, and asset-management risk. Parameters that determine market risk also include a category of risk factors referred to as 'opaque'. These risk factors are parameters that are relevant to measurement but cannot be directly observed and must therefore be derived from quoted market prices using models. For the purposes of measuring and managing risk, market risk is broken down into spread and migration risk, asset-management risk, and general market risk, the last of which encompasses all the other risk subtypes.

Market liquidity risk is the risk of losses that could arise from adverse changes in market liquidity – for example, because of market disruption or a reduction in market depth – such 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.

10.2 Business background and risk strategy

10.2.1 Business background

The DZ BANK Group is exposed to considerable market risk in the Bank sector. Market risk arises mainly in connection with BSH, DZ HYP, and UMH in addition to DZ BANK. The assumption of market risk by these entities in the Bank sector is primarily attributable to the DZ BANK Group's strategic focus on the Cooperative Financial Network. This strategy means that each entity in the DZ BANK Group specializes in certain types of product with a corresponding impact on the respective entity's risk profile.

Market risk arises in the Bank sector mainly as a consequence of the following business activities:
- **DZ BANK**: own trading activities; traditional lending business with non-retail customers
- **BSH**: building society operations aimed at financing privately owned real estate; traditional lending business; securities portfolios
- **DZ HYP**: financing for real estate and local authorities; portfolios of securities held to manage liquidity and cover assets
- **UMH:** own-account investing activities; guarantee obligations to customers contained in Riester fund-linked savings plans and guarantee funds

Liabilities and – where present in a group entity – assets related to direct pension commitments are a further source of market risk. Market liquidity risk arises primarily in connection with securities already held in the portfolio as well as funding and money market business.

10.2.2 Risk strategy

The following principles for managing market risk apply to the entities 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.
- 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.

The entities in the Bank sector pursue the following strategies in relation to the individual **types of market risk**:
- Spread and migration risk is consciously and selectively assumed and managed within the limits.
- Interest-rate risk associated with the original business purpose of the management units is kept within defined limits.
- In contrast, interest-rate risk from pension obligations and market risk from assets (generally funds) held to meet defined benefit obligations are accepted and included in the calculation of risk-bearing capacity.
- Equity risk and fund price risk are consciously assumed within the limits in place and actively managed.
- Virtually all currency risk is eliminated.
- Commodity risk is assumed only to a very small degree.

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

10.3 Risk factors

Spread and migration risk, interest-rate risk, equity risk, fund price risk, and currency risk are caused by changes in the **yield curve**, **credit spreads**, **exchange rates**, and **share prices**.

Spread risk, including migration risk, is the most significant type of market risk for the entities in the Bank sector. **Wider credit spreads** are an indication that markets believe credit quality has deteriorated. If credit spreads were to widen, this would therefore lead to a fall in the fair value of the government and corporate bonds affected. Fair value losses of this nature could have a temporary or permanent adverse impact on capital. The widening of credit spreads can be triggered by the macroeconomic risk factors described in chapter VII.4.2.

In the context of the **asset management activities** brought together under UMH, the **geopolitical tensions** described in chapter VII.4.2.1 could cause stock market turbulence, which could, in turn, negatively affect the shares held as part of pension products if the turbulence gave rise to fair value losses.

There is also a risk that **rising interest rates** (see chapter VII.4.2.6) could cause the fair values of fixed-income funds to fall. Particularly in the case of pension schemes with an unfavorable duration asymmetry and a high volume of fixed-income funds, this may mean that the guarantee commitments given to customers cannot be met from the investment instruments in the products. The pension products mainly consist of UniProfiRente, a retirement pension solution certified and subsidized by the German government. The amounts paid in during the contributory phase and the contributions received from the government are guaranteed to be available to the investor at the pension start date. The pension is then paid out under a payment plan with a subsequent life annuity. If UMH has to provide additional capital to be able to meet its guarantee commitments, this could have a detrimental impact on the financial performance of the DZ BANK Group.

10.4 Organization, responsibility, and reporting

Market risk in the **Bank sector** is managed on a decentralized basis by the individual management units within the centrally specified limits for the capital requirement for market risk. Each unit bears responsibility for the risk and performance associated with each portfolio. Responsibility for managing risk within a management unit is normally brought together under a local treasury unit.

One exception is **DZ BANK**, where portfolios are managed at the level of subordinate organizational units (group, department, division). In this case, the relevant traders bear direct responsibility for risk and performance. The organizational units are structured in such a way that the responsibility for the marketing of certain types of product is assigned in each case to a trading division with product responsibility.

Key figures for market risk are reported at sector level and for DZ BANK to the **Group Risk and Finance Committee** in the quarterly overall risk report.

10.5 Management of market risk

10.5.1 Central market risk measurement

Central market risk measurement in the overall portfolio

Various components are used to quantify market risk in the Bank sector from a present value perspective. These components are combined to determine the aggregate risk capital requirement for market risk, taking into account the effects of concentration and diversification. The risks arising in connection with the assets and liabilities associated with direct pension commitments are also factored in. The models are operated centrally by DZ BANK and are fed with input data provided by the management units on each trading day. Sector-wide standards and rules are in place to ensure that the modeling is appropriate.

The first component of the measurement approach creates a spread and migration risk model based on a **Monte Carlo simulation**. It determines the combined spread and migration risk over a longer-term (strategic) horizon of 1 year with a confidence level of 99.9 percent. Whereas spread risk quantifies credit-risk-related losses from financial instruments in a short-term view of value-at-risk, this becomes the combined spread and migration risk in the risk capital requirement over a longer-term perspective. For this reason, migration risk is not shown in the table of values-at-risk in Fig. VII.31.

The second component is a value-at-risk model based on a **historical simulation** in which the general market risk is determined from a short-term (operational) perspective over one day and with a unilateral confidence level of 99.0 percent. The day-by-day calculation of market risk is based on a historical observation period of 250 trading days. A number of risk factors, categorized into groups, are included in the risk calculation. The most important risk factor groups include yield curves, basis and credit spreads, share prices, exchange rates, and commodity prices. The model also includes implied volatility in the risk measurement. Drawing on the results of the value-at-risk measurement, a transformation model turns the operational key risk indicators (also taking account of stress events) into a strategic perspective in which a one-year holding period and a confidence level of 99.9 percent are assumed.

In the last step, the results from the spread and migration risk model and from the transformation model are then combined to give the **aggregate risk capital requirement** for market risk.

Central market risk measurement for interest-rate risk in the banking book
For internal sector-wide management purposes, the banking book and trading book are treated in the same way in terms of the models and key risk indicators used, the frequency of risk measurement, and the main risk measurement parameters. To supplement this risk measurement approach in which the banking and trading books are analyzed holistically, interest-rate risk in the banking books of the entities in the Bank sector from a regulatory perspective is managed separately using a present-value approach.

On behalf of the other management units in the Bank sector, DZ BANK also operates a partially centralized model for quantifying periodic interest-rate risk. Overall, these methods are used to record the impact from changes in interest rates, both from an economic perspective (based on present value) and from the angle of net interest income.

Concentrations of market risk
Concentrations in the portfolio affected by market risk are identified by classifying the exposure in accordance with the risk factors associated with interest rates, spreads, migration, equities, currencies, and commodities. This incorporates the effects of correlation between these different risk factors, particularly in stress phases.

10.5.2 Decentralized market risk measurement

Decentralized measurement of general market risk and spread risk
In addition to the models specified in chapter VII.10.5.1, the material **management units** operate their own risk models to satisfy ICAAP requirements from the perspective of the individual institution. With the exception of asset-management risk at UMH, the results from these models are not used to manage market risk on a present value basis in the Bank sector and therefore do not form part of this risk report.

Decentralized measurement of asset-management risk
The risk capital requirement for asset-management risk is determined locally by **UMH** and then added to the risk capital requirement for general market risk and spread risk calculated centrally for the Bank sector. Asset-management risk comprises risks related to guarantee funds and Riester pensions. Following the approach used for the central measurement of market risk, the risk capital requirement for asset-management risk is calculated on the basis of a Monte Carlo simulation, using a confidence level of 99.9 percent and a one-year holding period, and taking into account the specific investment selections made in the customer investment account.

10.5.3 Backtesting and stress tests
The central value-at-risk model is subject to **backtesting**, the purpose of which is to verify the predictive quality of the model. Changes in the value of portfolios on each trading day are usually compared against the value-at-risk calculated using risk modeling. For UniProfiRente, backtesting is carried out on the basis of monthly changes in the value of the portfolio.

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, currency risk, equity risk, and commodity risk.

10.5.4 Management of limits for market risk
The starting point for limiting market risk is a limit for the capital requirement for market risk in the **Bank sector** specified as part of operational planning. This limit is broken down into an individual limit for the market risk capital requirement in each management unit.

Within **DZ BANK**, this limit is then further subdivided into a system of limits for the divisions, departments, and groups to appropriately reflect the decentralized portfolio responsibility assigned to these units and the nature of the bank from a regulatory perspective as a trading book institution. Limits are monitored on every trading day.

10.5.5 Mitigating market risk

The entities in the Bank sector use various approaches to mitigate market risk. For example, some market risk from the assets-side business (such as traditional lending business) or from the liabilities-side business (such as home savings deposits) is offset by suitable countervailing liability or asset transactions (such as own issues or securities). These activities are carried out as part of asset/liability management. In other cases, financial derivatives are used for hedging purposes.

As the measurement of market risk is based on the inclusion of the individual items subject to market risk, there is no need to monitor the economic effectiveness of hedges.

10.5.6 Managing the different types of market risk

Management of spread risk and migration risk

Most of the spread and migration risk in the **Bank sector** arises from non-trading portfolios and is consciously assumed within the established limits in accordance with the associated long-term investment strategy. Hedging instruments are also used in carefully selected trading book portfolios. The central measurement of this risk means that the level of the risk on every trading day is transparent. If there is any indication that the ability to bear the spread and migration risk is in jeopardy, Group Treasury at DZ BANK will initiate corrective measures across the sector.

Management of interest-rate risk

Interest-rate risk arising from operating activities at **DZ BANK** and **DZ HYP** is mitigated primarily by means of hedging using interest-rate derivatives, on the basis of either individual transactions or portfolios. At **BSH**, an asset/liability management approach based on the maturities of the securities in the investment portfolio is the predominant method used to manage interest-rate risk arising from the collective building society operations and the traditional lending business, including the interest-rate risk associated with direct pension commitments. Interest-rate derivatives are also used for risk management purposes but are currently of minor significance.

DZ BANK is notably exposed to significant **interest-rate risk from direct pension commitments** in addition to the interest-rate risk arising from operating activities. This risk is consciously assumed within the existing limits.

Management of equity risk and fund price risk

Equity risk and fund price risk from the non-trading portfolios are managed first and foremost by directly changing the underlying exposure. Derivative products are also used within the trading portfolio to keep the type of risk involved within the allocated limits. Some funds are broken down into their constituent parts for the purposes of measuring the risk. In such cases, the risk is not treated as part of fund price risk, but is managed within the type of market risk determined for the constituent part concerned.

Management of asset-management risk

Asset-management risk arises from minimum payment commitments given by **UMH** and/or its subsidiaries for guarantee products. The risks from these guarantee products are managed mainly by using asset allocation. Asset-management risk is reported using a separate internal system and is monitored regularly by UMH.

10.6 Management of market liquidity risk

The calculation of general market risk in the Bank sector using the transformation model and the spread and migration risk model takes market liquidity risk into account.

Within the transformation model, stress events are expressly integrated into the analysis when market risk is transferred from an operating perspective to a strategic perspective. The change in risk factors in these events is based on the assumption that it is not possible to make changes to the exposures in the portfolio of the Bank sector over a specified period.

The spread and migration risk model implicitly factors in phases of diminishing market liquidity via the calibration of the credit spread volatility included in the model. The estimation of volatility based on market data from the recent past also uses a lower limit determined from longer-term data. This prevents any low level of credit spread volatility in a calm market environment with normal liquidity from being transferred directly into the model parameters.

10.7 Risk position

10.7.1 Value-at-risk

FIG. VII.31Fig. VII.31 shows the average, maximum, and minimum values-at-risk measured for the Bank sector and DZ BANK over the reporting year, including a further breakdown by type of market risk. In addition, Fig. VII.32 shows the change in market risk for the Bank sector by trading day in the reporting period. In both figures, the value-at-risk relates to the **trading and banking books for regulatory purposes**.

As at December 31, 2023, the value-at-risk for the **interest-rate risk in the banking book for regulatory purposes** was as follows (prior-year figures in parentheses):

– **Bank sector**: €48 million (€54 million)
– **DZ BANK**: €9 million (€11 million)

The decline in interest-rate risk in the banking book for regulatory purposes in the Bank sector and at DZ BANK is due to particular scenarios no longer being included in the rolling observation period in the risk model.

The value-at-risk for interest-rate risk in all of the portfolios and the value-at-risk for interest-rate risk in the banking book for regulatory purposes are calculated using identical risk models. Variations in risk values are attributable directly to differences in the calculation bases used for the various portfolios.

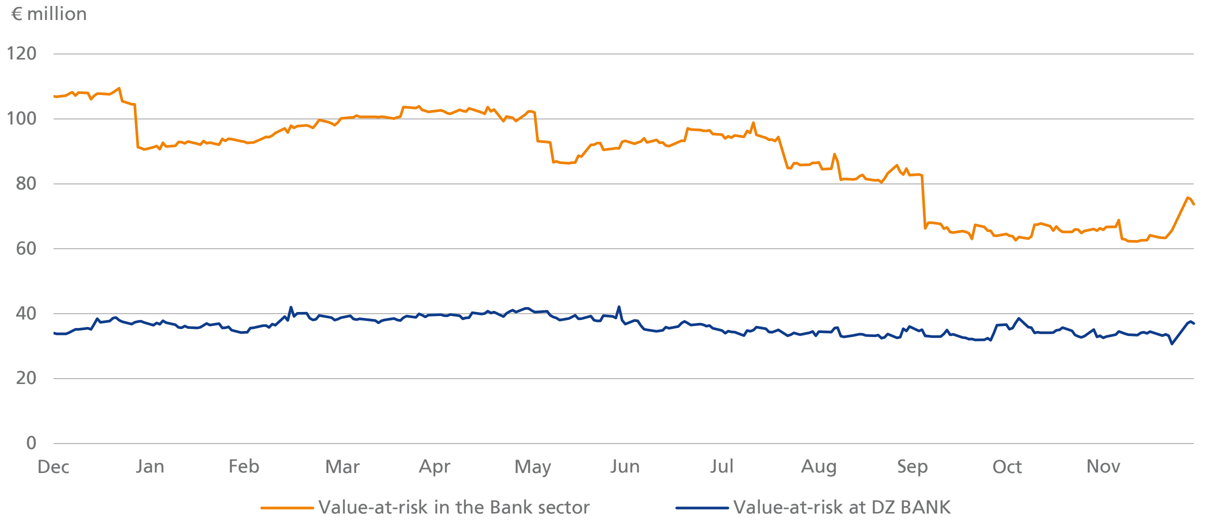
The decrease in value-at-risk in the Bank sector from €107 million as at December 31, 2022 to €74 million as at December 31, 2023 is mainly attributable to a reduction in spread risk, in addition to the diversification effect. This is due to particular scenarios no longer being included in the rolling observation period in the risk model.

FIG. VII.31 – BANK SECTOR: CHANGE IN MARKET RISK BY RISK SUBTYPE[1, 2, 3]

	Interest-rate risk		Spread risk		Equity risk		Currency risk		Commodity risk		Aggregate risk[4]	
€ million	Bank sector	DZ BANK	Bank sector	DZ BANK	Bank sector	DZ BANK	Bank sector	DZ BANK	Bank sector	DZ BANK	Bank sector	DZ BANK
Dec. 31, 2023	**49**	**10**	**58**	**31**	**9**	**3**	**5**	**4**	**2**	**1**	**74**	**37**
Average	56	13	68	34	11	3	4	3	2	1	88	36
Maximum	69	26	75	39	16	5	6	5	3	2	109	42
Minimum	42	7	52	26	7	2	1	1	2	1	62	31
Dec. 31, 2022	**53**	**12**	**70**	**31**	**11**	**2**	**3**	**3**	**3**	**2**	**107**	**34**

1 The disclosures relate to general market risk and spread risk. Asset-management risk is not included.
2 Value-at-risk with 99.0% 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.
3 Including funds, if not broken down into constituent parts.
4 Due to the diversification effect between the market risk subtypes, the aggregate risk does not tally with the total of the individual risks.

FIG. VII.32 – BANK SECTOR: CHANGE IN MARKET RISK BY TRADING DAY[1]



1 Value-at-risk with 99.0% 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.

10.7.2 Risk capital requirement

As at December 31, 2023, the risk capital requirement for **market risk** in the **Bank sector** and at **DZ BANK** amounted to €4,169 million (December 31, 2022: €3,730 million) and €1,757 million (December 31, 2022: €1,481 million) respectively, with **limits** of €6,470 million (December 31, 2022: €6,680 million) and €3,000 million (December 31, 2022: €3,175 million) respectively. The rise in risk capital requirements was largely attributable to higher stress test results due to the sharp fall in interest rates in the last quarter of 2023.

The Bank sector's risk capital requirement encompasses the **asset-management risk of UMH**. Asset-management risk as at December 31, 2023 amounted to €273 million (December 31, 2022: €342 million). This decline in risk was mainly due to a model adjustment.

11 Technical risk of a home savings and loan company

11.1 Definition

Technical risk of a home savings and loan company is subdivided into two components: new business risk and collective risk. **New business risk** is the risk of a negative impact from possible variances compared with the planned new business volume. **Collective risk** refers to the risk of a negative impact that could arise from variances between the actual and forecast performance of the collective building society operations caused by significant long-term changes in customer behavior unrelated to changes in interest rates.

BSH's business risk and reputational risk are included within the technical risk of a home savings and loan company.

11.2 Business background and risk strategy

Technical risk of a home savings and loan company arises in the Bank sector in connection with the business activities of **BSH**. This risk represents the entity-specific business risk of BSH. A home savings arrangement is a system in which the customer accumulates savings earmarked for a specific purpose. The customer enters into a home savings contract with fixed credit balance and loan interest rates, so that when the savings phase (which may be subsidized under statutory arrangements) is completed at a later point and a loan is allocated under the contract, they can receive a home savings loan with a fixed rate of interest. A home savings agreement is therefore a combined asset/liability product with a long maturity.

Technical risk of a home savings and loan company is closely linked with the BSH business model and cannot therefore be avoided. Against this backdrop, the **risk strategy** aims to prevent an uncontrolled increase in risk.

11.3 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 operations caused by significant long-term changes in customer behavior unrelated to changes in interest rates (**collective risk**) could also lead to lower loans and advances to banks and customers and to lower deposits from banks and customers. Over the medium to long term, there is a risk that a lower level of new business and change in customer behavior could lead to a fall in earnings and therefore to a decline in capital.

11.4 Responsibility, reporting, and risk 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**.

A special collective simulation, which includes the integrated effects of a (negative) change in customer behavior and a drop in new business, is used to **measure the technical risk of a home savings and loan company** on a quarterly basis. The results from the collective simulation for the technical risk of a home savings and loan company are fed into a long-term forecast of earnings. The variance between the actual earnings in the risk scenario and the earnings in a base forecast with the same reference date is used as a risk measure. The variance is discounted to produce a present value. The total present value of the variances represents the technical risk of a home savings and loan company and therefore the risk capital requirement for this type of risk. **Concentrations** of this risk are most likely to arise from new business risks.

Technical risk of a home savings and loan company is **managed** in particular through a forward-looking policy for products and scales of rates and charges, and through appropriate marketing activities and sales management.

11.5 Risk position

As at December 31, 2023, the **risk capital requirement** for the technical risk of a home savings and loan company amounted to €730 million (December 31, 2022: €698 million) with a **limit** of €820 million (December 31, 2022: €785 million). At present, the changes in the parameters ‘customer behavior’ and ‘decline in new business’ that are simulated in the risk calculation give rise to stable risk values at a high level.

12 Business risk

12.1 Definition and business background

Business risk refers to the risk that financial performance is not in line with expectations, and this is not covered by other types of risk. In particular, this comprises the risk that, as a result of changes in material circumstances (for example, economic conditions, product environment, customer behavior, market competitors) or inadequate strategic positioning, corrective action cannot be taken to prevent losses.

Business risk mainly affects DZ BANK. DZ BANK’s core functions as a **central institution and 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.

12.2 Risk strategy

The objective of the business risk strategy is to specify how business risk is to be managed, taking into account the relevant **business drivers**, and thus contribute to achieving the targets set out in the business strategy. The focus is on preventing both an unplanned increase in risk and potential losses arising from a slump in income or from increases in staff expenses or operating costs.

The following **instruments** are used to support the attainment of targets:
- Forward-looking assessment of success factors and specification of targets as part of the strategic planning process
- Groupwide coordination of risk management, capital allocation, and corporate strategy, together with the leveraging of synergies
- Setting of limits and monitoring

12.3 Risk factors

Over the next few years, the DZ BANK Group is likely to continue to face **increased costs**, and thus reduced profits, in connection with implementing the requirements resulting from **regulatory legislative initiatives**.

Fiercer **competition in retail and corporate banking based on pricing and terms** could give rise to margins that are economically unattractive for the entities in the Bank sector or that do not adequately cover the risk arising from the corresponding transactions.

12.4 Organization, responsibility, and reporting

The management of business risk is a primary responsibility of the **Board of Managing Directors** and is carried out in consultation with the senior management of the material 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 Finance division supports the Board of Managing Directors as part of its role in supervising the activities of the subsidiaries. Details of the committee structure and the supervision of subsidiaries can be found in chapter I.2.2 in ‘DZ BANK Group fundamentals’.

Business risk is **reported** to the Board of Managing Directors quarterly as part of the overall risk report. The Board of Managing Directors is also updated monthly about the risk situation and capital situation and about the income situation from an HGB perspective.

12.5 Risk management

The management of business risk is closely linked with 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. The strategic planning process is described in chapter I.2.4 in ‘DZ BANK Group fundamentals’.

To identify regulatory initiatives with a material impact on the DZ BANK Group and its entities, 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 the other management units, and organizes regular bank-wide and groupwide dialogue on identified and new strategic regulatory initiatives. It also uses a ‘regulatory map’ to report to the relevant steering committees, the Board of Managing Directors, and the Supervisory Board.

Business risk in the Bank sector is **quantified** with a confidence level of 99.9 percent using a risk model operated by DZ BANK and centralized data at the level of the DZ BANK Group. The risk model is based on an earnings-at-risk approach with due regard to the definition of economic available internal capital. A Monte Carlo simulation is used to model a probability distribution for the earnings relevant to business risk, which comprise selected income and expense items from the IFRS income statement, with an analysis period of 1 year. This distribution produces the risk capital requirement in the amount of the modeled actual loss.

The broad diversification and sustainability of the business models used by the entities in the Bank sector are intended to prevent excessive **concentrations of income**. As part of a groupwide risk concentration analysis, which itself forms part of the risk inventory check, a review is carried out annually, and on an ad hoc basis as required, to identify concentrations of income and assess their materiality. This aims to ensure that income concentrations are appropriately taken into account in risk-bearing capacity.

12.6 Risk position

As at December 31, 2023, the **risk capital requirement** for business risk (including reputational risk) in the **Bank sector** and at **DZ BANK** amounted to €363 million (December 31, 2022: €43 million) and €335 million (December 31, 2022: €43 million) respectively. The **limit** in the **Bank sector** was €450 million as at the reporting date (December 31, 2022: €280 million). At **DZ BANK**, the **limit** was €410 million (December 31, 2022: €235 million). Reputational risk is included in the figures shown.

The risk capital requirement for business risk increased significantly compared with the end of 2022 due to more conservative planning assumptions concerning parameters with business risk implications. The limit was raised to tie in with this increase in risk.

13 Reputational risk

13.1 Definition and business background

Reputational risk refers to the risk of losses from events that damage confidence, mainly among customers (including the cooperative banks), shareholders, employees, the labor market, the general public, and the supervisory authorities, in the entities in the Bank sector or in the products and services that they offer. Reputational risk can arise either as an independent risk (primary reputational risk) or as an indirect or direct consequence of other types of risk (secondary reputational risk).

Reputational risk can arise in connection with any of the business activities in the entities within the Bank sector.

13.2 Risk strategy

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 (potential) 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.

13.3 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.

If the transition risks, social risks, and corporate governance risks assessed in connection with **ESG risks** were to materialize, this could give rise to heightened reputational risk.

13.4 Responsibility and risk management

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 the management units. Based on this approach, responsibility for managing reputational risk lies with each division with the involvement of other functions such as communications & marketing, corporate security, and compliance.

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. At BSH, reputational risk is measured and the capital requirement determined mainly as part of the technical risk of a home savings and loan company.

In addition, the risk that obtaining funding may become more difficult as a consequence of reputational damage is specifically taken into account in liquidity risk management.

The management units follow a stakeholder-based approach in which reputational risk is identified and evaluated from a qualitative perspective depending on the stakeholder concerned.

14 Operational risk

14.1 Definition

Operational risk refers to the risk of losses from human behavior, technological failure, weaknesses in process or project management, or external events.

In the reporting year, the following subtypes of operational risk were material for the Bank sector:
- Compliance risk including conduct risk
- Legal risk
- Information risk including ICT risk
- Security risk
- Outsourcing risk
- Project risk

Other subtypes of operational risk that are not material when viewed in isolation are categorized as 'Other operational risk'. This category is used to cover operational risks that cannot be allocated to the other subtypes of operational risk and – measured on the basis of risk profile – are of lesser importance.

14.2 Business background and risk strategy

Operational risk can arise in any division of the entities in the Bank sector. DZ BANK as well as DZ HYP and UMH are particularly subject to operational risk.

The management units 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
- Manage operational risk on a decentralized basis but within the limits set out in the framework for operational risk
- Ensure that the impact of corporate policy decisions on operational risk is taken into account

14.3 Organization, responsibility, and reporting

Each management unit is responsible for managing its operational risk. The principle of **decentralized** responsibility applies equally within the management units.

One of the purposes of the **framework for operational risk** is to harmonize risk management throughout the sector. The sector-wide coordinated approach to operational risk is also managed by a **committee** assigned to the Group Risk Control working group.

A **DZ BANK** organizational unit responsible for controlling operational risk located within the Group Risk Control & Services division develops the management and control methods based on regulatory requirements and business needs applicable to the Bank sector. This organizational unit ensures that operational risk is monitored independently and is responsible for central reporting on operational risk in the Bank sector and at DZ BANK. Similar organizational units are also in place at the other material entities in the **Bank sector**.

Specialist divisions with central risk management functions are also assigned tasks relating to the management of operational risk. As part of their overarching responsibility, these specialist divisions also perform an advisory and guiding function for the matters within their remit in the relevant entities of the Bank sector.

Because operational risk can affect all divisions in the management units, **local operational risk coordinators** are located in each division and they liaise with central Risk Controlling.

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 with the aim of facilitating effective management of operational risk on a timely basis.

14.4 Central risk management

14.4.1 Identifying operational risk

The main tools used to manage and control operational risk in the DZ BANK Group's Bank sector are described below.

Loss database

The 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. In particular, data is recorded for operational risk that materializes and results in a gross loss of €1,000 or more.

Risk self-assessment

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 event categories as defined by the CRR are calculated and described using risk scenarios. The scenarios are also designed to enable risk concentrations to be identified.

Risk indicators

In addition to the loss database and risk self-assessment, risk indicators are intended to enable risk trends and concentrations to be identified 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 within the Bank sector are collected systematically and regularly.

14.4.2 Measurement of operational risk

An **internal portfolio model** that takes into account loss data and the results from the risk self-assessments is used to determine the risk capital requirement for operational risk in the Bank sector. Within the portfolio model, the distributions of loss frequency and amount are brought together in a Monte Carlo simulation. This determines potential losses that could arise over a period of 1 year with a confidence level of 99.9 percent. The results from the model, combined with the tools used to identify risk, are used to manage operational risk centrally. Alongside the economic risk capital requirement, the model also calculates specific risk contributions for each management unit.

In addition, **risk concentrations** are identified by using separate model-based analyses, taking into account event categories and areas of business specified by regulatory requirements. These risk concentrations could occur in the different areas of business within the entities of the Bank sector.

In addition, a simplified procedure based on the allocation mechanism in the capital model is used to identify **risk factors**. The subsequent analysis is carried out for all standard scenarios. The list of standard scenarios is maintained for use throughout the group and contains a list of general scenario descriptions that are relevant to operational risk in the Bank sector entities.

14.4.3 Limiting operational risk

The limits for operational risk are used as the basis for central monitoring of the risk capital requirement at the Bank sector level. The risk capital requirement for the Bank sector is broken down into risk contributions for each management unit using a risk-sensitive allocation procedure so that the management units in the Bank sector can be monitored centrally. These risk contributions are then monitored centrally using limits for each management unit.

14.4.4 Mitigating and avoiding operational risk

Continual improvement of business processes and control 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.

14.5 Operational risk subtypes

14.5.1 Compliance risk including conduct risk

Risk factors

Compliance risk could arise if the compliance and risk management systems implemented in the Bank sector entities prove insufficient to completely prevent or detect breaches of obligations to third parties. Such obligations include legal requirements (laws, regulations) as well as both internal and external agreements. Examples are misuse of confidential information, failure to comply with sanctions or embargoes, data protection infringements, and support – or inadequate preventive measures – for money laundering, terrorist financing, or other criminal offenses. Wrongdoing by employees (conduct risk) forms part of compliance risk.

Effects if risk materializes

Violations of internal rules or legal provisions could render contracts null and void or have legal implications for the entity concerned, for the members of its decision-making bodies, or for its employees. They may give rise, for example, to fines, penalties, retrospective tax payments, or claims for damages by third parties. The reputation of individual entities in the Bank sector and the DZ BANK Group as a whole could also suffer as a result. These effects could reduce the Bank sector entities' appeal as partners in business transactions and consequently lead to losses in value.

Risk management

The basic principles for managing compliance risk applicable to the entities in the DZ BANK Group are described in chapter VII.3.4.5. The data protection measures in place and the code of conduct are also explained in the same chapter. Measures such as the strict separation of functions, the requirement for verification by a second person, restrictions on IT and building access authorizations, and a sustainability-oriented remuneration system are designed to contain risk, in particular the risk of internal fraud.

14.5.2 Legal risk

Risk factors
Legal risk can arise from legal violations or incorrect application of legal provisions. Legal risk can also arise from changes to the legal position (laws or judgments by the courts) relating to transactions completed in the past.

Effects if risk materializes
If legal risk were to materialize, this could result in official sanctions or the need to pay damages. It is also possible that existing contractual rights could be lost retrospectively or could otherwise not be enforced for legal reasons. These effects could lead to losses and reduce the Bank sector entities' appeal as partners in business transactions.

Risk management
The entities in the Bank sector pursue a strategy of avoiding legal risk. Identified risks are limited and mitigated by means of legal or procedural organizational measures. If the legal position is uncertain, the management units generally adopt a defensive approach.

In the entities of the Bank sector, responsibility for managing legal disputes normally lies with their organizational units responsible for dealing with legal issues. These units continuously monitor proposed legislation and regulatory requirements that are legally relevant, as well as developments in decisions by the courts. Their responsibilities include reviewing and assessing circumstances from a legal perspective and also 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.

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.

Accounting for legal risk
In accordance with the relevant (group) accounting rules, loss allowances – or provisions – are recognized to account for potential losses from legal risk.
Disclosures covering the provisions recognized for risks arising from ongoing legal disputes and pre-litigation risks – in particular in connection with capital market, home savings, and credit products – and for risks arising from general banking operations are included in note 67 of the notes to the consolidated financial statements under 'Other provisions'.

14.5.3 Information risk including ICT risk

Risk factors
Information risk arises from a failure to maintain the confidentiality, integrity, availability, or authenticity of information assets. If the risk is in connection with the use of information or communication technology (data media), it is referred to as ICT risk. This also includes cyber risk.

Effects if risk materializes

The processes necessary to conduct operating activities could be impaired if the confidentiality, integrity, availability, and authenticity of information assets is not maintained or if IT systems malfunction or break down. This could, in turn, inflict reputational damage and lead to losses from operational risk.

Risk management

The basic principles for managing information security applicable to the entities in the DZ BANK Group are described in chapter VII.3.4.6. The nature of these principles is described below.

Practically all business processes are carried out electronically using appropriate IT systems. The supporting IT systems are networked with each other and are operationally interdependent.

Processes in the IT divisions 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 information 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.

The IT processes are designed, through comprehensive physical and logical precautionary measures, to guarantee the security of information assets and IT systems and to ensure that day-to-day operations are maintained. Measures used by the Bank sector to counter the risk of a partial or complete loss of IT systems include segregated data processing centers in which the data and systems are mirrored, special access security, fire control systems, and an uninterruptible power supply supported by emergency power generators.
Regular exercises are carried out to test defined restart procedures to be used in emergency or crisis situations with the aim of checking the efficacy of these procedures. Data is backed up and held within highly secure environments in different buildings.

Further details on information security management can be found in chapter VII.3.4.6.

DZ BANK's risk assessment methodology for information risk is made available centrally by information security management and applied locally by the managers responsible for the various IT systems using tool-supported control processes. All variances identified in these processes are assessed from the perspective of the associated risks. All information risks classified as material are included in regular information security reports to the Board of Managing Directors.

14.5.4 Security risk

Risk factors

Security risk can arise from inadequate protection of individuals, premises, assets, or time-critical processes. Examples are epidemics or pandemics resulting from the spread of pathogens over a huge area, restrictions on access to workplaces caused by natural disasters or demonstrations, or limitations on the use of resources because of a power outage or other interruption to energy supply. Climate change could lead to more frequent and more severe natural disasters.

Effects if risk materializes

If security risk were to materialize, this could lead to a range of problems from staff shortages to restrictions, or even the loss, of the use of buildings and resources such as IT systems and third-party services. In such eventualities, it is possible that mission-critical processes could not be carried out or could not be carried out on time, which could lead to loss of business and/or compensation claims from customers. Furthermore, such scenarios could also have a negative impact on reputation.

Risk management
The relevant organizational units in the management units prepare requirements for the protection of time-critical business processes, people, premises, and other assets. These requirements are implemented by the departments responsible in each case. In all relevant management units, a comprehensive business continuity management system (with business continuity plans covering time-critical activities and processes) has been established to ensure the continuation of business in the event of process disruption or IT system breakdown. These business continuity plans are regularly reviewed and tested to ensure they are fully functional.

Further details on business continuity management can be found in chapter VII.3.4.6.

14.5.5 Outsourcing risk

Risk factors
The entities in the Bank sector have outsourced activities and processes to third-party service providers to a considerable extent. Outsourcing risk can arise if the service provider fails to comply with the strategic principles established by the management units or the related operational requirements when carrying out the outsourced activities.

The reasons may be as follows:
- Failure of the relevant service provider to comply with regulatory requirements
- Lack of transparency regarding the delivery of the services and little opportunity for control over outsourcing outside the home market
- Highly complex outsourced processes that are far from a standard service
- Potential loss of expertise because of outsourcing of core competencies or knowledge processes
- Defective performance caused by service provider failures or the loss of service provider
  Inadequate management or monitoring of service providers, in particular as a result of a lack of transparency regarding service delivery

Effects if risk materializes
If these risk factors were to materialize, they could lead to a loss of business and to claims for damages from customers. They could also result in a negative impact on reputation.

Risk management
The basic principles for managing outsourcing applicable to the entities in the DZ BANK Group are described in chapter VII.3.4.7.
The process of assessing the risk and determining the degree to which an outsourcing arrangement is material is carried out as part of the analysis of outsourcing risk by the division responsible for the outsourcing with the involvement of a number of reviewing and control units, including compliance, information security, and business continuity management, and in consultation with the local coordinators for operational risk. Internal audit is also involved as part of its auditing activities.

At DZ BANK, external service providers are managed by the department responsible for the outsourcing in accordance with the currently applicable policy for external procurement management. Service meetings are regularly held with service providers to facilitate communication and coordinate the IT services and other services to be provided by the third parties concerned. Compliance with contractually specified service level agreements is monitored, for example, by means of status reports and uptime statistics. The external service providers submit regular reports in which they evaluate and confirm the effectiveness of the general controls and procedures.

Business continuity plans, specific contractual liability provisions, and exit strategies are some of the approaches used to reduce outsourcing risk.

14.5.6 Project risk

Risk factors
Project risk refers to the risk that project requirements will not be completed on schedule. Project risk could arise, for example, from the inadequate clarification of project targets or orders, from deficiencies in subsequent implementation, from communication shortcomings both inside and outside the project, or from unexpected changes in the general parameters applicable to a project.

Effects if risk materializes
If project risk were to materialize, this could mean that the implementation of the project could require exceptional additional funds in excess of the budget (primary project risk). It could also give rise to further costs attributable to the failure to complete project requirements on schedule (secondary project risk). Examples of such costs are additional costs or reduced earnings in the line organization, impairment losses on capital investment related to the project, and penalty payments.

Risk management
In accordance with the statutory requirements that need to be observed, the project organization serves as the framework for implementing projects. The projects as a whole are broken down into portfolios with shared characteristics to enable the projects to be managed in a focused, efficient manner. A committee structure with defined roles and responsibilities is designed to look after the detailed management of the portfolios and the projects assigned to them.

The management of project risk is an ongoing process over the lifecycle of a project and is a component of project management and project portfolio management. Accepting a project risk is a valid option if the project customer believes that the measures to eliminate, reduce, or mitigate the risk are not reasonable in relation to their expected benefit.

14.6 Impact of the war in Ukraine
The monitoring of sanctions necessitates manual transaction checks that entail an increased workload. This may result, for example, in delays to the execution of transactions or, if applicable, penalty interest payments for trading that involves securities subject to sanctions. The resulting operational risks are factored in by means of the hypothetical risk scenarios ‘breaches of sanctions and embargoes’ and ‘incorrect execution of transactions and processes’.

14.7 Losses
Losses from operational risk do not follow a consistent pattern. 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. Over the course of time, regular fluctuations are evident in the pattern of losses as the frequency of relatively large losses in each individual case is very low. Presenting the change in losses meaningfully therefore requires a sufficiently long and unchanging time horizon for reporting purposes. The data is selected from the loss history for the past four quarters and on the basis of the date on which the expense is recognized in the income statement.

The past four quarters – that is, the period from January 1 to December 31, 2023 – represent the relevant reporting period for an analysis of net losses. Fig. VII.33 shows the internal net losses from loss events reported in this period, classified by operational risk subtype, and a comparison with their long-term mean. Unlike in the 2022 risk report, the distribution of net losses by operational risk subtype is stated as an absolute figure rather than as a proportion of total net losses. Losses that are allocable to more than one subtype are split equally between the relevant subtypes.

In the past four quarters, internal losses both in the **Bank sector** and at **DZ BANK** were dominated by **compliance risk**, **legal risk**, and **other operational risk**. The losses for these risk subtypes were higher than in the prior period. The main reason for the rise in other operational risk is that a mistake was made in the process of adjusting the documents.

Losses did not reach a critical level relative to the expected loss from operational risk at any point during 2023, either in the Bank sector or at DZ BANK.

FIG. VII.33 – BANK SECTOR: NET LOSSES[1] BY OPERATIONAL RISK SUBTYPE

	Bank sector		DZ BANK	
€ million	Jan. 1, 2023 – Dec. 31, 2023	Long-term mean[2]	Jan. 1, 2023 – Dec. 31, 2023	Long-term mean[2]
Compliance risk	8	23	3	14
Legal risk	6	22	4	13
Information risk including ICT risk	3	3	1	1
Security risk	2	2	1	1
Outsourcing risk	3	1	1	0
Project risk	–	1	–	–
Other operational risk	14	8	9	5
Total[3]	**35**	**58**	**19**	**34**

1 Internal losses. Operational losses related to credit risk are not included in this breakdown.
2 The long-term mean is derived from loss data recorded since 2006.
3 Losses that are allocable to more than one operational risk subtype are split equally between the relevant subtypes.

14.8 Risk position

As at December 31, 2023, the capital requirement for operational risk at **Bank sector** level was calculated at €978 million (December 31, 2022: €966 million) with a **limit** of €1,148 million (December 31, 2022: €1,112 million).

As at December 31, 2023, the corresponding requirement at **DZ BANK** was €550 million (December 31, 2022: €554 million). The **limit** as at December 31, 2023 was €651 million (December 31, 2022: €625 million).

Fig. VII.34 shows the structure of the risk profile for operational risk in the Bank sector and at DZ BANK based on **risk subtypes**.

FIG. VII.34 – BANK SECTOR: DISTRIBUTION OF RISK CAPITAL REQUIREMENT FOR OPERATIONAL RISK, BY RISK SUBTYPE[1]

	Bank sector		DZ BANK	
Percent	Dec. 31, 2023	Dec. 31, 2022	Dec. 31, 2023	Dec. 31, 2022
Compliance risk	30.4	31.7	13.4	15.0
Legal risk	19.4	19.2	8.4	9.3
Information risk including ICT risk	16.9	15.5	6.1	5.3
Security risk	5.0	5.5	1.8	1.9
Outsourcing risk	5.9	5.6	2.3	2.1
Project risk	6.3	6.6	2.6	2.8
Other operational risk	16.0	15.9	8.5	8.1

1 Proportion of the Bank sector's total operational risk capital requirement attributable to each operational risk subtype.

The distribution of the risk capital requirement among the operational risk subtypes in the Bank sector and at DZ BANK remained largely unchanged as at December 31, 2023 compared with the end of the previous year.

Compliance risk and **legal risk** accounted for the most significant proportions of the risk capital requirement. A large proportion of the risk capital requirement for these two risk subtypes was determined by the recorded losses and by the hypothetical risk scenarios for changes to case law and for breaches of sanctions and embargoes. The small decrease in the share of risk capital for compliance risk was predominantly due to adjustments to the underlying hypothetical scenarios for changes to case law and for breaches of sanctions and embargoes. The largest increase in the risk capital requirement was seen in **information risk** including ICT risk. This was mainly attributable to adjustments to the hypothetical hacker-attack scenarios.

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, which is closely interlinked with the business strategy. Under its risk strategy, R+V aims to assume risk on a conscious, calculated basis within the constraints of the specified risk appetite.

Life actuarial risk is managed with the objectives of holding a broadly diversified product portfolio and of developing existing products while designing new ones. Pension, endowment and risk insurance, working life and semi-retirement products, index-linked products, and unit-linked products are underwritten in order to diversify the life insurance and pension provision portfolios.

The objectives of managing **health actuarial risk** are a risk-conscious underwriting policy, cost/benefit management, the development of existing products, and the design of new products.

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.

In **inward non-life reinsurance business**, R+V also aims to achieve a broad balance of risk across all sectors, diversify geographically around the globe, and optimize the portfolio from a risk/reward perspective.

The management of **market risk** is connected with the following fundamental objectives of risk policy: optimizing the economic risk/return profile, ensuring required returns on investments taking into account individual risk-bearing capacities, achieving defined minimum investment returns in stress scenarios, and conserving hidden assets to ensure consistent earnings. The aim is also to guarantee that there is a sufficient proportion of fungible investments.

In line with the risk strategy for **counterparty default risk**, R+V aims to maintain a high average credit rating for its portfolios, avoid concentrations of issuers at portfolio level, and comply with the limits that have been set for counterparties and debtors of insurance and reinsurance companies.

The risk strategy for **operational risk** aims to further raise awareness of operational risk.

The objective of the **reputational risk strategy** is to promote the image of the R+V brand with due regard to the need for transparency and credibility.

15.2 Organization, responsibility, and reporting

As specified in the own risk and solvency assessment (ORSA), the risk management process encompasses all the steps involved in identifying, analyzing, assessing, managing, monitoring, reporting, and communicating risk. 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 assessed and, where necessary, initiated if a specified index value is exceeded. Risk-bearing capacity and all material risks are then finally evaluated each quarter by the Risk Committee.

Reports are submitted to the Board of Managing Directors of R+V in the event of material changes in risk. Company information that has a bearing on risk exposure is passed to the relevant supervisory bodies at R+V, both quarterly and on an ad hoc basis.

16 Actuarial risk

16.1 Definition and business background

16.1.1 Definition

Actuarial risk is the risk that the actual cost of claims and benefits deviates from the expected cost as a result of chance, error, or change. It is broken down into the following categories defined by Solvency II:
– Life actuarial risk
– Health actuarial risk
– Non-life actuarial risk

Life actuarial risk

Life actuarial risk refers to the risk arising from the assumption of life insurance obligations, in relation to the risks covered and the processes used in the conduct of this business. The following subtypes of life actuarial risk are material for R+V:
– **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.
– **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 contract 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. The following subtypes of non-life actuarial risk are material for R+V:

– **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.

16.1.2 Business background

In the DZ BANK Group, considerable actuarial risk arises from the business activities of R+V. The risk arises from the direct life insurance and health insurance business, the direct non-life insurance business, and the inward reinsurance business.

16.2 Risk factors

In the case of long-term products, which constitute the bulk of R+V's **direct life insurance business**, there is a risk of negative variances over the term of the contracts compared with calculation assumptions because of the length of time covered by the contracts. The relevant risk factors include changes in life expectancy, increasing rates of disability-morbidity, disproportionately sharp cost increases, and a rise in contract lapses. If the actual trends in life expectancy, disability-morbidity, costs, or contract lapses vary from the calculation assumptions, there is a risk over the medium to long term that the gross profit generated from life insurance will decline.

In **health insurance** at R+V, which accounts for a substantial proportion of health actuarial risk, there is a risk of higher claims caused by the behavior of the policyholders and service providers. Subject to certain legal requirements, there is a possibility of adjusting the premiums in the health insurance business, a process in which all actuarial assumptions can be reviewed and modified. Significant premium adjustments could have a negative impact on future new business if rate scales lose their appeal because of high premiums. The number of lapses in the portfolio could also increase as a result.

Environmental pollution and climate change represent additional risk factors in respect of **life and health actuarial risks** because they could have a negative impact on the health of policyholders and increase the number of claim events.

R+V's **direct non-life insurance and inward non-life reinsurance business** involves the provision of cover for a range of disasters. This includes both natural disasters, such as earthquakes, storms, and floods, and man-made disasters. These events cannot be predicted. Generally speaking, there is both the risk of particularly significant individual loss events and also the risk of a large number of loss events that are each not necessarily significant in themselves. As a result, in any one year, the actual impact from the size and frequency of losses could exceed the forecast impact. Climate change represents an additional risk factor in connection with the occurrence of natural disasters. It is reasonable to expect that climate change will lead to an increase in weather-related natural disasters.

The persistently high level of inflation in 2023 represents a cost driver for claims incurred because higher prices for procuring commodities and other items result in higher claims settlement expenses. This may lead to further adjustments to premiums, primarily in residential building insurance and motor vehicle insurance.

Cyber risk is becoming increasingly significant within the underwriting business as a consequence of ongoing digitalization. There is a risk that cyber risk may not be comprehensively set out, or may not be mentioned at all, in insurance terms and conditions, or that it may not be expressly included or excluded (referred to as silent cyber risk).

16.3 Management of life actuarial risk

16.3.1 Risk measurement

The risk for insurance contracts subject to **mortality risk** is modeled with the assumption of a 15 percent permanent increase in mortality.

The risk for insurance contracts subject to **longevity risk** is modeled with the assumption of a 20 percent permanent increase in longevity.

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 and an increase of 1 percentage point in the cost inflation rate.

16.3.2 Risk management in direct life insurance business

Actuarial risk is taken into account by carrying out a prudent cost calculation while products are still in development. This applies to the development of existing products as well as the design of new types of insurance. Safety margins are included in the actuarial assumptions to achieve this. The assumptions are structured in such a way that they not only withstand the current risk situation, but should also accommodate potential changes in the risk position. Actuarial control systems are used to decide whether the cost calculation for future new business needs to be changed. The calculation is also adjusted on an ongoing basis in line with the latest actuarial findings. The appointed actuary carries out reviews as part of product development and during the course of the term of contracts to verify that the actuarial assumptions used are appropriate.

A number of measures are taken to prevent a concentration of risks in the portfolio. Before contracts are signed, extensive risk reviews are carried out to limit **mortality risk**. In general, risk is only assumed in compliance with fixed underwriting guidelines. High levels of individual or cumulative risk are limited by reinsurance.

Generally speaking, the risk is mitigated if the insured risks are diversified. For example, an increase in mortality has an adverse impact on endowment life and risk insurance policies, but at the same time has a positive impact on the **longevity risk** associated with pension insurance.
Cost control tools are used to manage **life expense risk**.

Lapse risk is mitigated by structuring life insurance contracts to provide maximum flexibility should policyholders' circumstances change. A range of different options during the term of an insurance contract enables customers to maintain their contract instead of canceling it. Appropriate design of policyholder participation features and, in particular, the final bonus also counteracts lapse risk.

In addition, advance notice of **policyholder participation features** in the form of declarations of future bonuses is also a key instrument with which to reduce actuarial risk relating to life insurance.

16.4 Management of health actuarial risk

16.4.1 Risk measurement

Health actuarial risk is calculated by combining the capital requirements for the subcategories 'similar to life techniques, health actuarial risk' (risk on health insurance pursued on a similar technical basis to that of life insurance), 'non-similar to life techniques, health actuarial risk' (risk on health insurance pursued on a similar technical basis to that of non-life insurance), and 'health catastrophe risk'.

The methods described in the chapters on life actuarial risk (chapter VII.16.3) and non-life actuarial risk (chapter VII.16.5) are used to measure risk in the subcategories.

Health actuarial risk also includes significant parts of the group's casualty insurance business as well as its health and occupational disability insurance business.

16.4.2 Risk management in health and casualty insurance

Risk management in health insurance business

In the health insurance business, the Insurance sector aims to manage actuarial risk by means of an **underwriting policy**, the features of which are underwriting guidelines and selection of risk, and management of benefits and costs. The risk exposure in the case of large individual risks may be limited by taking out appropriate reinsurance. In many of the health insurance rate scales, deductibles are used to control the extent of claims. Provisions are recognized to ensure that all benefit obligations under insurance contracts can be met. The appointed actuary carries out monitoring as part of product development and over the course of time to verify that the actuarial assumptions used are appropriate.

In accordance with VAG provisions, R+V carries out an annual comparison of its calculations with the insurance benefits it is required to pay. If this comparison of claims for an observation unit within a particular scale of insurance rates reveals a variance that is other than temporary, the relevant **premiums** are adjusted.
All actuarial assumptions are reviewed and specified in consultation with an independent trustee. A safety margin factored into premiums is also intended to ensure that obligations can be met if claims are higher than the level provided for in cost calculations.

In the health insurance business, the **decrement tables** include assumptions regarding mortality and the probability of other relevant withdrawal factors. Under the requirements set out in the German Health Insurance Supervision Regulation (KVAV), these assumptions must be specified and reviewed from the perspective of prudent risk assessment. It is for this reason that a new mortality table is developed annually by the Verband der privaten Krankenversicherung e.V. (PKV) [Association of German private healthcare insurers] in consultation with BaFin. In accordance with statutory provisions, R+V carries out an annual comparison of its calculations with the most recently published mortality tables.

When determining **lapse probabilities** for the purposes of its calculations, R+V uses both its own observations and the latest figures published by BaFin.
Where premiums were adjusted on January 1, 2023, R+V used the new PKV mortality table valid for 2023 to determine both new business premiums and those **premium adjustments** in existing business.

Unisex insurance rate scales are offered in R+V's **new business**. The cost calculation for these rates is not only based on the existing gender breakdown, but also takes into account the expected pattern of switching by existing policyholders to the new rates. The appropriateness of the composition of the portfolio resulting from the calculations is reviewed by actuaries using comparable calculations.

Risk management in casualty insurance business

The risk situation in the casualty insurance division is characterized by the fact that it is fixed-sum insurance and not indemnity insurance. Consequently, the maximum benefit per insured person is restricted to the sum insured.

A risk review also forms part of the underwriting policy in the case of casualty insurance. Premiums are reviewed on an ongoing basis to ensure that they remain appropriate. Claims are assessed on a case-by-case basis.

16.5 Management of non-life actuarial risk

16.5.1 Risk measurement

The capital requirements for **premium and reserve risk** are calculated on the basis of risk factors and volume measures for all branches of insurance in which business is conducted. The risk factors (e.g. the standard deviation as a percentage of the volume measure) describe the degree of threat posed by the risk. The volume measure for the **premium risk** is essentially the net premium income earned in the financial year and in the first and second years after that. The net claims provisions in the form of a best-estimate valuation constitute the volume measure for the **reserve risk**.

The capital requirement for **catastrophe risk** is calculated as an aggregation of four risk modules. These are natural catastrophe risk (broken down into the following natural hazards: hail, storm, flood, earthquake, and subsidence), the catastrophe risk of non-proportional reinsurance in non-life insurance, risk of man-made catastrophe, and other catastrophe risk in non-life insurance. Catastrophe risk is calculated using the volume measures of sums insured and premiums. Risk mitigation through reinsurance is taken into consideration.

To determine the **overall solvency requirement** as part of internal risk assessment, empirical distributions are generated for the relevant parameters for most parts of the portfolio, such as the claim amount and the number of claims per sector and claim type (e.g. basic claims, major claims, catastrophe claims). The value-at-risk can then be determined with the required confidence level directly from the underwriting result modeled in this way, recorded as a loss function. The parameters for the analyzed distributions are set using historical portfolio data and related planning data. They are therefore intended to reflect the actual risk position.

In the case of catastrophe risk in connection with the **direct insurance business**, the risk modeling for calculating basic claims relating to the natural hazard earthquake and basic claims and minor cumulative events relating to the natural hazards hail, storm, and flood is based on mathematical/statistical methods. The minimum and maximum claim amounts for minor cumulative events are derived from the group’s own claims history. Modeling is based on the group’s own claims data. The risk modeling for major cumulative events relating to the natural hazards hail, storm, flood, and earthquake uses probability-based natural hazard models. This approach uses catastrophe claims that have been modeled by external providers for each natural hazard and take account of the specific risk profile.

For the catastrophe risk in its **inward reinsurance business**, R+V deploys a simulation tool for stochastic risk modeling. 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.

16.5.2 Risk management in direct non-life insurance business

Premium and reserve risk is managed through risk selection, risk-oriented premiums and products, and profit-oriented underwriting guidelines. In order to maintain a balanced risk profile, R+V ensures it has reinsurance cover for major individual risks. Managers use planning and control tools to ensure they are in a position at an early stage to identify unexpected or adverse portfolio or claim trends and to initiate appropriate corrective action in response to the changes in the risk situation. To make these risks manageable, pricing is based on a calculation that uses mathematical/statistical modeling.

The measurement of the overall solvency requirement for **natural catastrophe risk** is supplemented by analysis of the insurance contract 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.

R+V uses a prospective limit system to verify whether prescribed limits for the risk from natural disasters will be adhered to. The risk exposure reached on the basis of projected business growth is compared against a limit determined from the allocated internal risk capital.

To reduce actuarial risk, R+V purchases facultative and obligatory reinsurance cover, formulates risk exclusions, and designs risk-appropriate deductible models. Risk-bearing capacity is reviewed as part of the reinsurance decision-making process. This is used as the basis for reinsurance structures and liability layers.
The effects of inflation are factored into the costing of insurance rate scales for new business and into premium and index adjustments for in-force business.

16.5.3 Risk management in inward non-life business

R+V counters premium and reserve risk by continuously monitoring the economic and political situation, by managing risk in accordance with its corporate strategy, and by setting insurance rates appropriate to the risk involved. The risk is managed on the basis of an earnings-driven underwriting policy. The assumption of risk is circumscribed by mandatory underwriting guidelines and limits that restrict potential liability arising from both individual and cumulative claims. R+V takes account of economic capital costs when underwriting risk. Compliance with these requirements is monitored.

The material actuarial risks in the inward reinsurance portfolio are catastrophe risk and reserve risk, and also far-reaching changes in the trends underlying the main markets.

Limits are set to support the central management and mitigation of cumulative risks. One of the mechanisms for managing risk is a systematic check on the cumulative authorized limits. If limits are overrun, R+V's Limit Committee is responsible for discussing and making decisions on appropriate action. The portfolio is continuously monitored for material concentrations of risk.

Action that can be taken to mitigate the risk includes management of gross risk and retrocession of parts of the portfolio, 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 cumulative risk in connection with natural disasters in Europe, the United States, and other regions of the world to which it is exposed, R+V has entered into a number of retrocession agreements as part of its inward reinsurance business.

R+V monitors the claims rate trend promptly and continuously, allowing it to initiate preventive measures so that it always has a sufficient level of reserves. The reserves position is monitored in a number of ways, including by means of an expert report, which is prepared once a year.

16.6 Claims rates and settlements in non-life insurance

As a result of **IFRS 4 being replaced by IFRS 17**, new principles for the recognition, measurement, and disclosure of insurance contracts have applied since the start of 2023, which differ materially from the method of presentation used until the prior year. The previous basis for calculating the claims rate and settlements under IFRS 4 no longer applies. As a result of the differences in methods between IFRS 17 and IFRS 4, the 2022 figures can only be compared with those for 2023 to a very limited extent.

The **claims rate in direct non-life insurance and inward non-life reinsurance business** under **IFRS 4** was calculated as the ratio of claims incurred (including claim payments and changes in the provision for claims outstanding in accordance with section 341g HGB), net of reinsurance, to the premiums earned. Under **IFRS 17**, this figure is now calculated as the ratio of changes in the liabilities for incurred claims (including payments for claims) to insurance revenue.

Settlements under **IFRS 4** were calculated as the ratio of insurance expense for prior years in which claims were incurred to provisions for claims outstanding for prior years in which claims were incurred, including inward reinsurance. Under **IFRS 17**, by contrast, settlements are calculated as the ratio of liabilities for incurred claims for prior years in which claims were incurred to the actual payments for those years – net of changes in claims and benefits and risk adjustments – excluding inward reinsurance.
Changes in claims rates and settlements (net of reinsurance) in direct non-life insurance and inward non-life reinsurance business are shown in Fig. VII.35.

FIG. VII.35 – INSURANCE SECTOR: CLAIMS RATES[1] AND SETTLEMENTS[2] IN NON-LIFE INSURANCE

	2023	2022	2021	2020	2019	2018	2017	2016	2015	2014
Claims rate according to IFRS 4										
Including major/natural disaster claims		73.9	73.8	76.5	76.3	76.2	76.6	76.1	76.2	75.5
Excluding major/natural disaster claims		66.1	68.0	70.4	72.7	71.1	72.8	72.3	74.0	73.8
Claims rate according to IFRS 17										
Including major/natural disaster claims	77.3	73.2								
Excluding major/natural disaster claims	68.4	64.3								
Settlements according to IFRS 4		2.9	2.9	1.9	0.6	1.1	3.1	3.6	1.6	2.1
Settlements according to IFRS 17	1.0	2.4								

Not available

1 Direct non-life insurance business and inward non-life reinsurance.
2 IFRS 4: direct non-life insurance business and inward non-life reinsurance; IFRS 17: direct non-life insurance business.

16.7 Risk position

As at December 31, 2023, the **overall solvency requirement** for **life actuarial risk** amounted to €946 million (December 31, 2022: €1,060 million) with a **limit** of €1,060 million (December 31, 2022: €1,200 million). The decrease in risk was due to lower lapse risk resulting from the fall in interest rates for longer maturities.

As at the reporting date, the **overall solvency requirement** for **health actuarial risk** was €253 million (December 31, 2022: €167 million) with a **limit** of €285 million (December 31, 2022: €300 million). This increase in risk was due to the higher volume of insurance liabilities, which was also a consequence of the aforementioned fall in interest rates.

The **overall solvency requirement** for **non-life actuarial risk** amounted to €1,707 million as at December 31, 2023 (December 31, 2022: €1,878 million) with a **limit** of €1,900 million (December 31, 2022: €3,000 million). This reduction in risk resulted primarily from changes to the reinsurance structure.

17 Market risk

17.1 Definition and business background

17.1.1 Definition

Market risk describes the risk arising from fluctuation in the level or volatility of market prices of assets, liabilities, and financial instruments that have an impact on the value of the assets and liabilities of the entity. It reflects the structural mismatch between assets and liabilities, in particular with respect to their maturities. In accordance with the breakdown specified in Solvency II, the bulk of credit risk within market risk is assigned to spread risk. The other parts of credit risk are measured within counterparty default risk and other risk types.

Market risk is broken down into the following subcategories:

- **Interest-rate risk** describes the sensitivity of the values of assets, liabilities, and financial instruments to changes in the term structure of interest rates or to the volatility of interest rates.

- **Spread risk** describes the sensitivity of the values of assets, liabilities, and financial instruments to changes in the level or volatility of credit spreads above the risk-free interest-rate term structure. Default risk and migration risk are also included in this subcategory. The credit spread is the difference in interest rates between a high-risk and a risk-free fixed-income investment. Changes in the credit risk premiums lead to changes in the market value of the corresponding securities.

- **Equity risk** describes the sensitivity of the values of assets, liabilities, and financial instruments to changes in the level or volatility of the market prices of equities. Equity investment risk is also a part of equity risk. Equity risk arises from existing equity exposures as a result of market volatility.

- **Currency risk** describes the sensitivity of the values of assets, liabilities, and financial instruments to changes in the level or volatility of exchange rates. Currency risk arises as a result of exchange rate volatility either from investments held in a foreign currency or the existence of a currency imbalance between insurance liabilities and investments.

- **Real-estate risk** describes the sensitivity of the values of assets, liabilities, and financial instruments to changes in the level or volatility of the market prices of real estate. Real-estate risk can arise as a result of negative changes in the fair value of real estate held directly or indirectly. This may be the result of a deterioration in the specific characteristics of the real estate or a general change in market prices (for example in connection with a real estate crash).

17.1.2 Business background

Market risk arises in the insurance business as a result of investing activities. It is caused by the timing difference between the payment of premiums by the policyholder and the payments for claims and benefits by the insurance company, and by endowment-type business in personal insurance.

17.2 Risk factors

The **widening of spreads** could be triggered by macroeconomic risk factors. These factors are the risks to the economy from geopolitical tensions and resulting trade friction and from a widespread economic downturn in Germany, in Europe, or worldwide (see chapters VII.4.2.1 and VII.4.2.2).

A further **rise in interest rates** and a widening of bond spreads could lead to a further reduction in the fair values of investments. Falls in fair value caused by a rapid rise in interest rates or the widening of spreads could have a temporary impact on operating profit at R+V, or a permanent impact if investments have to be sold. A negative change in the fair values of investments associated with a widening of spreads in isolation could also have an adverse impact on R+V’s solvency situation.

A **fall in interest rates** would have a positive valuation effect on R+V’s portfolio of interest-bearing exposures in the near term. A renewed period of low interest rates could, in the medium term, pose additional challenges for R+V in its life insurance business in respect of the guaranteed returns that it needs to generate.

Further information about unexpected movements in the interest-rate market can be found in chapter VII.4.2.6.

Other risk factors associated with investing activities could arise from **sustainability risk**. For example, action by policymakers, decisions by the courts, or the withdrawal of licenses could have an adverse effect on the price of corporate bonds or on the share prices of equities held in the R+V portfolio and exposed to transition risk. The value of the portfolio could also be hit by rising inflation as a consequence of higher energy and carbon prices.

Furthermore, R+V is exposed to a risk of reputational damage if it invests in businesses that are responsible for environmental pollution, fail to adhere to social norms, neglect their data protection responsibilities, or inadequately implement measures to prevent corruption, fraud, or tax evasion.

The **real estate markets underwent a correction** in 2023, which was reflected in impairment losses on individual investments at R+V.

17.3 Risk management

17.3.1 Market risk measurement

The measurement of market risk involves analyzing shock scenarios specified in **Solvency II** requirements, in some cases supplemented by the group's own parameterization.

The capital requirements for **interest-rate risk** are determined on the basis of shock scenarios calculated for an increase in interest rates and a decrease in interest rates. R+V uses the shock factors in the standard formula to calculate the overall solvency requirement for interest-rate risk. It also includes a capital buffer that takes into account changes in the direction of interest-rate trends.

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, to calculate the overall solvency requirement.

The capital requirements for **equity risk** are determined on the basis of stress scenarios calculated for a decrease in market value. The stress amounts depend on the equity type, e.g. whether it is listed on a regulated market in a member state of the European Economic Area or Organisation for Economic Co-operation and Development (OECD). The capital requirement for equity risk is based on the relevant equity exposure. It is determined using modeling and risk quantification based on observable data. The parameters are increased in order to take account of default risk. 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.

17.3.2 Principles of market risk management

The risk attaching to investments is managed in accordance with the guidelines specified by EIOPA, the stipulations in VAG, the information provided in regulatory circulars, and internal investment guidelines (see also the disclosures on market risk strategy in chapter VII.15.1). R+V aims to ensure compliance with the internal provisions in the risk management guidelines for investment risk and with other regulatory investment principles and rules by means of investment management, internal control procedures, a forward-looking investment policy, and organizational measures. The management of risk encompasses both economic and accounting aspects.

R+V counters investment risk by observing the principle of achieving the greatest possible security and profitability while safeguarding liquidity. By maintaining a mix and diversification of investments, R+V's investment policy aims to take into account the objective of mitigating risk.
In addition to diversification via maturity dates, issuers, countries, counterparties, and asset classes, limits are also applied in order to mitigate risk.

Asset/liability management investigations are carried out at R+V. The necessary capital requirement to maintain solvency is reviewed on an ongoing basis with the support of stress tests and scenario analyses. Specifically, reviews are carried out to assess the effects of a further increase in interest rates and volatile capital markets. R+V uses derivatives to manage market risk.

17.3.3 Management of individual market risk categories

In the management of **interest-rate risk**, R+V adheres to the principle of a mix and diversification of investments, combined with balanced risk-taking in selected asset classes and duration management that takes account of the structure of obligations.

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. VII.40 in chapter VII.17.4.2). The use of third-party credit risk evaluations and internal expert assessments, which are often more rigorous than the credit ratings available in the market, serves to further minimize risk. Mortgage lending is also subject to internal rules that help to limit default risk.

Equity risk is mitigated by diversifying holdings across different equity asset classes and regions. Asymmetric strategies are also used to reduce or increase equity exposure under a rules-based approach. At R+V, equities are used as part of a long-term investment strategy to guarantee that obligations to policyholders can be satisfied; generating profits by exploiting short-term fluctuations to sell shares is not its objective. The risk of having to sell equities at an inopportune moment is mitigated by the broadly diversified portfolio of investments.

Currency risk is controlled by systematic foreign-exchange management. Virtually all reinsurance assets and liabilities are denominated in the same currency.

Real-estate risk is mitigated by diversifying holdings across different locations and types of use.

R+V's investment portfolio is regularly evaluated on the basis of **key sustainability figures**, including ESG scores obtained from third-party data providers. These are drawn from assessments of climate-related risk, controversies, and breaches of standards, such as the UN Global Compact. R+V can initiate processes to engage with individual issuers in order to mitigate ESG risks. These processes serve to clarify sustainability-related matters or controversies. R+V set itself a science-based climate target in 2021 for its investment activity, which involves cutting greenhouse gas emissions from investment activities to (net) zero by 2050.

ESG-related risks in R+V's **investment process** are monitored and managed by two committees. The ESG task force monitors general ESG-related risks at individual issuer level; the carbon task force manages climate targets at portfolio level. This includes implicit management of transition risk. The amount of climate risk from various asset classes is also taken into account in the risk capital calculation.

17.3.4 Management of risk concentrations

R+V's investment approach focuses on avoiding risk concentrations in the portfolio and optimizing its risk profile by broadly diversifying investments. To achieve this, it applies the principle of an appropriate mix and diversification of investments and complies with the quantitative limits specified through the internal rules in the risk management guidelines for investment risk.

Risk concentrations are analyzed at least annually to assess whether they are material or not. Potential risk concentrations arise from the combination of analyzed risk type and type of concentration (e.g. individual exposure, sector, country, or region). The analysis pays particular attention to the risk-adjusted view, i.e. risk remaining after the risk-mitigating effects of insurance liabilities have been taken into account. Items currently of particular note in this regard are the portfolios of Italian government bonds combined with the shares held in the Italian Assimoco companies for business-policy reasons and the long-term interest-rate risks arising from pension products in force for a long period of time. These risks are consciously assumed.

17.3.5 Distinctive features of managing market risk in personal insurance business

For life insurance contracts and for casualty insurance contracts with premium refund clauses that guarantee minimum returns, there is a risk that the guaranteed minimum return agreed for certain products when contracts are signed cannot be generated in the capital markets over the long term. 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.

Market risk can be countered by writing new business that takes into account the current capital market situation and by taking 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. Policyholder participation features in the form of future declarations of bonuses are also a key instrument used to reduce market risk attaching to life insurance.

The R+V insurance companies’ liabilities for remaining coverage as required by German commercial law, broken down by discount rate, is shown in Fig. VII.36 for the main life and casualty insurance portfolios. The method for calculating insurance contract liabilities in life and casualty insurance is explained in note 11 of the notes to the consolidated financial statements.

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 imputed health insurance discount rate. This procedure is based on a fundamental professional principle issued by the DAV for determining an appropriate discount rate.

FIG. VII.36 – INSURANCE SECTOR: LIABILITIES FOR REMAINING COVERAGE AS REQUIRED BY GERMAN COMMERCIAL LAW, BY DISCOUNT RATE, FOR THE MAIN INSURANCE PORTFOLIOS[1, 2]

Discount rate	Proportion of liabilities for remaining coverage as required by German commercial law in 2023		Proportion of liabilities for remaining coverage as required by German commercial law in 2022	
	€ million	Percent	€ million	Percent
0.00%	6,759	9.6	7,074	10.0
0.01%	47	0.1	73	0.1
0.08%	5	–	5	–
0.10%	18	–	38	0.1
0.15%	153	0.2	65	0.1
0.25%	3,858	5.5	2,438	3.5
0.30%	160	0.2	160	0.2
0.35%	962	1.4	1,026	1.5
0.40%	63	0.1	60	0.1
0.50%	244	0.3	215	0.3
0.75%	34	–	1	–
0.90%	8,118	11.5	8,675	12.3
1.00%	59	0.1	93	0.1
1.10%	468	0.7	372	0.5
1.25%	2,844	4.0	2,780	3.9
1.50%	57	0.1	47	0.1
1.55%	4	–	8	–
1.75%	6,861	9.8	6,643	9.4
1.80%	251	0.4	285	0.4
2.00%	825	1.2	858	1.2
2.25%	11,821	16.8	11,922	16.9
2.50%	94	0.1	95	0.1
2.75%	9,334	13.3	9,194	13.0
3.00%	1,218	1.7	1,468	2.1
3.25%	7,021	10.0	7,209	10.2
3.50%	2,382	3.4	2,704	3.8
3.75%	105	0.1	120	0.2
4.00%	6,570	9.3	6,865	9.7

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 attributable to supplementary insurance contracts is listed under the relevant actuarial assumptions for the associated main insurance contract.

17.3.6 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. The plan assets at R+V are assets in reinsured pension schemes and funds, and are subject to interest-rate risk. The strategy adopted for the pension assets is predominantly driven by the defined benefit obligations.

17.4 Lending volume

17.4.1 Reconciliation of the lending volume

The amount and structure of the lending volume are key factors for the aspects of credit risk reflected in market risk and counterparty default risk. To identify possible risk concentrations, the volume liable to credit risk is broken down by rating class, industry sector, and country group.

Fig. VII.37 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. The differences in methods used in the external consolidated financial statements and the internal management accounts are explained in chapter 8.6.2.

FIG. VII.37 – INSURANCE SECTOR: RECONCILIATION OF THE LENDING VOLUME

€ billion		Reconciliation						Lending volume for the consolidated financial statements		
Lending volume for internal management accounts		Scope of consolidation		Definition of the lending volume		Carrying amount and measurement				
Dec. 31, 2023	Dec. 31, 2022	Dec. 31, 2023	Dec. 31, 2022	Dec. 31, 2023	Dec. 31, 2022	Dec. 31, 2023	Dec. 31, 2022	Dec. 31, 2023	Dec. 31, 2022	Investments held by insurance companies (note 55 of the notes to the consolidated financial statements)
								12.0	11.0	of which: mortgage loans
								6.0	5.9	of which: promissory notes and loans
								5.5	5.4	of which: registered bonds
								1.0	0.8	of which: other loans
								11.9	13.0	of which: variable-yield securities
								53.6	47.7	of which: fixed-income securities
								0.2	0.3	of which: derivatives (positive fair values)
								–	0.4	of which: deposits with ceding insurers
89.8	84.4	-1.8	-1.5	-0.7	–	3.0	1.6	90.2	84.5	Total
				Balance as at Dec. 31, 2023				0.5	0.5%	
				Balance as at Dec. 31, 2022				0.1	0.1%	

Not relevant

17.4.2 Change in lending volume

In accordance with the breakdown specified in Solvency II, the bulk of credit risk within market risk is assigned to spread risk. The other parts of credit risk are measured within counterparty default risk and other risk types.

As at December 31, 2023, the **total lending volume** of R+V had increased by 6 percent to €89.8 billion (December 31, 2022: €84.4 billion). This increase was primarily the result of a rise in the fair values of fixed-income securities.

The volume of lending in the **home finance** business came to €14.2 billion as at December 31, 2023 (December 31, 2022: €13.7 billion). Of this amount, 87 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, 2022.

The volume of home finance was broken down by finance type as at the reporting date as follows (figures as at December 31, 2022 shown in parentheses):
- Consumer home finance: €12.8 billion (€12.3 billion)

- Commercial home finance: €0.1 billion (€0.1 billion)
- Commercial finance: €1.3 billion (€1.3 billion)

In the case of home finance, the entire volume disbursed is backed by traditional loan collateral.

The financial sector and the public sector, which are the dominant **asset classes**, together accounted for 67 percent of the total lending volume as at December 31, 2023 (December 31, 2022: 64 percent).

The explanation of the asset class concept in the Bank sector (see chapter VII.8.6.3) applies analogously to the Insurance sector. Fig. VII.38 shows the breakdown of the lending volume by asset class.

FIG. VII.38 – INSURANCE SECTOR: LENDING VOLUME, BY ASSET CLASS

€ billion	Dec. 31, 2023	Dec. 31, 2022
Financials	40.1	36.4
Corporates	12.3	12.2
Public sector	19.7	17.5
Real estate (commercial and retail customers)	16.5	16.8
Other retail business	0.1	–
ABSs and ABCPs[1]	1.2	1.6
Other	–	–
Total	**89.8**	**84.4**

1 ABSs = asset-backed securities, ABCPs = asset-backed commercial paper.

Fig. VII.39 shows the **geographical distribution** of the credit portfolio by country group. Borrowers based in Germany are not included in this breakdown. The relevant country for the assignment to a country group is the one in which the economic risk arises. As at December 31, 2023, 74 percent of the total lending outside Germany continued to be concentrated in Europe.

FIG. VII.39 – INSURANCE SECTOR: LENDING VOLUME, BY COUNTRY GROUP

€ billion	Dec. 31, 2023	Dec. 31, 2022
Europe	43.9	40.2
of which: eurozone	34.9	31.6
North America	8.2	7.5
Central America	0.5	0.5
South America	1.0	0.8
Asia	3.5	3.0
Africa	0.3	0.3
Other	1.9	1.6
Total	**59.3**	**54.0**

For **credit ratings**, R+V generally uses ratings from rating agencies approved by the supervisory authorities. 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 (chapter VII.8.5.1).

The **rating structure** of the lending volume in the Insurance sector is shown in Fig. VII.40. Of the total lending volume as at December 31, 2023, 75 percent was attributable to investment-grade borrowers, which was the same percentage as at the end of 2022. The lending volume that is not rated, which made up 23 percent of the total lending volume (December 31, 2022: 24 percent), essentially comprised consumer home finance for which external ratings were not available. This volume is deemed to be low-risk because the lending is based on a selective approach and the mortgageable value of the assets is limited.

In the analysis of **individual concentrations**, the 10 counterparties associated with the largest lending volumes accounted for 17 percent of R+V's total lending volume as at December 31, 2023. This was the same percentage as at the end of 2022.

FIG. VII.40 – INSURANCE SECTOR: LENDING VOLUME, BY INTERNAL RATING CLASS

€ billion		Dec. 31, 2023	Dec. 31, 2022
Investment grade	1A	23.0	21.2
	1B	11.4	9.0
	1C	–	–
	1D	10.6	9.9
	1E	–	–
	2A	6.3	7.9
	2B	5.6	4.8
	2C	4.9	5.1
	2D	2.7	2.6
	2E	–	–
	3A	3.0	2.6
Non-investment grade	3B	0.4	0.3
	3C	0.3	0.3
	3D	–	–
	3E	0.2	0.2
	4A	0.2	0.1
	4B	–	0.3
	4C	–	0.1
	4D	–	–
	4E	–	–
Default		–	–
Not rated		21.0	20.1
Total		**89.8**	**84.4**

17.4.3 Credit portfolios particularly affected by negative macroeconomic conditions

Differences in economic policy in the eurozone are particularly affecting investments of R+V in **Italy**. R+V's exposure as at December 31, 2023 amounted to €2,493 million (December 31, 2022: €2,082 million). The increase in the exposure compared with December 31, 2022 is largely due to higher fair values.

17.4.4 Credit portfolios particularly affected by acute global crises

The exposure of R+V in countries affected by acute global crises totaled €465 million as at December 31, 2023 (December 31, 2022: €486 million). This equates to less than 1 percent of the total lending volume of R+V and largely comprises fixed-income securities.

The exposure of R+V in countries affected by the **war between Israel and Hamas** broke down as at the reporting date as follows (figures as at December 31, 2022 shown in parentheses):
– Israel: €293 million (€262 million)

– Egypt: €4 million (€43 million)

In light of the simmering **dispute between China and Taiwan**, lending by R+V to counterparties in Taiwan is being monitored very closely. As at December 31, 2023, there was no exposure to borrowers based in Taiwan, a situation that was unchanged compared with December 31, 2022. R+V's lending volume in China amounted to €168 million as at December 31, 2023 (December 31, 2022: €180 million).

17.5 Risk position

As at December 31, 2023, the **overall solvency requirement** for market risk amounted to €3,376 million (December 31, 2022: €3,415 million) with a **limit** of €3,695 million (December 31, 2022: €3,880 million).

Fig. VII.41 shows the overall solvency requirement for the various types of market risk.

FIG. VII.41 – INSURANCE SECTOR: OVERALL SOLVENCY REQUIREMENT FOR MARKET RISK, BY RISK SUBTYPE

€ million	Dec. 31, 2023	Dec. 31, 2022
Interest-rate risk	2,105	2,179
Spread risk	747	776
Equity risk	1,232	1,328
Currency risk	335	323
Real-estate risk	432	446
Total (after diversification)	**3,376**	**3,415**

18 Counterparty default risk

18.1 Definition and business background

Counterparty default risk reflects losses that could arise from unexpected default or deterioration in the credit standing of counterparties and debtors of insurance and reinsurance companies over the following twelve months. It covers risk-mitigating contracts, such as reinsurance arrangements, securitizations and derivatives, and receivables from intermediaries, as well as any other credit risk that is not otherwise covered by risk measurement.

Counterparty default risk takes account of collateral or other security that is held by the insurance or reinsurance company and any associated risks.

18.2 Risk factors

Counterparty default risk can arise as a result of unexpected default or deterioration in the credit standing of mortgage loan borrowers, counterparties of derivatives, reinsurance counterparties, policyholders, or insurance brokers.

18.3 Risk management

18.3.1 Measurement of counterparty default risk and management of limits

The capital requirements for counterparty default risk are determined on the basis of the relevant exposure and the expected losses per counterparty. R+V manages counterparty default risk at individual entity level.

Volume and counterparty limits apply to transactions involving derivatives. The various risks are monitored and transparently presented as part of the reporting system. Only economic hedges are used and they are not reported on a net basis in the consolidated financial statements.

R+V uses the views expressed by the international rating agencies in conjunction with its own credit ratings to help it to assess counterparty and issuer risk. Compliance with the limits for major counterparties is reviewed on an ongoing basis, with checks on limit utilization and compliance with investment guidelines.

18.3.2 Mitigating counterparty default risk

Default management mitigates the risks arising from defaults on receivables relating to direct insurance operations with policyholders and insurance brokers. For the purposes of German commercial law, the average ratio of defaults to gross premiums written over the past three years was 0.1 percent, which was unchanged on the figure as at December 31, 2022.

The default risk for receivables arising from inward reinsurance business and reinsurance contracts held is limited by continuously monitoring credit ratings and making use of other sources of information in the market.

18.4 Risk position

Receivables arising from reinsurance contracts held amounted to €73 million as at December 31, 2023 (December 31, 2022: €145 million). As had been the case a year earlier, the entire volume was owed by companies with an external rating of A or higher. Less than 1 percent of the receivables were receivables from reinsurance counterparties without a rating.

The **reinsurers' share of insurance liabilities** is a variable that impacts on the default risk of reinsurance counterparties. Claims against reinsurers for insured events that have not yet occurred and for insured events from direct insurance operations and from inward reinsurance that have occurred, presented by external rating class in accordance with the system of the rating agency Standard & Poor's, are shown in Fig. VII.42. 'Other ratings' includes ratings that were not available at the reporting date. All reinsurers had a rating of A- or better on the underwriting date.

FIG. VII.42 – INSURANCE SECTOR: VOLUME OF REINSURANCE CONTRACTS HELD, BY EXTERNAL RATING CLASS

€ million	Dec. 31, 2023	Dec. 31, 2022
AAA	–	1
AA+ to AA-	21	29
A+ to A-	119	117
B	1	–
Other ratings	12	4
Total	**154**	**152**

1 Compared with the risk report in the 2023 interim group management report, exposures in the 'Other ratings' category have been shifted to the 'A+ to A-' rating category.

Overdue receivables from policyholders and insurance brokers more than 90 days past due as at the reporting date amounted to €16 million as at December 31, 2023 (December 31, 2022: €27 million). The figure as at December 31, 2022 that was published in the 2022 risk report was €158 million. That figure was calculated in accordance with IFRS 4 based on the carrying amounts recognized under HGB, whereas the calculation now uses the carrying amounts recognized under IFRS. In order to ensure comparability with the figure as at December 31, 2023, which was calculated in accordance with the rules of IFRS 17 that came into effect on January 1, 2023, the figure as at December 31, 2022 was recalculated.

As at December 31, 2023, the **overall solvency requirement** for counterparty default risk amounted to €219 million (December 31, 2022: €224 million) with a **limit** of €245 million (December 31, 2022: €350 million).

19 Reputational risk

19.1 Definition and business background

Reputational risk is defined as the risk of losses that could arise from damage to the reputation of R+V or of the entire industry as a result of a negative perception among the general public (for example, customers, business partners, shareholders, authorities, the media).

Reputational risk can arise as an independent risk (primary reputational risk) or as an indirect or direct consequence of other types of risk, such as operational risk (secondary reputational risk).

19.2 Risk factors

If R+V's reputation deteriorates, there is a risk that existing or potential customers will be unsettled with the result that existing business relationships might be terminated or it might not be possible to carry out planned transactions. There is also a risk that R+V's adverse reputation is then transferred to the entities in the Bank sector and it may no longer be possible to guarantee the backing of stakeholders, such as network partners and employees, necessary to conduct business operations.

If the transition risks, social risks, and corporate governance risks assessed in connection with ESG risks were to materialize, this could give rise to heightened reputational risk.

19.3 Risk management

R+V's corporate communications are coordinated centrally so that any inaccurate presentation of circumstances can be countered. Media reports about the insurance industry in general and R+V in particular are monitored and continuously analyzed across all R+V departments.

R+V's reputational risk is not specifically quantified within the Solvency II framework. However, it is implicitly included in the overall solvency requirement for life actuarial risk (lapse risk).

20 Operational risk

20.1 Definition and business background

Operational risk is defined as the risk of losses arising from inadequate or failed internal processes, personnel, or systems, or from external events.

Operational risk in the Insurance sector is broken down into the following components:
- Legal and compliance risk
- Information risk including ICT risk
- Security risk
- Outsourcing risk
- Project risk

Operational risk could arise in any division of R+V.
Sustainability risk in the form of environmental, social, or corporate governance risk could be a risk factor that gives rise to operational risk. Risk factors are described under the relevant component of operational risk.

20.2 Central risk management

The **risk capital requirement** for operational risk in the Insurance sector is determined in accordance with the standard formula in Solvency II. The risk calculation uses a factor approach, taking account of premiums, provisions and, in the case of unit-linked business, costs.

R+V uses scenario-based risk self-assessments and risk indicators to manage and control operational risk. In the **risk self-assessments**, operational risk is assessed in terms of the probability of occurrence and the level of loss. Qualitative assessments can be used in exceptional cases.

Risk indicators are intended to help the Insurance sector to identify risk trends and concentrations at an early stage and to detect weaknesses in business processes. A system of warning lights is used to indicate risk situations based on specified threshold values.

To support the management of operational risk, all of R+V's business processes are structured in accordance with the requirements of the **framework guidelines** for the authorizations and powers of attorney of employees in R+V entities. Divisions not covered by these guidelines are subject to other policy documents, including policies on new business and underwriting.

The **internal control system** is a key instrument used by R+V to **limit operational risk**. Rules and controls in each department and reviews of the use and effectiveness of the internal control system carried out by Group Audit at R+V aim to avert the risk of errors and fraud. Payments are largely automated. Powers of attorney and authorizations stored in user profiles, as well as automated submissions for approval based on a random generator, are also used. Manual payments are approved by a second member of staff.

20.3 Operational risk components

20.3.1 Legal and compliance risk

Risk factors

Legal risk may arise from changes in the legal environment, including changes in the way that the authorities or the courts interpret legal provisions. In particular, there is a risk that the implemented compliance and risk management systems could be inadequate for completely preventing or uncovering violations of legal provisions, for identifying and assessing all relevant risks, or for initiating appropriate corrective measures. Examples of relevant situations are notifiable infringements of data protection regulations, breaches of reporting or notification requirements to supervisory or tax authorities, and violations of sanctions or embargoes.

Effects if risk materializes

Violations of legal provisions may have legal implications for R+V, for the members of its decision-making bodies, or for its employees. They may give rise, for example, to fines, penalties, retrospective tax payments, or claims for damages by third parties. These effects could reduce R+V's appeal as a partner in business transactions and lead to losses in value.

Risk management

The basic principles for managing compliance risk applicable to the entities in the DZ BANK Group are described in chapter VII.3.4.5. The data protection measures in place and the code of conduct are also explained in the same chapter.

At R+V, 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. R+V monitors and analyzes relevant decisions by the courts with a view to mitigating legal risk by identifying any need for action in good time and implementing specific corrective measures. The compliance function has also implemented systems, processes, and controls in order to counter compliance risks.

20.3.2 Information risk including ICT risk

Risk factors

Information risk can arise from a loss of confidentiality, integrity, availability, or authenticity of information or data. If the risk is in connection with the use of information or communication technology (data media), it is referred to as ICT risk. This also includes cyber risk.

Effects if risk materializes

Malfunctions or breakdowns in IT systems (comprises software, hardware, and communication technology), including attacks from external sources – such as hackers or malware –, could have an adverse impact on the ability of the Insurance 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. This could restrict operating activities, have a negative impact on reputation, or result in economic losses.

Risk management

The basic principles for managing information security applicable to the entities in the DZ BANK Group are described in chapter VII.3.4.6.

A core focus of R+V's IT strategy is to ensure the stable, secure, and efficient operation of the information and communications infrastructures and application systems. R+V's IT operations are largely centralized and involve a high degree of inhouse development. In its development work, the IT team incorporates standardized IT processes and procedures, applies best practice, and is closely guided by market standards.

Physical and logical precautionary measures have been established for the purpose of data and application security and to ensure that day-to-day operations are maintained. A particular risk would be a partial or total breakdown in data processing systems. R+V counters this risk by using two segregated data processing centers in which the data and systems are mirrored, special access security, fire control systems, and an uninterruptible power supply supported by emergency power generators. Exercises are carried out to test a defined restart procedure to be used in disaster situations with the aim of checking the efficacy of this procedure. Data is backed up and held within highly secure environments in different buildings. Furthermore, data is mirrored to a tape library at a remote, off-site location.

The level of security is enhanced through the systematic identification of protection requirements, security strategies based on defined IT security standards, business continuity planning, and capacity management. Where tasks allow, R+V makes flexible use of outsourcing options and IT providers in a risk-based approach. IT providers are integrated into R+V's processes where necessary and monitored on a risk basis.

R+V uses a dedicated management process – with defined roles, responsibilities, and procedures – to manage and control information risk in a holistic approach. Various information and IT security management tools are used to identify information risk, such as target/actual comparisons and penetration tests.

20.3.3 Security risk

Risk factors

Security risk can arise from inadequate protection of individuals, premises, assets, or time-critical processes. Examples are epidemics or pandemics resulting from the spread of pathogens over a huge area, or limitations on the use of resources because of a power outage, other interruption to energy supply, or natural disaster. Climate change could lead to more frequent and more severe natural disasters.

Effects if risk materializes

Business interruptions could mean that processes and workflows are disrupted over several days. Moreover, sensitive internal and external interfaces could be jeopardized by long-term business interruptions. Furthermore, such scenarios could also have a negative impact on reputation.

Risk management

To ensure that it is operational at all times, R+V has a business continuity management (BCM) system, which is documented in internal corporate guidelines. The R+V security and BCM conference with representatives from all divisions and sites provides strategic and functional support and is intended to ensure that activities within the R+V subgroup are coordinated. Reports on significant findings relevant to risk and on any exercises and tests that have been carried out are also submitted to the R+V Risk Committee.

The purpose of the BCM system is to ensure that R+V's operating activities can be maintained in the event of an emergency or crisis. To this end, (time-)critical business processes are recorded with the necessary resources. Any necessary documentation (such as business continuity planning) is prepared and reviewed. Special organizational structures, such as the R+V crisis management team and situation room, and the individual business continuity teams in the divisions and sites, have also been set up to deal with emergency and crisis situations.

Further details on business continuity management can be found in chapter VII.3.4.6.

20.3.4 Outsourcing risk

Risk factors

R+V aims to provide high-quality services at competitive terms and conditions based on efficient internal organization of its business activities. In this context, the outsourcing of activities to third-party service providers can bring benefits in terms of quality and costs. Outsourcing risk can arise if the service provider fails to comply with the strategic principles established by R+V or the related operational requirements when carrying out the outsourced activities. If a service provider is not suitable for the task or does not have the requisite financial stability, this could lead to defective performance or even loss of the service. Moreover, inappropriate management of operational risk by the service provider could have an adverse impact on business operations.

Effects if risk materializes

If the risk factors were to materialize, they could lead to a loss of business and to claims for damages from customers. They could also result in a negative impact on reputation.

Risk management

The basic principles for managing outsourcing applicable to the entities in the DZ BANK Group are described in chapter VII.3.4.7.

Using these principles as a starting point, R+V has put in place the following measures to protect against potential outsourcing risk:

- Structured categorization of outsourcing arrangements
- Identification of potential risk factors as part of the risk analysis
- Requirements for the mitigation of risk, including standard provisions that must be contractually agreed and integrated into business continuity management

20.3.5 Project risk

Risk factors

Project risk could arise from the inadequate clarification of project targets or orders, from deficiencies in subsequent implementation, from communication shortcomings both inside and outside the project, or from unexpected changes in the general parameters applicable to a project.

Effects if risk materializes

If project risk were to materialize, this could mean that the implementation of the project could require additional funds in excess of the budget. It could also give rise to further costs attributable to the failure to complete project requirements on schedule. Examples of such costs are additional costs in the line organization and impairment losses on capital investment related to the project. Earnings could also be reduced if new products or – due to changes to legal requirements – appropriately modified products cannot be offered in good time.

Risk management

To provide a regulating framework for secure, efficient execution of projects, R+V has set up a Capital Investment Committee, which submits proposals for decision or approval and provides support for large-scale projects. After projects have been approved, project managers of all large-scale projects must report to the Capital Investment Committee. This ensures that projects are then subject to independent, close monitoring and control. At quarterly meetings, the Capital Investment Committee is kept informed of project results and any adjustments to project targets. The committee can intervene to provide guidance by becoming involved in discussions on targets.

20.4 Risk position

As at December 31, 2023, the **overall solvency requirement** determined for operational risk amounted to €629 million (December 31, 2022: €598 million). The **limit** was €700 million as at the reporting date (December 31, 2022: €1,000 million). This increase in risk is due to higher insurance liabilities calculated in accordance with Solvency II.

21 Risks from entities in other financial sectors

All entities that form part of the regulatory R+V Versicherung AG insurance group are generally included in the calculation of group solvency.

At R+V, the entities in other financial sectors mainly consist of pension funds and occupational pension schemes. Their **risk factors** generally correspond to the risk factors for risks backed by capital pursuant to Solvency II.

Risk is quantified for the pension funds and occupational pension schemes in accordance with the requirements currently specified by the insurance supervisor. This means applying the capital requirements in Solvency I, which are essentially calculated by applying a factor to the volume measures of liabilities for remaining coverage and capital at risk. Funding requirements are also assessed when calculating the overall solvency requirement and own funds. This involves assessing whether existing regulatory requirements regarding insurance equity and liabilities, capital adequacy, and risk-bearing capacity can continue to be met in the future, taking risks into account. Projections, as well as existing analyses and reports, are used to make this assessment.

R+V Pensionskasse AG is exposed to risks comparable with those faced by the life insurance entities in the R+V subgroup. The main risk management activities applicable in this case are those relating to life actuarial risk (see chapter VII.16.3.2), market risk (see chapter VII.17.3), counterparty default risk (see chapter VII.18.3), and operational risk (see chapter VII.20.2). R+V Pensionskasse AG has largely stopped taking on new business. It is continuing to manage existing contracts as before.

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. The risk management activities relating to life actuarial risk, market risk, counterparty default risk, and operational risk apply in this case. R+V aims to ensure that the ongoing pension plan contributions and the liability for remaining coverage 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.

In purely defined-contribution plans, the amount of the lifelong payments depends on the value of the pension capital upon retirement and, subsequently, on the performance of the collateral assets for covering the current annuities. This means that there is a risk for pension beneficiaries that the payments may fluctuate – and, specifically, may fall – depending on the value of the investment. Appropriate market risk management activities are carried out to counter this risk.

As at December 31, 2023, the **overall solvency requirement** for risks in connection with non-controlling interests in insurance companies and with entities in other financial sectors stood at €210 million (December 31, 2022: €135 million) with a **limit** of €225 million (December 31, 2022: €180 million). The increase in risk is largely due to the reassessment of funding requirements in a risk scenario based on the current capital market environment.

Annual financial statements of DZ BANK AG

Balance sheet as at December 31, 2023

ASSETS

€ million	(Notes)				Dec. 31, 2023	Dec. 31, 2022
Cash and cash equivalents						
a) Cash on hand				290		231
b) Balances with central banks				1,374		5,604
of which: with Deutsche Bundesbank		757				(3,552)
					1,664	**5,835**
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				204		278
					204	**278**
Loans and advances to banks	(02, 04, 05, 06, 07)					
a) Repayable on demand				89,224		80,160
b) Other loans and advances				161,921		151,925
					251,145	**232,085**
Loans and advances to customers	(02, 04, 05, 07)				**46,562**	**45,158**
of which: secured by mortgages		143				(84)
local authority loans		659				(708)
Bonds and other fixed-income securities	(02, 04, 05, 07, 12, 14)					
a) Money market instruments				560		363
ab) from other issuers			560			363
b) Bonds				29,455		25,965
ba) from public-sector issuers			3,831			2,751
of which: eligible as collateral at Deutsche Bundesbank		3,151				(2,217)
bb) from other issuers			25,624			23,214
of which: eligible as collateral at Deutsche Bundesbank		16,406				(14,473)
c) Own bonds				1,711		1,116
Nominal value		1,899				(1,175)
					31,726	**27,444**
Shares and other variable-yield securities	(02, 07, 12, 14)				**56**	**49**
Trading assets	(02, 07, 13)				**27,564**	**36,372**
Long-term equity investments	(02, 12, 14)				**283**	**293**
of which: in banks		219				(243)
Shares in affiliated companies	(02, 12, 14)				**10,112**	**10,396**
of which: in banks		5,734				(5,721)
in financial services institutions		218				(203)
Trust assets	(08)				**1,724**	**2,017**
of which: trust loans		1,657				(1,950)
Intangible assets	(02, 14)					
b) Purchased concessions, industrial and similar rights and assets, including licenses for such rights and assets				60		52
d) Payments in advance				33		31
					93	**83**
Property, plant and equipment	(02, 14)				**1,031**	**634**
Other assets	(15)				**1,817**	**2,078**
Prepaid expenses and accrued income	(16)					
a) In connection with issuing and lending business				164		77
b) Other				58		101
					222	**178**
Excess of plan assets over pension liabilities	(17)				**1**	**1**
Total assets					**374,204**	**362,901**

EQUITY AND LIABILITIES

€ million	(Notes)				Dec. 31, 2023	Dec. 31, 2022
Deposits from banks	(02, 04, 05, 06)					
a) Repayable on demand				52,563		49,827
b) With agreed maturity or notice period				110,808		128,001
					163,371	**177,828**
Deposits from customers	(02, 04, 05)					
b) Other deposits				71,625		67,000
ba) Repayable on demand			46,695			37,185
bb) With agreed maturity or notice period			24,930			29,815
					71,625	**67,000**
Debt certificates issued including bonds	(02, 04, 05)					
a) Bonds issued				64,723		49,362
b) Other debt certificates issued				8,504		4,698
of which: commercial paper		8,504				(4,698)
					73,227	**54,060**
Trading liabilities	(02, 13)				**38,917**	**37,415**
Trust liabilities	(08)				**1,724**	**2,017**
of which: trust loans		1,657				(1,950)
Other liabilities	(03, 18)				**901**	**1,356**
Deferred income and accrued expenses	(16)					
a) In connection with issuing and lending business				154		167
b) Other				22		19
					176	**186**
Provisions	(02)					
a) Provisions for pensions and other post-employment benefits				649		652
b) Provisions for taxes				417		359
c) Other provisions				945		1,006
					2,011	**2,017**
Subordinated liabilities	(02, 05, 19)				**7,647**	**6,689**
Fund for general banking risks	(02)				**3,847**	**3,695**
of which: special item in accordance with section 340e (4) HGB		291				(289)
Equity	(20, 21, 22)					
a) Subscribed capital				4,926		4,926
b) Capital reserve				3,784		3,784
c) Revenue reserves				1,542		1,542
ca) Statutory reserve			105			105
cd) Other revenue reserves			1,437			1,437
d) Distributable profit				506		386
					10,758	**10,638**
Total equity and liabilities					**374,204**	**362,901**

Contingent liabilities	(33)					
b) Liabilities under guarantees and indemnity agreements[1]				11,544		10,691
					11,544	**10,691**
Other obligations	(33)					
c) Irrevocable loan commitments				45,910		40,799
					45,910	**40,799**

1 See also details under 'Other disclosures' in Notes 34 and 35.

Income statement for the period January 1 to December 31, 2023

€ million	(Notes)				2023	2022
Interest income from	(02, 28)					
a) Lending and money market business			8,703			2,447
of which: negative interest rates on financial assets		1				(181)
b) Fixed-income securities and book-entry securities			688			324
				9,391		2,771
Interest expense	(02)			8,496		1,967
					895	804
of which: positive interest rates on financial liabilities		9				(419)
expenses incurred by the unwinding of discounts on provisions		5				(2)
Current income from	(02, 28)					
a) Shares and other variable-yield securities				1		0
b) Long-term equity investments				4		16
c) Shares in affiliated companies				475		260
					480	276
Income from profit-pooling, profit-transfer and partial profit-transfer agreements					**266**	202
Fee and commission income	(28, 29)			1,093		1,070
Fee and commission expenses				515		548
					578	522
Net trading income	(02, 28)				**429**	1,179
of which: addition in accordance with section 340e (4) HGB		2				(47)
expenses incurred by the unwinding of discounts on provisions		–				(0)
Other operating income	(02, 28, 30)				**324**	302
of which: income from the discounting of provisions		36				(4)
General and administrative expenses						
a) Staff expenses				773		839
aa) Wages and salaries			645			622
ab) Social security, post-employment and other employee benefit expenses			128			217
of which: post-employment benefit expenses		46				(138)
b) Other administrative expenses				914		868
					1,687	1,707
Amortization and write-downs on intangible assets and depreciation and write-downs on property, plant and equipment					**177**	60
Other operating expenses	(02, 30)				**198**	504
of which: expenses incurred by the unwinding of discounts on provisions		4				(324)
Write-downs on and loss allowances for loans and advances and certain securities, and additions to provisions for losses on loans and advances	(02)				**80**	285
Write-downs on and loss allowances for long-term equity investments, shares in affiliated companies, and securities treated as fixed assets	(02)				**82**	–
Income from the reversal of write-downs on long-term equity investments, shares in affiliated companies, and securities treated as fixed assets	(02)				**–**	1
Addition to fund for general banking risks	(02)				**150**	–
Expenses from the transfer of losses					**7**	4
Result from ordinary activities					**591**	726
Extraordinary income	(31)				**7**	–
Extraordinary expenses	(31)				**46**	12
Extraordinary result					**-39**	-12
Income taxes				74		334
Other taxes not included under 'Other operating expenses'				0		0
					74	334
Net income for the year					**478**	380
Profit brought forward from the previous year					**28**	6
Distributable profit	(32)				**506**	386

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, 2023 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). Amounts of less than €500,000 are shown as €0 million; where an item amounts to €0.00, this is indicated by a dash. 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 2023 were essentially the same as those used in 2022. Any changes compared with 2022 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. Interest-related differences between the principal amount and the cost or amount disbursed are recognized as prepaid expenses or deferred income (depending on the nature of the difference) 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 identifiable credit risk and latent credit risk for all loans and advances on the balance sheet and off-balance-sheet transactions. DZ BANK also recognizes allowances for general banking risks as permitted by section 340f HGB.

DZ BANK makes use of the option set forth in accounting guidance statement 7 issued by the banking committee of the Institut der Wirtschaftsprüfer in Deutschland e.V. (IDW) [Institute of Public Auditors in Germany] to also largely use the IFRS 9 expected loss model – which divides loss allowances into three stages – to calculate loss allowances under HGB. The probability of default, the loss given default, and the expected loan amount at the time of default are factored into the calculation of the expected credit losses. Stages 1 and 2 (portfolio loan loss allowances) are recognized for deferred credit risks; stage 1 corresponds to the 12-month expected credit loss and stage 2 to the lifetime expected credit loss. The reason for using the expected loss model is to take account of expected losses at an earlier stage, which will produce a better true and fair view of net assets, financial position, and results of operations.

Loss allowances for identifiable credit risk (actual impairment losses) are calculated in stage 3 in the amount of the lifetime expected credit loss. The expected credit loss in stage 3 is generally calculated on the basis of individual expert appraisals of the achievable cash flows and probability-weighted scenarios. For restructuring and workout exposures up to €750 thousand, the parameter-based calculation of loss allowances in stage 3 is used.

Transactions for which loss allowances are to be recognized are assigned to stage 1 upon initial recognition. This is not the case for assets that are purchased or originated credit-impaired assets (POCI assets). They are initially recognized in an amount that has been adjusted for their lifetime expected credit losses (POCI asset adjustment). At the balance sheet date, the cumulative impairment losses that exceed the lifetime expected credit loss since initial recognition are recognized as an additional loss allowance. Reversals of the POCI asset adjustment as a result of reversals of impairment losses are not possible due to the cost restriction under HGB.

At each balance sheet date, assets are assigned to stage 2 if their credit risk has significantly increased since initial recognition but there is no objective evidence of impairment. The review of whether the credit risk has increased significantly since initial recognition is carried out on an ongoing basis using both quantitative and qualitative criteria.

As a result of the 3-stage model being used, whenever there is a significant increase in credit risk, a transfer to stage 2 takes place and a loss allowance is recognized in the amount of the lifetime expected credit loss.

The established models and processes for calculating expected losses at specific exposure or portfolio level were generally retained in 2023. One exception was the parameter-based calculation of loss allowances in respect of counterparties in stage 3, which was expanded to include workout exposures with a lending volume up to €750 thousand.

The impact of a range of factors is examined at specific exposure level as part of impact analyses, with both primary effects and secondary effects being considered. These effects are factored into the calculation of specific loan loss allowances and, in a more nuanced manner, in the credit assessment and in decisions concerning inclusion in watchlists for the early identification of risk.

At portfolio level, the forecast macroeconomic conditions are taken into account by adjusting the model-driven default probability profiles used in economic and regulatory risk management (known as shift factors). The shift factors are used to include current economic conditions and forecasts of future economic conditions for the years covered by the macroeconomic forecast period (5 years) in the determination of loss allowances. These forward-looking macroeconomic assumptions are provided by DZ BANK's Economic Roundtable. The Economic Roundtable's forecasts dated November 7, 2023 were used in the shift factors as at December 31, 2023. Two macroeconomic scenarios (baseline scenario and risk scenario) were factored into these shift factors with an 80/20 weighting. The model shift factors are derived from the satellite models using the key macroeconomic figures. On the basis of consultation with relevant experts and the latest insights into how the industry is being impacted, the shift factors determined using statistical methods were overridden again in the fourth quarter of 2023 in order to better represent the currently critical market situation. Because the Economic Roundtable forecasts dated November 7, 2023 do not take account of the German Federal Constitutional Court's ruling in mid-November 2023 that the reallocation of unused COVID-19 funding to the climate fund is unconstitutional, however, all of the model's shift factors for 2024 were adjusted by a factor of 1.1. This is intended to account for a potential deterioration in the market situation given the current budget deficit. As a result of the latest probability-of-default (PD) shift factors being applied, the implications of higher energy costs, increased interest rates, and a persistent loss of purchasing power – which are all partly caused by the geopolitical situation – are taken into account. At the end of each quarter of 2023, the shift factors were adjusted to reflect the Economic Roundtable's new forecasts. By applying the shift factors to the PD profiles, macroeconomic developments in the years ahead are taken into account without bias in the one-year and multi-year probabilities of default.

In addition to the overriding of the shift factors, the current macroeconomic developments have resulted in a second override component. Unlike the first override component, this second override component resulted in a general stage 2 classification for all unimpaired exposures in certain sectors. Alongside the automotive supplier sector, which was classified as stage 2 as at December 31, 2022, the construction, home improvement store, and textile/clothing sectors were all added to stage 2 as at December 31, 2023.

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. All securities in the liquidity reserve as well as shares and other variable-yield securities that are classified as long-term securities are measured strictly in accordance with the principle of lower of cost and market, provided they are not subject to hedge accounting or part of a closed position. Bonds and other fixed-income securities as well as one security under shares and other variable-yield securities that are classified as long-term securities are optionally measured at the lower of cost and market. The securities are written down if they are permanently impaired. Under bonds and other fixed-income securities, the carrying amount of marketable securities not measured at the lower of cost and market was €6,393 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 determined either largely by reference to current market prices or by using generally accepted valuation methods on the basis of parameters that are observable in the market, such as yield curves, spreads, volatility, or exchange rates. In the event that 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 as long-term investments and securities in the liquidity reserve that are not subject to hedge accounting.

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 €9 million in 2023 (2022: €16 million).

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.

Hedge accounting

DZ BANK uses derivatives to hedge interest-rate risk. It uses micro hedges between securities in the liquidity reserve and derivatives used for hedging in order to account for economic hedging in accordance with the provisions of section 254 HGB. Internal hedging instruments are included by means of the deputization principle.

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 IDW.

Financial instruments are measured at their fair value in accordance with section 255 (4) HGB. 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.

A risk adjustment is applied to the trading assets line item on the balance sheet in accordance with section 340e (3) HGB to reflect subsequent changes in fair value at the balance sheet date. 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 €25 million (December 31, 2022: €21 million).

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. 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.

The internal criteria set by the bank for the inclusion of financial instruments in trading assets and trading liabilities did not change in 2023.

In the case of 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 daily payments are made, the fair values and the related variation margins are netted and shown on the balance sheet on a net basis. As at December 31, 2023, this netting reduced loans and advances to banks by €3,242 million (December 31, 2022: €4,757 million), loans and advances to customers by €172 million (December 31, 2022: €265 million), the carrying amount of trading assets by €14,691 million (December 31, 2022: €18,231 million), deposits from banks by €2,942 million (December 31, 2022: €3,847 million), deposits from customers by €2,484 million (December 31, 2022: €3,134 million), and the carrying amount of trading liabilities by €12,679 million (December 31, 2022: €16,272 million). The amounts are presented on a gross basis in Note 24 'List of derivatives recognized at fair value by product area (trading assets and trading liabilities)' and in Note 25 'List of derivatives recognized at fair value by counterparty structure (trading assets and trading liabilities)'.

The variation margins 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. The total effect of netting derivatives contained in trading assets and trading liabilities and the related collateral under other assets on the balance sheet amounted to €28,590 million as at December 31, 2023 (December 31, 2022: €34,611 million). The amounts are presented on a net basis in Note 24 ‘List of derivatives recognized at fair value by product area (trading assets and trading liabilities)’ and in Note 25 ‘List of derivatives recognized at fair value by counterparty structure (trading assets and trading liabilities)’.

As part of the clearing service for customers of DZ BANK, the variation margins 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.

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 (2) 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.

Low-value assets with an individual net value of up to €250 are written off in full in the year of acquisition and expensed. In the case of assets with an individual net value between €250 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 up to a maximum of the amortized cost.

Intangible fixed assets are measured at cost and amortized on a straight-line basis. A useful life of 3 to 15 years is used as the basis for the amortization.

Deferred taxes

Deferred taxes are calculated for temporary differences between the carrying amounts of the assets, liabilities, prepaid expenses/accrued income, and deferred income/accrued expenses recognized in the financial statements in accordance with HGB and those in the financial statements for tax purposes. Deferred tax assets are also recognized for tax loss carryforwards. In the calculation of deferred taxes, the carrying amounts also included the deferred taxes from measurement differences at subsidiaries that form an income tax group with the bank. The deferred tax assets mainly stem from differences in loss allowances, the measurement of loans and advances to customers and banks, and the recognition and measurement of provisions. For deferred tax liabilities, the differences chiefly relate to the measurement of property, plant and equipment and intangible assets. The deferred tax assets are offset against deferred tax liabilities. This results in an excess of deferred tax assets due to the lower level of deferred tax liabilities. The option to recognize net deferred tax assets is not utilized. 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 31.295 percent (trade tax of 15.47 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 17.00 percent to 25.00 percent.

Liabilities

Liabilities are carried at the settlement amount. The difference between the notional amount and the amount disbursed is recognized under prepaid expenses or deferred income (depending on the nature of the difference) and apportioned pro rata over the term of the liability.

Targeted longer-term refinancing operations (TLTRO III program)

The ECB made additional liquidity available under the TLTRO III program in order to support lending to households and companies during the COVID-19 pandemic. DZ BANK participates in this program as part of a joint bidder group with TeamBank AG Nürnberg, Nuremberg, and DZ HYP AG, Hamburg and Münster, (DZ HYP). The volume of €472 million (December 31, 2022: €11.0 billion) is recognized on DZ BANK's balance sheet under deposits from banks.

The basic interest rate in the period January 1, 2022 to June 23, 2022 was minus 0.5 percent. For the period from after June 23, 2022 to November 22, 2022, the interest rate to be applied was the average deposit facility rate for the period from the start of the relevant TLTRO III tranche to November 22, 2022. From November 23, 2022 until maturity or early repayment of the relevant outstanding TLTRO III tranche, the basic interest rate is pegged to the average deposit facility rate for this period. The basic interest rate was recognized in net interest income in an amount of €306 million.

In accordance with the rules of the TLTRO III program, the interest on the liquidity provided depends on the net lending volume in the specified comparative periods. The net lending volume of the bidder group was higher than the required reference volume in the period October 1, 2020 to December 31, 2021, so a 0.5 percentage point lower interest rate applied in the period June 24, 2021 to June 23, 2022. The interest rate for the period January 1, 2022 to June 23, 2022 was therefore 0.5 percentage points lower. As a result, additional income of €71 million was recognized in net interest income in the previous year. Unlike in 2022, no interest-rate advantage was granted in 2023.

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 November 30, 2023 (average market interest rate over the past 10 years) for a residual maturity of 15 years (1.83 percent). In Germany, the biometric tables used in these calculations are the 2018 G mortality tables published by HEUBECK AG, Cologne. Measurement is based on anticipated annual rates of increase of 2.30 percent for salaries and 2.30 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 €649 million. In accordance with article 28 of the Introductory Act to the German Commercial Code (EGHGB), no provisions for pensions and other post-employment benefits were recognized for existing indirect defined benefit obligations of €10 million.
Other provisions are recognized 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

As at December 31, 2023, all of the non-trading interest-linked financial instruments that are required to be included pursuant to accounting guidance statement 3 (amended version) issued by the banking committee of IDW were analyzed as a whole by DZ BANK for losses expected to be incurred on contracted interest-linked items in the future (write-downs to anticipate identifiable expected losses). This was done using the present value/carrying amount method. In this method, the carrying amounts of the analyzed interest-bearing transactions are offset against the interest-rate-related present values, taking account of the associated costs of managing the risk and the portfolio and the costs of funding required in the future for contracted interest-linked items. Any remaining shortfall after offsetting would require a corresponding provision to be recognized. As at December 31, 2023, 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 €3,847 million as at December 31, 2023 (December 31, 2022: €3,695 million). This fund for general banking risks included the special reserve in accordance with section 340e (4) HGB of €291 million (December 31, 2022: €289 million). The increase in the special reserve was due to an addition of €2 million in 2023. Furthermore, a total of €150 million was added to the reserves pursuant to section 340g HGB.

The methods used to recognize and measure internal transactions are the same as those applied to external transactions. The internal transactions are shown as netted amounts in the respective line items on the balance sheet.
Net interest income from non-trading derivatives is calculated at individual transaction level and, depending on the result, reported in either interest expense or interest income.

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 in the banking book for individual exposures – where such transactions are held to maturity or until the credit event occurs and they only cover the credit risk – 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.

In certain jurisdictions where DZ BANK AG and its group entities operate, legislation has been enacted or substantively enacted to introduce global minimum tax (BEPS 2.0 Pillar 2). In Germany, legislation to implement Council Directive (EU) 2022/2523 on ensuring a global minimum level of taxation and related measures was published in the Federal Law Gazette on December 27, 2023. The law came into force on December 28, 2023 and is applicable from January 1, 2024. DZ BANK AG and its group entities are in the scope of the enacted or substantively enacted legal provisions and have analyzed how they could be affected by the global minimum tax. DZ BANK AG is the ultimate parent company and tax group parent, which means that it is responsible for paying the minimum tax under the German Minimum Tax Act (MinStG) and must submit a minimum tax report and the associated tax return in Germany. DZ BANK AG considers the income tax risk from the global minimum tax to be immaterial.

» 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 in the income statement.

Under the strategy for managing currency risk, DZ BANK's foreign currency exposures and foreign-currency transactions are specifically covered in the same currency. Assets and liabilities are deemed to be specifically covered in the same currency if they are matched by offsetting items, forward transactions, or options. Currency translation 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. Furthermore, for non-trading forward forex transactions and currency swaps, the pro rata swap positions relating to the financial year are recognized on a straight-line basis in net interest income. The positive and negative currency translation effects from corresponding derivatives are reported as an offsetting item for currency translation under other assets and other liabilities on the balance sheet.

B Balance sheet disclosures

» 04 Maturity structure

ASSET ITEMS

€ million	Dec. 31, 2023	Dec. 31, 2022
Other loans and advances to banks	**161,921**	**151,925**
up to 3 months	12,545	12,637
between 3 months and 1 year	20,564	19,073
between 1 year and 5 years	68,314	60,274
more than 5 years	60,498	59,941
Loans and advances to customers	**46,562**	**45,158**
up to 3 months	11,287	11,661
between 3 months and 1 year	5,316	4,618
between 1 year and 5 years	17,541	17,474
more than 5 years	8,909	7,777
no fixed maturity	3,509	3,628
Bonds and other fixed-income securities	**31,726**	**27,444**
of which: maturing in subsequent year	3,280	4,371

LIABILITY ITEMS

€ million	Dec. 31, 2023	Dec. 31, 2022
Deposits from banks with agreed maturity or notice period	**110,808**	**128,001**
up to 3 months	12,212	17,245
between 3 months and 1 year	17,122	18,564
between 1 year and 5 years	41,439	54,164
more than 5 years	40,035	38,028
Deposits from customers		
Other deposits from customers with agreed maturity or notice period	**24,930**	**29,815**
up to 3 months	6,918	14,417
between 3 months and 1 year	6,820	5,886
between 1 year and 5 years	2,445	2,985
more than 5 years	8,747	6,527
Debt certificates issued including bonds		
Bonds issued	**64,723**	**49,362**
of which: maturing in subsequent year	19,718	14,437
Other debt certificates issued	**8,504**	**4,698**
up to 3 months	2,776	3,512
between 3 months and 1 year	5,681	1,123
between 1 year and 5 years	47	63

» 05 Affiliated companies and other long-term investees and investors

Loans and advances to and deposits from affiliated companies:

€ million	Dec. 31, 2023	Dec. 31, 2022
Loans and advances to banks	43,175	43,894
Loans and advances to customers	5,359	4,959
Bonds and other fixed-income securities	4,309	2,968
Deposits from banks	5,584	7,434
Deposits from customers	4,023	5,502
Debt certificates issued including bonds	1,088	882

Loans and advances to and deposits from other long-term investees and investors:

€ million	Dec. 31, 2023	Dec. 31, 2022
Loans and advances to banks	95,440	88,024
Loans and advances to customers	426	492
Bonds and other fixed-income securities	5	2,239
Deposits from banks	63,010	65,245
Deposits from customers	580	402
Debt certificates issued including bonds	29,049	30,056
Subordinated liabilities	5,038	4,020

The list of shareholdings compiled in accordance with section 285 no. 11 HGB is shown in Note 45.

» 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, 2023	Dec. 31, 2022
Loans and advances to affiliated banks	115,970	104,400
Deposits from affiliated banks	67,239	69,442

» 07 Subordinated assets

The following balance sheet items include subordinated assets in the amounts stated:

€ million	Dec. 31, 2023	Dec. 31, 2022
Loans and advances to banks	**153**	898
of which: to affiliated companies	153	898
Loans and advances to customers	**134**	132
Bonds and other fixed-income securities	**822**	304
of which: to affiliated companies	767	249
to investees	5	5
Shares and other variable-yield securities	**–**	1
Trading assets	**95**	66
of which: to investees	–	0
Total	**1,204**	**1,401**

» 08 Trust activities

Total trust assets and trust liabilities are broken down as follows:

€ million	Dec. 31, 2023	Dec. 31, 2022
Trust assets		
Loans and advances to banks	1,623	1,948
Loans and advances to customers	34	2
Long-term equity investments	67	67
Total	**1,724**	**2,017**

€ million	Dec. 31, 2023	Dec. 31, 2022
Trust liabilities		
Deposits from banks	1,657	1,950
Deposits from customers	67	67
Total	**1,724**	**2,017**

» 09 Foreign currency

Assets and liabilities denominated in foreign currency are as follows:

€ million	Dec. 31, 2023	Dec. 31, 2022
Assets	24,946	25,064
Liabilities	32,149	33,200

» 10 Sale and repurchase agreements

The carrying amount of assets subject to sale and repurchase agreements as at December 31, 2023 was €802 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, 2023
Deposits from banks	76,738
Trading liabilities	5,194
Total	**81,932**

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 €8,853 million.

» 12 Marketable securities

The following asset items include marketable securities in the amounts shown:

€ million	Dec. 31, 2023	Dec. 31, 2022
Bonds and other fixed-income securities	**31,726**	27,444
of which: listed on a stock exchange	23,317	19,946
Shares and other variable-yield securities	**–**	1
of which: listed on a stock exchange	–	1
Long-term equity investments	**10**	10
of which: listed on a stock exchange	–	–
Shares in affiliated companies	**3,265**	3,264
of which: listed on a stock exchange	–	–

» 13 Trading assets and trading liabilities

The table below shows a breakdown of trading assets and trading liabilities:

€ million	Dec. 31, 2023	Dec. 31, 2022
Trading assets		
Derivatives	5,970	4,911
Receivables	9,705	20,125
Bonds and other fixed-income securities	10,596	10,301
Shares and other variable-yield securities	1,329	1,388
Risk adjustment pursuant to section 340e HGB and other measurement adjustments Prior year: Other (risk adjustments)[1]	-36	-353
Total	**27,564**	**36,372**

1 In 2023, the majority of the write-downs were charged directly on the instruments. In 2022, the write-downs were included under 'Other (risk adjustments)'.

€ million	Dec. 31, 2023	Dec. 31, 2022
Trading liabilities		
Derivatives	7,339	10,147
Liabilities	31,578	27,268
Total	**38,917**	**37,415**

» 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, 2023	601	710	240
Additions	37	525	21
Disposals	1	–	13
Reclassifications	–	2	-2
Changes in exchange rates	0	–	0
Cost as at Dec. 31, 2023	**637**	**1,237**	**246**
Reversals of write-downs	**–**	**–**	**2**
Depreciation, amortization and write-downs as at Jan. 1, 2023	518	143	173
Additions	27	133	17
Disposals	1	–	12
Reclassifications	–	1	-1
Changes in exchange rates	0	–	0
Depreciation, amortization and write-downs as at Dec. 31, 2023	**544**	**277**	**177**
Carrying amount as at Dec. 31, 2023	**93**	**960**	**71**
Carrying amount as at Dec. 31, 2022	**83**	**567**	**67**

The carrying amount of the land and buildings used by DZ BANK for its own operations as at December 31, 2023 was €778 million (December 31, 2022: €375 million).

The additions to land and buildings mainly relate to the building 'Westend 1-Turm', Frankfurt am Main, which was purchased along with the plot of land in 2023.

INVESTMENTS

€ million	Long-term securities	Long-term equity investments	Shares in affiliated companies
Change[1]	1,129	-10	-284
Carrying amount as at Dec. 31, 2023	**13,144**	**283**	**10,112**
Carrying amount as at Dec. 31, 2022	**12,015**	**293**	**10,396**

1 The aggregation option provided under section 34 (3) RechKredV was applied.

The fair value of financial instruments reported under investments for which write-downs have not been recognized in accordance with section 253 (3) sentence 6 HGB was €6,061 million (carrying amount: €6,393 million) for bonds and other fixed-income securities and €25 million (carrying amount: €28 million) for shares and other variable-yield securities. These securities are predominantly bonds and other fixed-income securities that are classified as long-term securities and are to be held to maturity; their premiums and discounts are recognized until maturity using the effective interest method. The shares and other variable-yield securities relate to one security that is part of a closed position. In addition, these securities are tested to ascertain whether they are actually impaired. If they are, the impairment loss is calculated on the basis of parameters. 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 €1,817 million (December 31, 2022: €2,078 million) largely include initial and variation margin payments arising from client-clearing and self-clearing of interest-rate derivatives at London Clearing House and EUREX of €742 million (December 31, 2022: €1,451 million) and tax credits of €651 million (December 31, 2022: €306 million). The offsetting asset item for currency translation of €82 million is also included (December 31, 2022: €40 million).

» 16 Prepaid expenses/accrued income and deferred income/accrued expenses

€ million	Dec. 31, 2023	Dec. 31, 2022
Assets		
Discount on deposits	145	47
Premium on loans and advances	19	30
Other prepaid expenses/accrued income	58	101
Total	**222**	**178**

€ million	Dec. 31, 2023	Dec. 31, 2022
Liabilities		
Discount on loans and advances	3	1
Premium on deposits	151	166
Other deferred income/accrued expenses	22	19
Total	**176**	**186**

» 17 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, 2023	Dec. 31, 2022
Cost of netted assets	975	1,035
Fair value of netted assets	918	920
Amount needed to settle the netted liabilities	1,478	1,491
Netted expenses	26	330
Netted income	59	8

Netting of the various pension plans led to a shortfall in pension plan cover of €561 million in Germany as at December 31, 2023 (December 31, 2022: €572 million) and a pension plan surplus of €1 million at the New York branch (December 31, 2022: €1 million).

» 18 Other liabilities

The other liabilities of €901 million (December 31, 2022: €1,356 million) include, in particular, initial and variation margins received arising from client-clearing and self-clearing of interest-rate derivatives at London Clearing House and EUREX of €496 million (December 31, 2022: €817 million). The offsetting liability item for currency translation of €149 million is also included (December 31, 2022: €320 million).

» 19 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. As at December 31, 2023, no borrowing exceeded 10 percent of total subordinated liabilities.

The subordinated liabilities carried an average interest rate of 4.11 percent (2022: 2.71 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, and registered bonds.

The interest expense for the liabilities reported under this item amounted to €308 million in 2023 (2022: €179 million).

Accrued interest not yet due for payment amounting to €138 million (December 31, 2022: €87 million) is included within subordinated liabilities on the balance sheet.

To strengthen its regulatory Tier 1 capital, DZ BANK issued AT1 bonds with a total nominal value of €3,293 million in 2015, 2019 and 2023. The AT1 bonds are split into four types depending on their interest-rate arrangements (types A to D) 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 call each tranche of the bond in its entirety, but not parts thereof, as it chooses, either at the first possible maturity date or thereafter at any interest payment date. Furthermore, the issuer may exercise its call right prematurely if certain regulatory or tax reasons arise. In all instances, DZ BANK must obtain the consent of the competent supervisory authority in order to call the bonds.

If they are called, 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. 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 competent supervisory authority. Interest payments are not cumulative; canceled or reduced payments will not be made up in subsequent periods. Interest of €154 million was paid in 2023 (2022: €71 million).

The accrued (not yet due) interest for the AT1 bonds amounted to €91 million as at December 31, 2023 (December 31, 2022: €37 million).

» 20 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.

The changes in equity were as follows:

€ million	Jan. 1, 2023	Additions/ (-) withdrawals	Dec. 31, 2023
Subscribed capital	4,926	–	**4,926**
Capital reserve	3,784	–	**3,784**
Revenue reserves	1,542	–	**1,542**
Statutory reserve	105	–	105
Other revenue reserves	1,437	–	1,437
Distributable profit	386	120	**506**
– 2022 appropriation of profits / dividend	386	-358	–
Profit brought forward from 2022		-28	
– 2023 distributable profit	–	506	
Total equity	10,638	120	**10,758**

On May 24, 2023, the Annual General Meeting decided to carry forward the entire distributable profit for 2022 to the next accounting period. On October 19, 2023, the Extraordinary General Meeting approved a resolution to distribute a dividend of €0.20 per non-par-value share. This equated to a total distribution of €358 million. The remaining distributable profit of €28 million was carried forward.

Authorized capital

The Board of Managing Directors is authorized, subject to the approval of the Supervisory Board, to increase the share capital by June 30, 2026 on one or more occasions by up to a total of €200 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) 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 June 30, 2026 on one or more occasions by up to a total of €600 million by issuing new registered non-par-value shares in return for cash contributions. The Board of Managing Directors is authorized, subject to the approval of the Supervisory Board, to exclude fractions from the subscription right of shareholders ('Authorized Capital II').

The new shares issued on the basis of utilizing Authorized Capital I or Authorized Capital II can also be acquired by credit institutions determined by the Board of Managing Directors if aforesaid credit institutions agree to offer said shares to the shareholders (indirect subscription right).

The Board of Managing Directors did not make use of any of this authorized action in 2023.

» 21 Disclosures on shareholders

At the end of 2023, 99.5 percent of shares were held by cooperative enterprises (December 31, 2022: 99.5 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.

» 22 Disclosure pursuant to section 20 AktG

Nord-Mitte-Süd DZ Beteiligungsholding GmbH & Co. KG, Neu-Isenburg, DZ Beteiligungs-GmbH & Co. KG Baden-Württemberg, Karlsruhe, and WGZ Beteiligungs GmbH & Co. KG, Düsseldorf, have notified us in accordance with section 20 (1) AktG that they each hold more than a quarter of the shares in DZ BANK.

» 23 Amounts not allowed to be distributed as dividends

The difference, which may not be distributed as dividends pursuant to section 253 (6) HGB, 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 amounted to €17 million (2022: €79 million). This amount that is not allowed to be distributed as dividends is offset by sufficient distributable reserves. Consequently, the distributable profit of €506 million is not prohibited from being paid out as a dividend.

» 24 List of derivatives recognized at fair value by product area (trading assets and trading liabilities)

The table below shows a list of the derivatives 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, 2023	Dec. 31, 2022	Dec. 31, 2023	Dec. 31, 2022	Dec. 31, 2023	Dec. 31, 2022
INTEREST-LINKED CONTRACTS	270,937	595,513	787,226	1,653,676	1,496,022	17,624	20,155	16,969	22,020
OTC products									
Forward rate agreements	38,583	–	–	38,583	20,186	0	1	0	0
Interest-rate swaps (same currency)	191,266	553,659	764,000	1,508,925	1,380,851	16,524	18,825	14,672	19,341
Interest-rate options – bought	17,564	18,735	9,221	45,520	39,758	789	1,075	132	118
Interest-rate options – written	18,394	22,944	14,005	55,343	51,860	304	249	2,163	2,559
Exchange-traded products									
Interest-rate futures	5,130	175	–	5,305	3,367	7	5	2	2
CURRENCY-LINKED CONTRACTS	36,685	23,860	6,631	67,176	85,957	1,051	1,786	988	1,470
OTC products									
Cross-currency swaps	5,877	18,082	6,434	30,393	33,805	659	1,092	558	784
Forward forex transactions	20,832	4,492	172	25,496	25,757	296	467	350	485
Forex options – bought	5,154	243	–	5,397	11,489	8	50	39	65
Forex options – written	4,695	1,043	–	5,738	14,628	68	146	18	103
Exchange-traded products									
Forex/gold futures	49	–	–	49	204	0	0	0	0
Forex/gold options	78	–	25	103	74	20	31	23	33
SHARE-/INDEX-LINKED CONTRACTS	13,318	13,480	1,648	28,446	27,508	1,235	1,316	1,908	2,669
OTC products									
Share/index options – bought	6	52	106	164	44	10	5	0	0
Share/index options – written	594	357	–	951	653	0	0	21	53
Other share/index contracts	542	4,587	1,343	6,472	6,192	89	16	331	700
Exchange-traded products									
Share/index futures	941	106	–	1,047	1,297	0	1	1	10
Share/index options	11,235	8,378	199	19,812	19,322	1,136	1,294	1,555	1,906
OTHER CONTRACTS	344	68	81	493	335	87	131	85	134
OTC products									
Precious metal contracts (excl. gold derivatives)	–	–	–	–	1	–	–	–	0
Commodities contracts	0	63	47	110	48	10	2	0	0
Exchange-traded products									
Futures (excl. gold futures)	36	1	–	37	101	0	1	0	0
Options (excl. gold options)	308	4	34	346	185	77	128	85	134
CREDIT DERIVATIVES	2,482	7,342	3,235	13,059	14,729	211	173	68	100
Protection buyer									
Credit default swaps	611	1,724	643	2,978	3,229	3	12	57	37
Protection seller									
Credit default swaps	1,871	5,618	2,592	10,081	11,500	208	161	11	63
Total	323,766	640,263	798,821	1,762,850	1,624,551	20,208	23,561	20,018	26,393

A substantial proportion of the derivatives listed were entered into for the purposes of hedging interest-rate, exchange-rate, market, or credit risk in connection with trading transactions.

The amount of, timing of, and collateral for future cash flows are predominantly influenced by the interest-rate environment, developments in the equity markets, and movements in exchange rates and credit spreads.

» 25 List of derivatives recognized at fair value by counterparty structure (trading assets and trading liabilities)

The table below shows a list of the derivatives recognized at fair value by counterparty structure:

	Fair value			
	Positive		Negative	
€ million	Dec. 31, 2023	Dec. 31, 2022	Dec. 31, 2023	Dec. 31, 2022
OECD central governments	–	–	33	26
OECD banks	13,971	15,670	16,734	21,761
OECD financial services institutions	15	26	60	102
Other companies, private individuals	6,108	7,694	3,162	4,491
Non-OECD central governments	0	0	–	–
Non-OECD banks	114	171	29	13
Total	**20,208**	**23,561**	**20,018**	**26,393**

» 26 List of derivatives not recognized at fair value by product area (non-trading assets and non-trading liabilities)

The table below shows a list of the derivatives not 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, 2023	Dec. 31, 2022	Dec. 31, 2023	Dec. 31, 2022	Dec. 31, 2023	Dec. 31, 2022
INTEREST-LINKED CONTRACTS	**5,218**	**4,706**	**4,328**	**14,252**	**14,943**	**193**	**106**	**187**	**246**
OTC products									
Interest-rate swaps (same currency)	1,077	2,623	3,928	7,628	7,189	191	104	155	182
Interest-rate options – bought	750	400	–	1,150	1,950	1	1	–	–
Interest-rate options – written	979	708	400	2,087	3,491	–	–	32	64
Exchange-traded products									
Interest-rate futures	2,412	975	–	3,387	2,313	1	1	–	–
CURRENCY-LINKED CONTRACTS	**53,356**	**5,396**	**1,190**	**59,942**	**77,501**	**698**	**1,176**	**785**	**1,487**
OTC products									
Cross-currency swaps	102	541	1,006	1,649	897	44	45	51	85
Forward forex transactions	53,254	4,855	184	58,293	76,604	654	1,131	734	1,402
CREDIT DERIVATIVES	**409**	**904**	**–**	**1,313**	**1,771**	**14**	**18**	**4**	**5**
Protection buyer									
Credit default swaps	22	160	–	182	225	–	0	4	4
Protection seller									
Credit default swaps	387	744	–	1,131	1,546	14	18	0	1
Total	**58,983**	**11,006**	**5,518**	**75,507**	**94,215**	**905**	**1,300**	**976**	**1,738**

A substantial proportion of the derivatives listed were entered into for the purposes of hedging interest-rate, exchange-rate, market, or credit risk.

For information on the valuation method used to determine the fair values of non-trading derivatives, please refer to the section ‘Trading assets and trading liabilities’ in Note 02 ‘Accounting policies’.

The carrying amounts of non-trading derivatives not recognized at fair value included premiums of €35 million (December 31, 2022: €43 million) under other assets, and premiums of €65 million (December 31, 2022: €65 million) under other liabilities.

Prepaid expenses and accrued income include upfront payments of €2 million (December 31, 2022: €5 million). Deferred income and accrued expenses include upfront payments of €4 million (December 31, 2022: €8 million). Accrued income from non-trading derivatives not recognized at fair value is reported in the amount of €45 million (December 31, 2022: €49 million) under loans and advances to banks and in the amount of €49 million (December 31, 2022: €45 million) under loans and advances to customers, while accrued expenses on non-trading derivatives not recognized at fair value are reported in the amount of €32 million (December 31, 2022: €21 million) under deposits from banks and in the amount of €32 million (December 31, 2022: €21 million) under deposits from customers.

The carrying amounts of non-trading derivatives not recognized at fair value also included an asset of €82 million relating to the offsetting item for currency translation (December 31, 2022: €40 million) and a liability of €149 million relating to the offsetting item for currency translation (December 31, 2022: €320 million). Accruals relating to forward forex transactions are recognized in an amount of €41 million under other assets (December 31, 2022: €38 million) and in an amount of €59 million under other liabilities (December 31, 2022: €32 million).

» 27 List of derivatives not recognized at fair value by counterparty structure (non-trading assets and non-trading liabilities)

The table below shows a list of the derivatives not recognized at fair value by counterparty structure:

	Fair value			
	Positive		Negative	
€ million	**Dec. 31, 2023**	Dec. 31, 2022	**Dec. 31, 2023**	Dec. 31, 2022
OECD banks	676	965	685	1,331
Other companies, private individuals	181	286	252	387
Non-OECD banks	48	49	39	20
Total	**905**	**1,300**	**976**	**1,738**

C Income statement disclosures

» 28 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	2023	2022
Germany	10,658	4,982
International	1,059	616
Total	**11,717**	**5,598**

» 29 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.

» 30 Other operating income and expenses

Other operating income amounted to €324 million. Of this sum, €122 million resulted from the reversal of provisions, €60 million from the redemption of securities repurchased early, €33 million from the measurement of the occupational pension plan, €21 million from options, and €14 million from rental income. For transactions with special cover, the currency translation gains and losses are shown net in other net operating income and amounted to a net gain of €18 million (2022: net loss of €25 million).

The other operating expenses of €198 million were mainly attributable to an interest expense of €41 million in connection with tax receivables, compensation payments of €40 million for swaps terminated early, expenses of €16 million in connection with options, operating costs of €12 million in connection with premises not used for banking operations, and expenses of €8 million from the recognition of provisions for anticipated losses in connection with leases.

» 31 Extraordinary income and expenses

In 2023, KBIH Beteiligungsgesellschaft für Industrie und Handel mbH, Frankfurt am Main, was merged into DZ BANK with retrospective economic effect from January 1, 2023. It was merged at its market value. The extraordinary income of €7 million related to the revaluation of shares in affiliated companies and long-term equity investments that was carried out in connection with the merger.

The extraordinary expenses of €46 million stem from the increase in the provision for restructuring and from the recognition of provisions for organizational capacity adjustments in connection with ongoing technical progress and the digitalization of processes at DZ BANK.

» 32 Proposed appropriation of profits

It will be proposed to the Annual General Meeting that the distributable profit for 2023 of €506 million be appropriated for a dividend payment of €0.25 per non-par-value share. This would equate to a total distribution of €448 million. The remaining distributable profit of €58 million is to be carried forward.

D Other disclosures

» 33 Contingent liabilities and other obligations

DZ BANK only assumes liabilities in the form of guarantees and indemnity agreements and obligations in the form of irrevocable loan commitments after it has carefully assessed the risks involved. Having constantly evaluated the risks attaching to the guarantees, indemnity agreements, and irrevocable loan commitments 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 the agreements.

In order to cover latent and 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 €3,772 million (December 31, 2022: €3,574 million).

In connection with the granting of a liquidity waiver pursuant to article 8 CRR, DZ BANK has made an irrevocable commitment to DZ HYP that enables DZ HYP to draw down as a loan, if needed, a sum up to the amount of DZ BANK's available liquidity as defined in the reciprocal loan agreement dated November 2, 2021. The maximum possible amount that could be drawn down as at December 31, 2023 was €65.6 billion. In connection with this, the irrevocable loan commitments include an amount equal to the expected maximum drawdown of €3.9 billion. The actual amount drawn down as at December 31, 2023 was €0.

» 34 Other financial obligations

As at December 31, 2023, the total amount of other financial obligations for the following year was €174 million (December 31, 2022: €153 million). Most of them relate to obligations under existing rental agreements, leases, and maintenance agreements. This amount includes obligations to affiliated companies of €1 million (December 31, 2022: €19 million).

Other financial obligations will amount to €259 million for years from 2025 onward. This amount includes obligations to affiliated companies of €3 million.

There were also irrevocable payment commitments in connection with the bank levy of €98 million (December 31, 2022: €80 million). Cash collateral of the same amount has been pledged. The pledged collateral is included in other assets on the balance sheet. In light of a non-binding judgment of the European General Court (EGC) dated October 25, 2023 in a legal dispute between the Single Resolution Board (SRB) and a French bank, there is legal uncertainty as to whether the irrevocable payment commitments are annulled if a bank leaves the Single Resolution Mechanism (in particular if a banking license is handed back) and whether the cash collateral provided by the bank is returned to the bank without it having to pay the irrevocably committed amount. The case is pending a decision by the CJEU.

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 €279 million with the BVR in support of the guarantee network in order to cover any eventualities.

» 35 Letters of comfort

DZ BANK has issued letters of comfort for its subsidiaries DZ PRIVATBANK S.A., Strassen, Luxembourg, and DZ HYP. Except in the event of political risk, DZ BANK has thus undertaken to ensure, in proportion to its shareholding, that these companies are able to meet their contractual obligations.

The following letters of comfort have also been issued:

Entity covered by the letter of comfort	Subject of the undertaking
Alchemy Parts (Malta) Ltd. i. L., Floriana, Malta	Liabilities that are due up to the date of liquidation
DCII (Malta) Ltd. i. L., Floriana, Malta	Liabilities in connection with the 2022 annual financial statements and liabilities up to US$ 240,000 that are due up to the date of liquidation if equity is negative
Delfco Leasing (Malta) Ltd., Floriana, Malta	Liabilities in connection with the 2022 annual financial statements and liabilities up to US$ 280,000 that are due up to the date of liquidation if equity is negative
FPAC (Malta) Ltd. i. L., Floriana, Malta	Liabilities in connection with the 2022 annual financial statements and liabilities up to US$ 210,000 that are due up to the date of liquidation if equity is negative
Lodestone Parts (Malta) Ltd. i. L., Floriana, Malta	Liabilities in connection with the 2022 annual financial statements and liabilities up to US$ 220,000 that are due up to the date of liquidation if equity is negative
PW 4168 Solutions (Malta) Ltd., Floriana, Malta	Liabilities in connection with the 2022 annual financial statements and liabilities up to US$ 210,000 that are due up to the date of liquidation if equity is negative

These entities are identified in the list of DZ BANK's shareholdings (Note 45) as being covered by a letter of comfort.

» 36 Hedge accounting

DZ BANK uses micro hedges between securities in the liquidity reserve (hedged items) and derivatives used for hedging.

The hedged items and hedging instruments have countervailing risk parameters, as a result of which the interest-rate-related changes in the fair value of the hedged items and the changes in the fair value of the hedging instruments offset each other almost entirely as at the reporting date and will continue to do so in the future.

The effectiveness of the hedging of interest-rate risk is measured prospectively using a sensitivity analysis at the level of the micro hedges. Retrospective effectiveness is assessed using the dollar offset method on the basis of the interest-rate-related fair values of the securities in the liquidity reserve.

The net hedge presentation method is used to recognize hedge accounting. In this method, countervailing changes in the fair value of the hedged items and hedging instruments for the hedged risk are not recognized if they are attributable to the effective portion of the hedge. DZ BANK recognizes a provision for anticipated losses for negative changes in fair value attributable to the ineffective portion of the hedge. Hedged items are written down if they fall in value as a result of unhedged risks. Micro hedging is generally applied for as long as the security is held.

The assets subject to hedge accounting are presented in the following table. The amount of hedged risk equates to the net cumulative write-downs not charged on the hedged item (due to hedge accounting) since it was designated as a hedge.

€ million	Carrying amounts Dec. 31, 2023	Carrying amounts Dec. 31, 2022	Nominal amounts Dec. 31, 2023	Nominal amounts Dec. 31, 2022	Amount of hedged risk Dec. 31, 2023	Amount of hedged risk Dec. 31, 2022
Securities in the liquidity reserve	17,951	13,431	18,079	13,377	563	1,138

» 37 Employees

Average number of employees by employee group:

	2023	2022
Female employees	**2,343**	**2,267**
Full-time employees	1,362	1,313
Part-time employees	981	954
Male employees	**3,219**	**3,144**
Full-time employees	2,972	2,917
Part-time employees	247	227
Total employees	**5,562**	**5,411**

» 38 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, 2023:

INVESTMENT FUND ASSETS BY INVESTMENT OBJECTIVE

€ million	Carrying amount	Fair value	Difference between fair value and carrying amount	Distributions paid for 2023
Mixed fund (pension funding)	877	877	–	1

The investment fund units 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.

» 39 Auditor fees

The total fees charged for 2023 by the independent auditors of the financial statements, PricewaterhouseCoopers GmbH Wirtschaftsprüfungsgesellschaft (PwC), Frankfurt am Main, its affiliates, and other firms in the international PwC network are broken down as follows:

€ million	2023 Total	2023 of which: PwC Germany
Auditing services	4.6	4.4
Other attestation services	0.7	0.7
Other services	0.1	0.0
Total	**5.4**	**5.1**

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 audits in accordance with section 89 (1) of the German Securities Trading Act (WpHG) and section 68 (7) of the German Investment Code (KAGB), for project-based audits, and other audits for which the auditors' professional seal must or can be applied. The fees for other services predominantly include fees for consultancy services.

» 40 Cover statement

The following cover is in place for outstanding covered bonds and derivatives:

€ million	Dec. 31, 2023	Dec. 31, 2022
Total cover assets	**31,966**	**25,453**
Ordinary cover	**31,966**	**25,453**
Loans and advances to banks	22,454	16,523
Loans and advances to customers	1,155	1,595
Securities	8,357	7,335
Cover requirement	**13,003**	**13,803**
Outstanding covered		
– bearer bonds	5,611	7,051
– registered bonds	7,392	6,752
Excess cover	**18,963**	**11,650**

» 41 Trustees of cover assets

The trustees are appointed by the Bundesanstalt für Finanzdienstleistungsaufsicht (BaFin) [German 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 Wiens
Presiding Judge at the
Frankfurt am Main regional court (retired)

Deputy trustee

Dr. Matthias Kögler
Presiding Judge at the
Frankfurt am Main regional court (retired)

» 42 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.

» 43 Decision-making bodies

The total remuneration for the members of the Board of Managing Directors of DZ BANK in 2023 was €11,752 thousand (2022: €12,432 thousand). The total remuneration for the Supervisory Board was €789 thousand (2022: €838 thousand). The total remuneration for the Board of Managing Directors in 2023 and 2022 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 €2,186 thousand granted for 2023 (2022: €2,267 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 €9,279 thousand (2022: €9,158 thousand) was paid to former members of the Board of Managing Directors or their surviving dependants, for whom defined benefit obligations of €130,354 thousand (2022: €133,667 thousand) were also recognized.

Board of Managing Directors of DZ BANK

Uwe Fröhlich
(Co-Chief Executive Officer)
Responsibilities: Cooperative Banks/Verbund; Communications & Marketing; Research and Economics; Strategy & Group Development (including Sustainability Coordination); Structured Finance

Dr. Cornelius Riese
(Co-Chief Executive Officer)
Responsibilities: Group Audit; Legal; Strategy & Group Development (including Sustainability Coordination)

Souâd Benkredda
Responsibilities: Capital Markets Trading; Capital Markets Institutional Clients; Capital Markets Retail Clients; Group Treasury

Uwe Berghaus
Responsibilities: Corporate Banking Baden-Württemberg; Corporate Banking Bavaria; Corporate Banking North and East; Corporate Banking West/Central; Investment Promotion; Central Corporate Banking

Dr. Christian Brauckmann
Responsibilities: IT; Services & Organisation

Ulrike Brouzi
Responsibilities: Bank Finance; Compliance; Group Finance; Group Financial Services

Johannes Koch
(Member of the Board of Managing Directors since January 1, 2024)
Responsibilities: Group Human Resources

Michael Speth
Responsibilities: Group Risk Controlling; Group Risk Control & Services; Credit

Thomas Ullrich
Responsibilities: Operations; Payments & Accounts; Transaction Management

Supervisory Board of DZ BANK

Henning Deneke-Jöhrens
(Chairman of the Supervisory Board)
Chief Executive Officer
Volksbank eG Hildesheim-Lehrte-Pattensen

Ulrich Birkenstock
(Deputy Chairman of the Supervisory Board)
Employee
R+V Allgemeine Versicherung AG

Ingo Stockhausen
(Deputy Chairman of the Supervisory Board)
Chief Executive Officer
Volksbank Oberberg eG

Uwe Barth
Spokesman of the Board of Managing Directors
Volksbank Freiburg eG

Heiner Beckmann
Senior manager
Sales Director South-West
R+V Allgemeine Versicherung AG

Pia Erning
Employee
DZ BANK AG
Deutsche Zentral-Genossenschaftsbank

Timm Häberle
Chief Executive Officer
VR-Bank Ludwigsburg 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

Josef Hodrus
Spokesman of the Board of Managing Directors
Volksbank Allgäu-Oberschwaben eG

Marija Kolak
President
Bundesverband der Deutschen Volksbanken
und Raiffeisenbanken e.V. (BVR)

Sascha Monschauer
Chief Executive Officer
Volksbank RheinAhrEifel eG

Wolfgang Nett
Sales Director
Union Investment Privatfonds GmbH

Rolf Dieter Pogacar
Employee
R+V Allgemeine Versicherung AG

Stephan Schack
Chief Executive Officer
Volksbank Raiffeisenbank eG, Itzehoe

Sigrid Stenzel
Freelance employee
ver.di Niedersachsen-Bremen

Kevin Voß
Labor union secretary
Banking industry group
ver.di Bundesverwaltung

Dr. Gerhard Walther
Chief Executive Officer
VR-Bank Mittelfranken Mitte eG

Supervisory Board committees

Nominations Committee
Henning Deneke-Jöhrens, Chairman
Ulrich Birkenstock, Deputy Chairman*
Pia Erning*
Timm Häberle
Wolfgang Nett*
Ingo Stockhausen

Audit Committee
Timm Häberle, Chairman
Henning Deneke-Jöhrens
Pia Erning*
Dr. Peter Hanker
Andrea Hartmann*
Marija Kolak
Rolf Dieter Pogacar*
Stephan Schack
Ingo Stockhausen

Remuneration Control Committee
Henning Deneke-Jöhrens, Chairman
Ulrich Birkenstock, Deputy Chairman*
Pia Erning*
Dr. Peter Hanker
Wolfgang Nett*
Ingo Stockhausen

Risk Committee
Dr. Peter Hanker, Chairman
Heiner Beckmann*
Henning Deneke-Jöhrens
Timm Häberle
Andrea Hartmann*
Pilar Herrero Lerma, member since May 24, 2023*
Dr. Dierk Hirschel*
Sascha Monschauer
Ingo Stockhausen
Dr. Gerhard Walther

Mediation Committee
Henning Deneke-Jöhrens, Chairman
Ulrich Birkenstock, Deputy Chairman*
Dr. Dierk Hirschel, member since January 17, 2023*
Ingo Stockhausen

*Employee representatives.

» 44 Mandates on supervisory bodies

As at December 31, 2023, members of the Board of Managing Directors and employees also held mandates on the statutory supervisory bodies of major companies. These and other notable mandates are listed below. Companies included in the consolidation are indicated with an asterisk (*).

Members of the Board of Managing Directors

Uwe Fröhlich (Co-Chief Executive Officer)	DZ HYP AG, Hamburg and Münster (*) Chairman of the Supervisory Board
	DZ PRIVATBANK S.A., Strassen (*) Chairman of the Supervisory Board
	VR Smart Finanz AG, Eschborn (*) Chairman of the Supervisory Board
Dr. Cornelius Riese (Co-Chief Executive Officer)	Bausparkasse Schwäbisch Hall AG, Schwäbisch Hall (*) Chairman of the Supervisory Board
	R+V Versicherung AG, Wiesbaden (*) Chairman of the Supervisory Board
	TeamBank AG Nürnberg, Nuremberg (*) Chairman of the Supervisory Board
	Union Asset Management Holding AG, Frankfurt am Main (*) Chairman of the Supervisory Board
Souâd Benkredda	R+V Lebensversicherung AG, Wiesbaden (*) Member of the Supervisory Board
Uwe Berghaus	DZ HYP AG, Hamburg and Münster (*) Member of the Supervisory Board
	EDEKABANK AG, Hamburg Member of the Supervisory Board
Dr. Christian Brauckmann	Atruvia AG, Frankfurt am Main Member of the Supervisory Board
	Deutsche WertpapierService Bank AG, Frankfurt am Main Chairman of the Supervisory Board
	DZ PRIVATBANK S.A., Strassen (*) Deputy Chairman of the Supervisory Board

Ulrike Brouzi	Bausparkasse Schwäbisch Hall AG, Schwäbisch Hall (*) Member of the Supervisory Board
	R+V Allgemeine Versicherung AG, Wiesbaden (*) Member of the Supervisory Board
	R+V Lebensversicherung AG, Wiesbaden (*) Member of the Supervisory Board
	Salzgitter AG, Salzgitter Member of the Supervisory Board
	Union Asset Management Holding AG, Frankfurt am Main (*) Member of the Supervisory Board
Johannes Koch (member since January 1, 2024)	Deutsche WertpapierService Bank AG, Frankfurt am Main Member of the Supervisory Board
Michael Speth	BAG Bankaktiengesellschaft, Hamm Member of the Supervisory Board
	DZ HYP AG, Hamburg and Münster (*) Member of the Supervisory Board
	R+V Versicherung AG, Wiesbaden (*) Member of the Supervisory Board
	VR Smart Finanz AG, Eschborn (*) Deputy Chairman of the Supervisory Board
Thomas Ullrich	Deutsche WertpapierService Bank AG, Frankfurt am Main Member of the Supervisory Board
	TeamBank AG Nürnberg, Nuremberg (*) Deputy Chairman of the Supervisory Board
	VR Payment GmbH, Frankfurt am Main (*) Chairman of the Supervisory Board

Employees

Rolf Büscher	Reisebank AG, Frankfurt am Main (*) Member of the Supervisory Board
Winfried Münch	AKA Ausfuhrkredit-Gesellschaft mbH, Frankfurt am Main Member of the Supervisory Board
Jochen Philipp	Banco Cooperativo Español S.A., Madrid Member of the Board of Directors
Claudio Ramsperger	Cassa Centrale Banca – Credito Cooperativo Italiano S.p.A., Trento Member of the Board of Directors
Gregor Roth	Reisebank AG, Frankfurt am Main (*) Chairman of the Supervisory Board VR Payment GmbH, Frankfurt am Main (*) Member of the Supervisory Board
Peter Tenbohlen	Deutsche WertpapierService Bank AG, Frankfurt am Main Member of the Supervisory Board
Dr. Ulrich Walter	Deutsche WertpapierService Bank AG, Frankfurt am Main Member of the Supervisory Board
Dagmar Werner	Banco Cooperativo Español S.A., Madrid Member of the Board of Directors

» 45 List of shareholdings

SUBSIDIARIES

Name	Location	Shareholding	Voting rights, if different	Equity in € '000	Profit/loss in € '000	
Alchemy Parts (Malta) Limited i.L. 3)	Floriana, Malta	-		21	-52	
APZ Beteiligungs GmbH 1)	Darmstadt	88.50	100.00	4,815	-725	*
APZ CarMotion GmbH 1)	Fischamend, Austria	100.00		698	-80	*
APZ GmbH 1)	Darmstadt	100.00		7,021	-	*
APZ Mobility GmbH 1)	Darmstadt	100.00		-	-588	*
APZ Smart Repair GmbH 1)	Munich	100.00		139	-	*
Assimoco S.p.A. 1)	Milan, Italy	69.05		279,535	18,767	*
Assimoco Vita S.p.A. 1)	Milan, Italy	86.67		302,343	17,323	*
Attrax Financial Services S.A. 1)	Senningerberg, Luxembourg	100.00		84,805	22,056	
Aufbau und Handelsgesellschaft mbH 1)	Stuttgart	94.90		525	-	*
AXICA Kongress- und Tagungszentrum Pariser Platz 3 GmbH 4)	Berlin	100.00		26	-	
axytos Finance Holding GmbH 1)	Langen	75.00		3,955	-113	*
axytos GmbH 1)	Langen	100.00		-3,092	-1,981	*
axytos Software GmbH 1)	Langen	100.00		-	-608	*
axytovento GmbH 1)	Langen	100.00		8	-1	*
BankingGuide GmbH	Düsseldorf	60.00		803	-143	*
BAUFINEX GmbH 1)	Schwäbisch Hall	70.00		784	-1,980	
BAUFINEX Service GmbH 1)	Berlin	50.00	75.00	25	-	
Bausparkasse Schwäbisch Hall Aktiengesellschaft - Bausparkasse der Volksbanken und Raiffeisenbanken - 4)	Schwäbisch Hall	97.59		1,812,302	-	
Beteiligungsgesellschaft Westend 1 mbH & Co. KG	Frankfurt am Main	94.90		28,324	10,840	
BWG Baugesellschaft Württembergischer Genossenschaften mbH 1)	Stuttgart	94.78		9,965	-	*
carexpert Kfz-Sachverständigen GmbH 1)	Mainz	60.00		1,835	443	
CHEMIE Pensionsfonds AG 1)	Wiesbaden	100.00		32,818	1,000	
Chiefs Aircraft Holding (Malta) Limited i.L.	Floriana, Malta	-		-	-116	*
CI CONDOR Immobilien GmbH 1)	Hamburg	100.00		20,100	-	
compertis Beratungsgesellschaft für betriebliches Vorsorgemanagement mbH 1)	Wiesbaden	100.00		3,458	1,113	
Condor Allgemeine Versicherungs-Aktiengesellschaft 1) 4)	Hamburg	100.00		41,762	-	
Condor Dienstleistungs GmbH 1)	Hamburg	100.00		619	43	
Condor Lebensversicherungs-Aktiengesellschaft 1)	Hamburg	94.98		51,742	-	
DCII (Malta) Limited i.L. 3)	Floriana, Malta	-		8	-41	
Delfco Leasing (Malta) Limited 3)	Floriana, Malta	-		12	-31	
Deucalion Capital II Limited	George Town, Cayman Islands	-		-609	1,463	**
Deucalion Capital VIII Limited	George Town, Cayman Islands	-		-74	-6,698	**
Deucalion Capital X Ltd.	George Town, Cayman Islands	-		n/a	n/a	
Deucalion Ltd.	George Town, Cayman Islands	-		28,883	1,709	**
DEVIF-Fonds Nr. 150 Deutsche Gesellschaft für Investmentfonds 1)	Frankfurt am Main	-		n/a	n/a	
DEVIF-Fonds Nr. 2 Deutsche Gesellschaft für Investmentfonds 1)	Frankfurt am Main	-		n/a	n/a	
DEVIF-Fonds Nr. 250 Deutsche Gesellschaft für Investmentfonds 1)	Frankfurt am Main	-		n/a	n/a	
DEVIF-Fonds Nr. 500 Deutsche Gesellschaft für Investmentfonds 1)	Frankfurt am Main	-		n/a	n/a	
DEVIF-Fonds Nr. 528 Deutsche Gesellschaft für Investmentfonds 1)	Frankfurt am Main	-		n/a	n/a	
DEVIF-Fonds Nr. 60 Deutsche Gesellschaft für Investmentfonds 1)	Frankfurt am Main	-		n/a	n/a	
Dilax Beteiligungs Verwaltungsgesellschaft mbH 1)	Berlin	100.00		24	-	*
Dilax Beteiligungsgesellschaft mbH & Co. KG 1)	Berlin	92.39		10,322	-177	*
Dilax France SAS 1)	Valence, France	100.00		623	64	*
Dilax Intelcom AG 1)	Ermatingen, Switzerland	100.00		377	70	*
Dilax Intelcom GmbH 1)	Berlin	97.01		1,568	-2,297	*
Dilax Intelcom Iberica S.L.U. 1)	Madrid, Spain	100.00		416	33	*
Dilax Management Investment Reserve GmbH 1)	Berlin	100.00		230	1	*
Dilax Management Investment Verwaltungsgesellschaft mbH 1)	Berlin	100.00		15	-2	*
Dilax Management Investmentgesellschaft mbH & Co. KG 1)	Berlin	99.50		165	-8	*
Dilax Systems Inc. 1)	Saint Lambert, Canada	100.00		1,346	31	*
Dilax Systems UK Ltd. 1)	London, UK	100.00		68	1	*
DILAX Systems US Inc 1)	Wilmington, USA	100.00		39	19	*
DVB Bank America N.V. i.L.	Willemstad, Curaçao	100.00		5,343	1	
DVB Fontainburg Aviation Capital Services Ltd (Cayman Islands)	Grand Cayman, Cayman Islands	-		n/a	n/a	
DVB Transport Finance Limited	London, UK	100.00		32,464	-821	
DVG Deutsche Vermögensverwaltungs-Gesellschaft mit beschränkter Haftung 4)	Frankfurt am Main	100.00		82	-	

SUBSIDIARIES

Name	Location	Shareholding	Voting rights, if different	Equity in € '000	Profit/loss in € '000	
DZ BANK Kunststiftung gGmbH	Frankfurt am Main	100.00		82	69	*
DZ BANK Sao Paulo Representacao Ltda.	São Paulo, Brazil	100.00		2,512	365	*
DZ Beteiligungsgesellschaft mbH Nr. 11 4)	Frankfurt am Main	100.00		4,220	-	
DZ Beteiligungsgesellschaft mbH Nr. 14 4)	Frankfurt am Main	100.00		51	-	
DZ Beteiligungsgesellschaft mbH Nr. 18 4)	Frankfurt am Main	100.00		58,973	-	
DZ Beteiligungsgesellschaft mbH Nr. 21 4)	Frankfurt am Main	100.00		25	-	
DZ Beteiligungsgesellschaft mbH Nr. 22	Frankfurt am Main	100.00		33	-4	
DZ Beteiligungsgesellschaft mbH Nr. 23 4)	Frankfurt am Main	100.00		25	-	
DZ Beteiligungsgesellschaft mbH Nr. 24	Frankfurt am Main	100.00		33	-2	
DZ CompliancePartner GmbH 4)	Neu-Isenburg	100.00		2,086	-	
DZ FINANCIAL MARKETS LLC	New York, USA	100.00		7,844	1,859	*
DZ Gesellschaft für Grundstücke und Beteiligungen mbH 4)	Frankfurt am Main	100.00		5,207	-	
DZ HYP AG 3) 4)	Hamburg/Münster	96.42		1,127,331	-	
DZ PRIVATBANK (Schweiz) AG 1)	Zurich, Switzerland	100.00		202,699	5,969	
DZ PRIVATBANK S.A. 3)	Strassen, Luxembourg	91.83		1,143,663	86,877	
DZ Versicherungsvermittlung Gesellschaft mbH 4)	Frankfurt am Main	100.00		299	-	
easymize GmbH 1)	Wiesbaden	100.00		270	1,707	
Englische Strasse 5 GmbH 1)	Wiesbaden	90.00		15,790	597	
Evo IT Holding GmbH 1)	Vienna, Austria	80.00		12,270	2,750	*
Evol.X Customer Experience GmbH 1)	Vienna, Austria	100.00		n/a	n/a	
Evolit Consulting GmbH 1)	Vienna, Austria	100.00		1,849	1,740	*
Evolit Slovakia s.r.o. 1)	Poprad, Slovakia	75.00		48	-2	*
Fischer Privatkunden Makler GmbH 1)	Nagold	90.00		162	135	*
FKS-NAVIGIUM GmbH 1)	Eschborn	100.00		-4,382	337	
FPAC (Malta) Limited i.L. 3)	Floriana, Malta	100.00		1	-45	
Fundamenta Erteklanc Ingatlanközvetitö es Szolgaltato Kft. 1)	Budapest, Hungary	100.00		-1,271	189	
Fundamenta-Lakáskassza Lakás-takarékpénztár Zrt. 1)	Budapest, Hungary	52.64		190,156	27,055	
Fundamenta-Lakáskassza Pénzügyi Közvetitö Kft. 1)	Budapest, Hungary	100.00		9,952	1,036	
GAF Active Life 1 Renditebeteiligungs-GmbH & Co. KG 1)	Nidderau	96.56		13,594	16,594	*
GAF Active Life 2 Renditebeteiligungs-GmbH & Co. KG 1)	Nidderau	95.03		65,178	16,741	*
GENO Broker GmbH 4)	Frankfurt am Main	100.00		10,000	-	
Genoflex GmbH 1)	Nuremberg	70.00		467	-372	*
GMS Development GmbH 1)	Paderborn	100.00		6,725	1,492	*
GMS Holding GmbH 1)	Paderborn	88.89	75.00	21,958	1,479	*
GMS Management und Service GmbH 1)	Nidderau	100.00		203	101	*
GWG 1. Wohn GmbH & Co. KG 1)	Stuttgart	100.00		2,000	1,127	*
GWG 2. Wohn GmbH & Co. KG 1)	Stuttgart	100.00		3,000	601	*
GWG 3. Wohn GmbH & Co. KG 1)	Stuttgart	100.00		7,000	1,619	*
GWG 4. Wohn GmbH & Co. KG 1)	Stuttgart	100.00		9,000	1,497	*
GWG Beteiligungsgesellschaft mbH 1)	Stuttgart	100.00		30	1	*
GWG Gesellschaft für Wohnungs- und Gewerbebau Baden-Württemberg AG 1)	Stuttgart	91.57		387,324	15,068	*
GWG Hausbau GmbH 1)	Stuttgart	94.48		2,750	-	*
GWG ImmoInvest GmbH 1)	Stuttgart	94.90		12,921	659	*
GWG Wohnpark Sendling GmbH 1)	Stuttgart	94.00		4,028	-	*
HMV GmbH 1)	Erlangen	100.00		55	-	
HumanProtect Consulting GmbH 1)	Cologne	100.00		586	102	*
Ihr Autoputzmeister Service GmbH 1)	Graz, Austria	100.00		620	139	*
Immobilien-Gesellschaft 'DG Bank-Turm, Frankfurt am Main, Westend' mbH & Co. KG des genossenschaftlichen Verbundes 2)	Frankfurt am Main	95.97		83,345	344,494	
Immobilien-Verwaltungsgesellschaft 'DG BANK-Turm, Frankfurt am Main, Westend' mbH	Frankfurt am Main	100.00		48	13	
IMPETUS Bietergesellschaft mbH 4)	Düsseldorf	100.00		37,103	-	
INFINDO Development GmbH 1)	Wiesbaden	100.00		97,417	-	
IPConcept (Luxemburg) S.A. 1)	Strassen, Luxembourg	100.00		21,627	11,547	
IPConcept (Schweiz) AG 1)	Zurich, Switzerland	100.00		7,764	510	
KRAVAG Umweltschutz und Sicherheitstechnik GmbH 1)	Hamburg	100.00		441	11	
KRAVAG-ALLGEMEINE Versicherungs-Aktiengesellschaft 1)	Hamburg	100.00		92,951	18,835	
KRAVAG-LOGISTIC Versicherungs-Aktiengesellschaft 1)	Hamburg	51.00		235,163	-20,317	
Lodestone Parts (Malta) Limited i.L. 3)	Floriana, Malta	-		27	-27	
MD Aviation Capital Pte. Ltd.	Singapore, Singapore	100.00		9,687	12,649	*
MDAC 6 Pte Ltd.	Singapore, Singapore	100.00		1,078	-13	*
MDAC Malta Ltd. i.L.	Floriana, Malta	-		10,599	-25	**
MI-Fonds 384 Metzler Investment GmbH 1)	Frankfurt am Main	-		n/a	n/a	
MI-Fonds 391 Metzler Investment GmbH 1)	Frankfurt am Main	-		n/a	n/a	
MI-Fonds 392 Metzler Investment GmbH 1)	Frankfurt am Main	-		n/a	n/a	
MI-Fonds F 57 Metzler Investment GmbH 1)	Frankfurt am Main	-		n/a	n/a	
MI-Fonds F43 Metzler Investment GmbH 1)	Frankfurt am Main	-		n/a	n/a	
MI-Fonds F44 Metzler Investment GmbH 1)	Frankfurt am Main	-		n/a	n/a	

SUBSIDIARIES

Name	Location	Shareholding	Voting rights, if different	Equity in € '000	Profit/loss in € '000	
MI-Fonds F45 Metzler Investment GmbH 1)	Frankfurt am Main	-		n/a	n/a	
MI-Fonds F47 Metzler Investment GmbH 1)	Frankfurt am Main	-		n/a	n/a	
MI-Fonds J01 Metzler Investment GmbH 1)	Frankfurt am Main	-		n/a	n/a	
MI-Fonds J03 Metzler Investment GmbH 1)	Frankfurt am Main	-		n/a	n/a	
MIRADOR Development GmbH 1)	Wiesbaden	100.00		112,048	-	
MSU Management-, Service- und Unternehmensberatung GmbH 1)	Landau in der Pfalz	60.00		967	102	*
NEF-Conservative 1)	Luxembourg, Luxembourg	-		n/a	n/a	
NewVolit GmbH 1)	Vienna, Austria	100.00		n/a	n/a	
NTK Immobilien GmbH 1)	Hamburg	100.00		44	-	*
NTK Immobilien GmbH & Co. Management KG 1)	Hamburg	100.00		865	-386	*
Pascon GmbH 1)	Wiesbaden	100.00		48	3	
PCAM Issuance II SA Issue RV AVL 001 1)	Luxembourg, Luxembourg	-		n/a	n/a	
PDZ Personaldienste & Zeitarbeit GmbH 4)	Darmstadt	100.00		60	-	
Pension Consult-Beratungsgesellschaft für Altersvorsorge mbH 1)	Wiesbaden	100.00		958	68	
Phoenix Beteiligungsgesellschaft mbH 4)	Düsseldorf	100.00		5,849	-	
PW 4168 Engine Solutions (Ireland) Ltd i.L.	Dublin, Ireland	-		-21	1	**
PW 4168 Solutions (Malta) Limited 3)	Floriana, Malta	-		-90	-9	
Quoniam Asset Management GmbH 1)	Frankfurt am Main	97.60	100.00	22,989	1,928	
Quoniam Funds Selection SICAV - Equities Climate Transformation EUR A dis 1)	Senningerberg, Luxembourg	-		n/a	n/a	
Quoniam Funds Selection SICAV - Equities Climate Transformation EUR I acc 1)	Senningerberg, Luxembourg	-		n/a	n/a	
R+V AIFM S.à.r.l. 1)	Munsbach, Luxembourg	100.00		1,703	699	*
R+V Allgemeine Versicherung Aktiengesellschaft 1) 4)	Wiesbaden	95.00		1,024,175	-	
R+V Deutschland Real (RDR) 1)	Hamburg	-		n/a	n/a	
R+V Dienstleistungs GmbH 1)	Wiesbaden	100.00		781	65	
R+V Direktversicherung AG 1) 4)	Wiesbaden	100.00		13,320	-	
R+V INTERNATIONAL BUSINESS SERVICES Ltd., Dublin 1)	Dublin, Ireland	100.00		n/a	n/a	
R+V KOMPOSIT Holding GmbH 1) 4)	Wiesbaden	100.00		2,080,863	-	
R+V Krankenversicherung AG 1)	Wiesbaden	100.00		177,485	24,000	
R+V Lebensversicherung Aktiengesellschaft 1)	Wiesbaden	100.00		1,206,933	-	
R+V Mannheim P2 GmbH 1)	Wiesbaden	94.00		57,065	1,578	
R+V Pensionsfonds AG 1)	Wiesbaden	100.00		39,803	1,000	
R+V Pensionskasse AG 1)	Wiesbaden	100.00		123,578	-13,900	
R+V Personen Holding GmbH 1)	Wiesbaden	100.00		1,197,855	37,429	
R+V Rechtsschutz-Schadenregulierungs-GmbH 1)	Wiesbaden	100.00		363	86	
R+V Service Center GmbH 1) 4)	Wiesbaden	100.00		2,869	-	
R+V Service Holding GmbH 1) 4)	Wiesbaden	100.00		221,733	-	
R+V Treuhand GmbH 1)	Wiesbaden	100.00		1,650	1,489	
R+V Versicherung AG 4)	Wiesbaden	92.31		2,397,253	-	
RC II S.a.r.l. 1)	Munsbach, Luxembourg	90.00		8,982	124	**
REDOS Einzelhandel Deutschland IV 1)	Hamburg	-		n/a	n/a	
Reisebank AG 4)	Frankfurt am Main	100.00		19,267	-	
RUV Agenturberatungs GmbH 1)	Wiesbaden	100.00		435	174	
RV AIP S.C.S. SICAV-SIF 1)	Luxembourg, Luxembourg	99.00		10	-	*
RV AIP S.C.S. SICAV-SIF - RV TF 2 Infra Debt 1)	Luxembourg, Luxembourg	97.55		571,708	12,950	*
RV AIP S.C.S. SICAV-SIF – RV TF 6 Infra Debt II 1)	Luxembourg, Luxembourg	94.40		257,079	4,902	*
RV AIP S.C.S. SICAV-SIF – RV TF 7 Private Equity 1)	Luxembourg, Luxembourg	99.01		69,513	-1,418	*
RV AIP S.C.S. SICAV-SIF - RV TF Acquisition Financing 1)	Luxembourg, Luxembourg	98.67		267,377	8,019	*
RV AIP S.C.S. SICAV-SIF – TF 3 Primaries 1)	Luxembourg, Luxembourg	99.25		28,139	-2,244	*
RV AIP S.C.S. SICAV-SIF – TF 4 Secondaries 1)	Luxembourg, Luxembourg	99.25		30,292	25	*
RV AIP S.C.S. SICAV-SIF – TF 5 Co-Investments 1)	Luxembourg, Luxembourg	99.25		82,245	-575	*
RV Securitisation I S.à.r.l. 1)	Senningerberg, Luxembourg	100.00		12	-	*
RV Securitisation I S.à.r.l. - Aviation Opportunities I 1)	Senningerberg, Luxembourg	-		12	-	*
RVL Grundstücks GmbH & Co. KG 1)	Wiesbaden	100.00		401,572	8,562	
RVL Grundstücksverwaltung GmbH 1)	Wiesbaden	100.00		24	-	
Schwäbisch Hall Facility Management GmbH - Gebäude und mehr - 1)	Schwäbisch Hall	100.00		3,684	-645	
Schwäbisch Hall Kreditservice GmbH 1) 4)	Schwäbisch Hall	100.00		18,775	-	
Schwäbisch Hall Transformation GmbH 1)	Schwäbisch Hall	100.00		2,423	-764	
Schwäbisch Hall Wohnen GmbH 1)	Schwäbisch Hall	100.00		899	-526	
Sprint Italia S.r.l. 1)	Bolzano, Italy	51.00		-75	-336	*
Sprint Sanierung GmbH 1)	Cologne	100.00		20,588	-6,167	*
STARTRAIFF GmbH 1)	Wiesbaden	100.00		1,643	1,438	
Taiping Fontainburg DVB Aviation Capital L.P. i.L.	Grand Cayman, Cayman Islands	-		117,889	11,540	*
TeamBank AG Nürnberg 2) 4)	Nuremberg	92.62		439,699	-	
UI Infrastruktur Management SARL 1)	Senningerberg, Luxembourg	100.00		45	8	*
UI Management S.à r.l. 1)	Senningerberg, Luxembourg	100.00		16	1	*

SUBSIDIARIES

Name	Location	Shareholding	Voting rights, if different	Equity in € '000	Profit/loss in € '000	
UI Private Debt Management S.à r.l. 1)	Senningerberg, Luxembourg	100.00		12	-	*
UI Vario: 2 issued by Union Investment Luxembourg S.A. 1)	Senningerberg, Luxembourg	-		n/a	n/a	
UII Anzinger Strasse 29 Verwaltung LP GmbH 1)	Hamburg	100.00		41	15	*
UII Issy 3 Moulins SARL 1)	Paris, France	100.00		1	-6	*
UII MS Immobilien GP GmbH 1)	Hamburg	100.00		30	4	*
UII MS Immobilien Verwaltung LP GmbH 1)	Hamburg	100.00		40	13	*
UII PSD KN ImmoInvest GP GmbH 1)	Hamburg	100.00		135	26	*
UII SCE Management GP GmbH 1)	Hamburg	100.00		92	14	*
UII Verwaltungsgesellschaft mbH 1)	Hamburg	100.00		23	2	*
UIN Union Investment Institutional Fonds Nr. 1039 1)	Frankfurt am Main	-		n/a	n/a	
UIN Union Investment Institutional Fonds Nr. 1041 1)	Frankfurt am Main	-		n/a	n/a	
UIN Union Investment Institutional Fonds Nr. 1059 1)	Frankfurt am Main	-		n/a	n/a	
UIN Union Investment Institutional Fonds Nr. 560 1)	Frankfurt am Main	-		n/a	n/a	
UIN Union Investment Institutional Fonds Nr. 578 1)	Frankfurt am Main	-		n/a	n/a	
UIN Union Investment Institutional Fonds Nr. 635 1)	Frankfurt am Main	-		n/a	n/a	
UIN Union Investment Institutional Fonds Nr. 670 1)	Frankfurt am Main	-		n/a	n/a	
UIN Union Investment Institutional Fonds Nr. 715 1)	Frankfurt am Main	-		n/a	n/a	
UIN Union Investment Institutional Fonds Nr. 716 1)	Frankfurt am Main	-		n/a	n/a	
UIN Union Investment Institutional Fonds Nr. 772 1)	Frankfurt am Main	-		n/a	n/a	
UIN Union Investment Institutional Fonds Nr. 817 1)	Frankfurt am Main	-		3,282,176	-2,175	**
UIN Union Investment Institutional Fonds Nr. 825 1)	Frankfurt am Main	-		n/a	n/a	
UIN Union Investment Institutional Fonds Nr. 833 1)	Frankfurt am Main	-		n/a	n/a	
UIN Union Investment Institutional Fonds Nr. 834 1)	Frankfurt am Main	-		n/a	n/a	
UIN Union Investment Institutional Fonds Nr. 839 1)	Frankfurt am Main	-		n/a	n/a	
UIN Union Investment Institutional Fonds Nr. 913 1)	Frankfurt am Main	-		n/a	n/a	
UIN-Fonds Nr. 1086 1)	Frankfurt am Main	-		n/a	n/a	
UIR Verwaltungsgesellschaft mbH 1)	Hamburg	100.00		85	-6	*
UIW Austria Verwaltungs GmbH 1)	Erlangen	100.00		23	-	*
UMB Unternehmens-Managementberatungs GmbH 1)	Wiesbaden	100.00		6,026	2,273	
UniInstitutional Multi Asset Nachhaltig 1)	Senningerberg, Luxembourg	-		n/a	n/a	
UniMultiAsset: Chance IV Nachhaltig 1)	Frankfurt am Main	-		n/a	n/a	
UniNachhaltig Aktien Dividende A 1)	Senningerberg, Luxembourg	-		n/a	n/a	
UniNachhaltig Aktien Dividende -net- 1)	Senningerberg, Luxembourg	-		n/a	n/a	
Union Asset Management Holding AG 2)	Frankfurt am Main	96.59		1,934,633	490,707	
Union Investment Austria GmbH 1)	Vienna, Austria	100.00		18,213	1,223	
Union Investment Institutional GmbH 1)	Frankfurt am Main	100.00		103,970	-	
Union Investment Institutional Property GmbH 1)	Hamburg	90.00		45,451	11,768	
Union Investment Luxembourg S.A. 1)	Senningerberg, Luxembourg	100.00		469,228	124,885	
Union Investment Privatfonds GmbH 1)	Frankfurt am Main	100.00		980,942	-	
Union Investment Real Estate Asia Pacific Pte. Ltd. 1)	Singapore, Singapore	100.00		782	-160	*
Union Investment Real Estate Austria AG 1)	Vienna, Austria	94.50		9,191	2,081	
Union Investment Real Estate Digital GmbH 1) 5)	Hamburg	100.00		10,225	-	
Union Investment Real Estate France SAS 1)	Paris, France	100.00		3,188	1,230	*
Union Investment Real Estate GmbH 2)	Hamburg	94.50		203,974	69,485	
Union Investment Service Bank AG 1)	Frankfurt am Main	100.00		123,115	-	
Union IT-Services GmbH 1) 5)	Frankfurt am Main	100.00		6,019	908	
Union Service-Gesellschaft mbH 1) 5)	Frankfurt am Main	100.00		12,917	1,762	
Unterstützungskasse der Condor Versicherungsgesellschaften GmbH 1)	Hamburg	66.67		26	-	
URA Verwaltung GmbH 1)	Vienna, Austria	100.00		32	-5	*
VisualVest GmbH 1)	Frankfurt am Main	100.00		28,525	-	
VR Consultingpartner GmbH 1)	Frankfurt am Main	100.00		1,078	-	
VR Equity Gesellschaft für regionale Entwicklung in Bayern mbH 1)	Frankfurt am Main	100.00		5,201	19	*
VR Equitypartner Beteiligungskapital GmbH & Co. KG UBG 2)	Frankfurt am Main	100.00		44,501	25,712	
VR Equitypartner GmbH 4)	Frankfurt am Main	100.00		69,070	-	
VR Factoring GmbH 4)	Eschborn	100.00		54,385	-	
VR GbR 2)	Frankfurt am Main	100.00		217,144	72,177	
VR HYP GmbH 1)	Hamburg	100.00		25	-	
VR Kreditservice GmbH 1) 4)	Hamburg	100.00		25	-	
VR Makler GmbH 1)	Hannover	100.00		406	-1,221	*
VR Mittelstandskapital Unternehmensbeteiligungs GmbH 2)	Düsseldorf	100.00		8,012	157	*
VR Payment GmbH	Frankfurt am Main	90.00		61,146	1,400	
VR Real Estate GmbH 1)	Hamburg	100.00		25	-	
VR Smart Finanz AG 4)	Eschborn	100.00		211,070	-	
VR Smart Finanz Bank GmbH 1) 4)	Eschborn	100.00		250,147	-	
VR Smart Finanz Beteiligungs GmbH 1)	Eschborn	100.00		99,925	1,288	
VR Smart Guide GmbH 1)	Eschborn	100.00		1,135	-4,647	*
VR WERT Gesellschaft für Immobilienbewertung mbH 1) 4)	Hamburg	100.00		100	-	

SUBSIDIARIES

Name	Location	Shareholding	Voting rights, if different	Equity in € '000	Profit/loss in € '000	
WBS Wohnwirtschaftliche Baubetreuungs- und Servicegesellschaft mbH 1)	Stuttgart	94.90		26,308	2,430	*
ZBI Beteiligungs GmbH 1)	Erlangen	100.00		23	-2	*
ZBI Fondsmanagement GmbH 1)	Erlangen	100.00		8,133	-	
ZBI Fondsverwaltungs GmbH 1)	Erlangen	100.00		247	17	*
ZBI GmbH 1)	Erlangen	94.90		4,877	-9,786	
ZBI Immobilienmanagement GmbH 1)	Erlangen	100.00		11,913	-	
ZBI Professional Fondsverwaltungs GmbH 1)	Erlangen	100.00		244	36	*
ZBI Regiofonds Wohnen GF GmbH 1)	Erlangen	100.00		7	-	*
ZBI Regiofonds Wohnen GmbH 1)	Erlangen	100.00		17	1	*
ZBI Vorsorge - Plan Wohnen GF GmbH 1)	Erlangen	100.00		23	1	*
ZBI Vorsorge - Plan Wohnen GmbH 1)	Erlangen	100.00		22	1	*
ZBI Wohnen Plus Verwaltungs GmbH 1)	Erlangen	100.00		21	-	*
ZBI WohnWert Verwaltungs GmbH 1)	Erlangen	100.00		15	-	*
ZBVV - Zentral Boden Vermietung und Verwaltung GmbH 1)	Erlangen	100.00		6,061	-	

JOINT VENTURES

Name	Location	Shareholding	Voting rights, if different	Equity in € '000	Profit/loss in € '000	
BAU + HAUS Management GmbH 1)	Wiesbaden	50.00		8,575	916	
BEA Union Investment Management Limited 1)	Hong Kong, Hong Kong	49.00		59,282	5,808	*
Deutsche WertpapierService Bank AG	Frankfurt am Main	50.00		335,363	50,476	
DZ BANK Galerie im Städel Kunstverwaltungsgesellschaft mbH	Frankfurt am Main	50.00		16	-3	*
Norafin Verwaltungs GmbH 1)	Mildenau	44.72	46.81	27,736	1,955	*
PolarXpress SCS 1)	Wasserbillig, Luxembourg	58.82		79,349	-5,902	*
Prvá stavebná sporitel'na, a.s. 1)	Bratislava, Slovakia	32.50		311,848	20,798	
R+V Kureck Immobilien GmbH Grundstücksverwaltung Braunschweig i.L. 1)	Wiesbaden	50.00		640	523	
Trustlog GmbH 1)	Hamburg	50.00		7,549	-2,326	*
Versicherungs-Vermittlungsgesellschaft des Sächsischen Landesbauernverbandes mbH 1)	Dresden	50.00		217	4	*
Versicherungs-Vermittlungsgesellschaft mbH des Bauernverbandes Mecklenburg-Vorpommern e.V. (VVB) 1)	Neubrandenburg	50.00		344	64	*
Versicherungs-Vermittlungsgesellschaft mbH des Landesbauernverbandes Brandenburg (VVB) 1)	Teltow	50.00		34	4	*
Versicherungs-Vermittlungsgesellschaft mbH des Landesbauernverbandes Sachsen-Anhalt e.V. (VVB) 1)	Magdeburg	50.00		75	4	*
Zhong De Zuh Fang Chu Xu Yin Hang (Sino-German-Bausparkasse) Ltd. 1)	Tianjin, China	24.90		388,493	10,245	

ASSOCIATES

Name	Location	Shareholding	Voting rights, if different	Equity in € '000	Profit/loss in € '000	
adorsys GmbH & Co. KG 1)	Nuremberg	25.89		2,616	1,230	*
adorsys Verwaltungs GmbH 1)	Nuremberg	25.90		31	1	*
aku.beteiligung GmbH 1)	Aalen	46.04		6,758	-953	*
Bankenkonsortium der Zenit GmbH, GbR	Düsseldorf	33.30		153	-	*
bbv-service Versicherungsmakler GmbH 1)	Munich	25.20		2,436	414	*
Berlin-AI Management S.à r.l. 1)	Senningerberg, Luxembourg	20.00		10	3	
Blitz SKB GmbH 1)	Giessen	41.76		36,687	-2,425	*
Bookwire Holding GmbH 1)	Frankfurt am Main	49.00		1,898	-452	*
Cygna Labs Group GmbH 1)	Heilbronn	26.03		11,792	-3,593	*
DeSign Verbund GmbH 1)	Hochstadt am Main	49.80		2,540	1,020	*
DITTRICH + CO Holding GmbH 1)	Frankfurt am Main	49.85		9,932	-17	*
Dr. Förster Holding GmbH i.L. 1)	Neu-Isenburg	20.06		-	-2,604	*
European Convenience Food GmbH 1)	Garrel	41.16	41.52	19,479	1,280	*
GBS Beteiligungsgesellschaft mbH 1)	Bayreuth	42.33		7,812	486	**
GHM MPP Reserve GmbH 1)	Remscheid	50.00		983	620	*
GHM MPP Verwaltungs GmbH 1)	Remscheid	50.00		263	-19	*
Glas Strack Holding GmbH 1)	Bochum	51.06	49.90	9,203	13	*
Goldeck Zetti Beteiligungsgesellschaft mbH 1)	Leipzig	39.23		35,310	1,159	*
Impleco GmbH 1)	Berlin	50.00		4,461	-2,415	
Informatik Consulting Systems Holding GmbH 1)	Stuttgart	49.83	49.43	8,943	288	*
Interni Erwerbsgesellschaft mbH 1)	Düsseldorf	49.90		n/a	n/a	
Kapitalbeteiligungsgesellschaft für die mittelständische Wirtschaft in Nordrhein-Westfalen mbH - KBG -	Neuss	23.60		5,952	286	*
KTP Holding GmbH 1)	Bous	37.36		48,753	3,539	*
Kunststoffpartner Verwaltung GmbH 1)	Villingen-Schwenningen	49.00		-	-	*
paydirekt GmbH	Frankfurt am Main	33.33		25,348	1,274	*
payfree GmbH 1)	Düsseldorf	60.00		5,454	-1,544	*
Pesca Management GmbH 1)	Munich	49.30		13,311	-80	*
Solectrix Holding GmbH 1)	Fürth	49.90		11,949	1,525	*
Treuhand- und Finanzierungsgesellschaft für Wohnungs- und Bauwirtschaft mit beschränkter Haftung. Treufinanz	Düsseldorf	33.14		1,274	-160	*
Votronic Elektronik-Systeme GmbH 1)	Lauterbach	49.80		7,162	2,450	*
VR Unternehmerkapital GmbH 1)	Frankfurt am Main	49.00		n/a	n/a	
Weisshaar Holding GmbH 1)	Deisslingen	84.94	49.92	-	-	**
Zimmer & Hälbig Holding GmbH 1)	Bielefeld	50.29	49.90	19,414	-1,198	*

SHAREHOLDINGS OF 20% OR MORE

Name	Location	Shareholding	Voting rights, if different	Equity in € '000	Profit/loss in € '000	
amberra GmbH 2)	Berlin	20.00		15,998	-2	*
Assiconf S.r.l. 1)	Turin, Italy	20.00		88	2	**
Burghofspiele GmbH 1)	Eltville	20.00		-	-21	**
Kreditgarantiegemeinschaft in Baden-Württemberg Verwaltungs-GmbH	Stuttgart	20.00		1,023	-	*
Finatem II GmbH & Co. KG 1)	Frankfurt am Main	20.20		1,299	-347	*
Cheyne Real Estate Credit (CRECH) Fund IV Loans SCS SICAV-SIF 1)	Luxembourg, Luxembourg	20.83		236,025	25,839	*
Cheyne Real Estate Credit Holdings VII 1)	Luxembourg, Luxembourg	21.56		830,757	61,731	*
TF H IV Technologiefonds Hessen GmbH & Co. KG	Wiesbaden	21.74		n/a	n/a	
Bürgschaftsbank Thüringen GmbH	Erfurt	22.13		27,696	172	*
TXS GmbH 1)	Hamburg	24.50		1,236	308	*
VBI Beteiligungs GmbH 1)	Vienna, Austria	24.50		799	-33	*
ICG Infrastructure Equity Fund I SCSp 1)	Senningerberg, Luxembourg	24.54		269,775	32,174	*
TF H III Technologiefonds Hessen Gesellschaft mit beschränkter Haftung	Wiesbaden	25.00		7,124	532	*
VAD Beteiligungen GmbH	Berlin	25.16		29,651	-156	*
Bürgschaftsbank Brandenburg GmbH	Potsdam	25.31		36,769	2,563	*
GENOPACE GmbH 1) 5)	Berlin	27.49		200	-	*
Global Infrastructure Partners III-C2, L.P. 1)	New York, USA	27.97		554,338	72,881	*
GIP CAPS II Feeder Fund AIV 2, L.P. 1)	Wilmington, USA	27.99		n/a	n/a	
Bürgschaftsbank Sachsen-Anhalt GmbH	Magdeburg	29.73		17,216	216	*
Schroder Property Services B.V. S.à.r.l. 1)	Senningerberg, Luxembourg	30.00		282	-28	*
Credit Suisse Global Infrastructure SCA SICAR 1)	Luxembourg, Luxembourg	30.09		8,612	-100	**
Bürgschaftsbank Mecklenburg-Vorpommern GmbH	Schwerin	30.38		17,504	153	*
FREUNDE DER EINTRACHT FRANKFURT Aktiengesellschaft	Frankfurt am Main	32.05	19.84	7,643	-2	*
Swiss Life Health Care III SICAV-FIS 1)	Luxembourg, Luxembourg	33.33		181,325	11,569	*
TF H Technologie-Finanzierungsfonds Hessen Gesellschaft mit beschränkter Haftung (TF H GmbH) i.L.	Wiesbaden	33.33		481	-25	*
Technology DZ Venture Capital Fund I GmbH & Co. KG i.L. 1)	Munich	34.33		8,224	-70	*
MB Asia Real Estate Feeder (Scot.) L.P. 1)	Edinburgh, UK	34.80		746	-138	*
Global Energy & Power Infrastructure Fund III E, SCSp 1)	Luxembourg, Luxembourg	35.34		195,777	3,697	*
Ares Infrastructure Debt Fund IV (EUR), L.P. 1)	Luxembourg, Luxembourg	39.84		456,786	35,469	*
Swiss Life ESG Health Care Germany V S.C.S., SICAV-SIF 1)	Luxembourg, Luxembourg	41.33		518,090	-7,488	*
VR-NetWorld GmbH 2)	Bonn	43.48		7,316	614	*
Swiss Life Health Care IV SICAV-FIS 1)	Luxembourg, Luxembourg	46.51		130,899	9,482	*
CMMT Partners L.P. 1)	Camden, USA	47.07		1,061,553	42,377	*
TRUUCO GmbH 2)	Frankfurt am Main	49.00		5,646	-4	*
Macquarie Asia Infrastructure Fund 2 SCSp 1)	Luxembourg, Luxembourg	50.48		337,453	24,065	*
EIG Global Project Fund V-A, L.P. 1)	Wilmington, USA	51.28		294,079	14,853	*
Tishman Speyer European Real Estate Venture VIII Parallel SCSp 1)	Luxembourg, Luxembourg	55.88		221,813	-4,598	*
DigitalBridge II Foreign Feeder-MV, SCSp 1)	Luxembourg, Luxembourg	68.10		7,359,397	-102,983	*
Ares Infrastructure Debt Fund V (EUR), L.P. 1)	Luxembourg, Luxembourg	68.14		363,769	12,853	*
BREDS IV Aggregator SCSp 1)	Luxembourg, Luxembourg	90.91		156,252	11,764	*
KKR Global Impact Fund II EEA Feeder SCSp 1)	Luxembourg, Luxembourg	95.33		694	-1,542	*
KKR North America Fund XIII EEA Feeder SCSp 1)	Luxembourg, Luxembourg	95.43		45,220	-332	*
Medico 12 GmbH & Co. KG 1)	Frankfurt am Main	99.98		13	-38	*
GTIS Brazil II S-Feeder LP 1)	Edinburgh, UK	100.00		274,692	26,968	*
Macquarie Asia Infrastructure Fund EU Feeder L.P. 1)	London, UK	100.00		72,154	6,147	*
RV-CVIII Holdings, LLC 1)	Camden, USA	100.00		-794	-12,196	*
Tishman Speyer Brazil Feeder (Scots/D), L.P. 1)	Edinburgh, UK	100.00		18,284	-8,620	*

MORE THAN 5% OF VOTING RIGHTS (LARGE CORPORATIONS)

Name	Location	Shareholding	Voting rights, if different	Equity in € '000	Profit/loss in € '000	
Raiffeisendruckerei GmbH 1)	Neuwied	7.88		34,773	694	*

SHAREHOLDINGS OF LESS THAN 20%

Name	Location	Shareholding	Voting rights, if different	Equity in € '000	Profit/loss in € '000	
Berliner Volksbank eG 1)	Berlin	-	0.10	1,177,230	28,892	*
Immo Feest en Cultuurpaleis Oostende SA 1)	Brussels, Belgium	-		14,977	-552	*
K in Kortrijk S.A. 1)	Brussels, Belgium	-		82,598	-5,668	*
Konsortium der Absatzfinanzierungsinstitute plettac-assco GbR	Wuppertal	-	7.08	n/a	n/a	***
Les Grands Pres S.A. 1)	Brussels-Zaventem, Belgium	-	0.11	52,450	5,737	*
Opción Jamantab S. A. DE C. V. 1)	Mexico City, Mexico	-		13,830	-362	*
UIR Le Président 1 1)	Brussels-Zaventem, Belgium	-	0.06	12,712	-2,228	*
UIR MU III S.A. de C.V. 1)	Mexico City, Mexico	-		10,239	-488	*
Visa Inc.	San Francisco, USA	-		33,321,783	11,380,408	*
VR-Bank Heilbronn Schwäbisch Hall eG 1)	Schwäbisch Hall	-	0.01	278,082	6,820	*
Royale 120 S.A. 1)	Brussels-Zaventem, Belgium	0.01		45,054	226	*
UII Anzinger Strasse 29 GmbH & Co. KG 1)	Hamburg	0.01		n/a	n/a	
GBK Holding GmbH & Co. KG 1)	Kassel	0.02		462,993	13,126	*
Akademie Badischer Volksbanken und Raiffeisenbanken GmbH 1)	Karlsruhe	0.03		9,255	231	*
Société de la Bourse de Luxembourg S.A. 1)	Senningerberg, Luxembourg	0.04		291,817	170,003	*
Munster S.A. 1)	Senningerberg, Luxembourg	0.07		1,673	-191	*
Strategie Invest SICAV 1)	Zurich, Switzerland	0.07		250	-	*
Ufficio Centrale Italiano di Assistenza Assicurativa Automobilisti in Circolazione Internazionale -U.C.I. Societe consortie a R.L. 1)	Milan, Italy	0.09		1,330	16	**
FIDUCIA Mailing Services eG 2)	Karlsruhe	0.13		70	-	*
UIR Belgique 1 S.A. 1)	Brussels, Belgium	0.13		68,705	2,184	*
SGB-Bank Spólka Akcyjna	Poznań, Poland	0.19		206,706	4,937	*
S.W.I.F.T. Society for Worldwide International Financial Telecom-munication 2)	La Hulpe, Belgium	0.25		627,234	31,623	*
AKA Ausfuhrkredit-Gesellschaft mit beschränkter Haftung	Frankfurt am Main	0.31		283,796	10,195	*
Atruvia AG 2)	Frankfurt am Main	0.35		448,074	7,592	*
WESTFLEISCH Finanz AG 1)	Münster	0.36		51,360	1,406	*
Assicoop-Assicurazioni Cooperative S.r.l. 1)	Catania, Italy	0.41		n/a	n/a	
Kunststiftung Baden-Württemberg GmbH 1)	Stuttgart	0.50		-	-	**
Anlegerentschädigung von Wertpapierfirmen GmbH 1)	Vienna, Austria	0.57	1.61	70	-	*
North Haven Infrastructure Partners III SCSp 1)	Luxembourg, Luxembourg	0.61		1,058,774	-2,784	*
CLS Group Holdings AG	Lucerne, Switzerland	0.69		370,826	15,141	*
Sana Kliniken AG 1)	Ismaning	0.69		1,017,094	66,685	**
ZBI Vorsorge-Plan Wohnen 1 GmbH & Co. KG 1)	Erlangen	0.75		2,318	112	*
Bank Polskiej Spoldzielczosci Spolka Akcyjna	Warsaw, Poland	0.91		177,826	-8,101	*
Schulze-Delitzsch-Haus, eingetragene Genossenschaft 1)	Bonn	0.97		1,862	174	*
Münchener Hypothekenbank eG 2)	Munich	0.99		1,722,435	68,086	*
ZG Raiffeisen eG	Karlsruhe	1.01	0.02	69,760	4,683	*
Beteiligungs-Aktiengesellschaft der bayerischen Volksbanken 1)	Pöcking	1.14		233,359	8,644	*
DG Nexolution eG 2)	Wiesbaden	1.58		69,477	2,868	*
Blackstone Real Estate Partners Europe III L.P. 1)	New York, USA	1.62		248,091	-23,489	*
DUCAH - Digital Urban Center for Aging and Health eG i.Gr. 1)	Berlin	1.66		n/a	n/a	
Bayerische Raiffeisen-Beteiligungs-Aktiengesellschaft 2)	Beilngries	1.85		866,827	39,199	*
Grand Hotel Heiligendamm GmbH & Co. KG Fundus Fonds Nr. 34 1)	Vettweiss-Disternich	1.90		-	-	*
ABE Clearing S.A.S a Capital Variable	Paris, France	2.08		46,639	3,998	*
Raiffeisen Waren-Zentrale Rhein-Main AG 2)	Cologne	2.23		153,054	24,220	*
Partners Group Global Mezzanine 2007 S.C.A., SICAR 1)	Luxembourg, Luxembourg	2.24		1,558	328	*
heal.capital I GmbH & Co. KG 1)	Berlin	2.33		36,143	-3,691	*
GAD Beteiligungs GmbH & Co. KG 2)	Münster	2.49		119,597	3,023	*
Saarländische Wagnisfinanzierungsgesellschaft mbH	Saarbrücken	2.59		7,602	-1,007	*
WRW Wohnungswirtschaftliche Treuhand Rheinland-Westfalen Gesellschaft mit beschränkter Haftung i.L.	Düsseldorf	2.73		n/a	n/a	
GDV Dienstleistungs-GmbH 1)	Hamburg	2.82		n/a	n/a	
North Haven Infrastructure Partners III Feeder A L.P. 1)	Kitchener, Canada	3.05		893,666	-5,606	*
CASSA CENTRALE BANCA - CREDITO COOPERATIVO ITALIANO S.P.A.	Trento, Italy	3.69		1,168,319	44,660	*
DI Rathaus-Center Pankow Nr.35 KG 1)	Düren	3.86		27,574	2,303	**
GMS Mitarbeiter Beteiligungsgesellschaft UG & Co.KG 1)	Paderborn	4.00		963	-5	*
Cash Logistik Security AG	Düsseldorf	4.10		5,186	2,155	*
Macquarie European Infrastructure Fund 6 SCSp 1)	Luxembourg, Luxembourg	4.15		6,342,628	305,859	*
Technologiezentrum Schwäbisch Hall GmbH 1)	Schwäbisch Hall	4.17	5.56	622	44	*
MED Platform II S.L.P. 1)	Lyon, France	4.32		203,718	-	*
Euro Capital S.A.S. 1)	Metz, France	4.44		31,462	635	*
Süddeutsche Zuckerrübenverwertungs-Genossenschaft eG	Ochsenfurt	4.44	4.55	252,195	23,915	
Die Familiengenossenschaft eG 1)	Mannheim	4.71		20	-8	*
Kreditgarantiegemeinschaft der Freien Berufe Baden-Württemberg Verwaltungs GmbH	Stuttgart	4.76		153	-	*
Bürgschaftsbank Bremen GmbH	Bremen	4.86		8,724	148	*
EXTREMUS Versicherungs-Aktiengesellschaft 1)	Cologne	5.00		61,746	-1,719	*

SHAREHOLDINGS OF LESS THAN 20%

Name	Location	Shareholding	Voting rights, if different	Equity in € '000	Profit/loss in € '000	
assistance partner GmbH & Co. KG 1)	Munich	5.01		1,248	248	**
DG IMMOBILIEN MANAGEMENT Gesellschaft mbH	Frankfurt am Main	5.01		20,646	878	*
Protektor Lebensversicherungs-AG 1)	Berlin	5.27		7,856	2	*
Macquarie European Infrastructure Fund 4 L.P. 1)	St. Peter Port, Guernsey	5.70		1,124,376	372,765	*
Copenhagen Infrastructure III K/S 1)	Copenhagen, Denmark	5.94		348,416	34,464	**
IVS Immobilien GmbH 1)	Schiffweiler	6.00		26	-	*
VR-IMMOBILIEN-LEASING GmbH 1)	Eschborn	6.00		10,292	8,398	*
Copenhagen Infrastructure III-A K/S 1)	Copenhagen, Denmark	6.17		669,872	269,439	**
European Property Investors Special Opportunities, L.P. 1)	London, UK	6.35		8,330	-1,070	*
Bürgschaftsbank Hamburg GmbH	Hamburg	6.36		27,424	107	*
Global Renewable Power Infrastructure Fund III (C), SCSp 1)	Luxembourg, Luxembourg	6.40		1,162,802	-24,574	*
EPI Company SE	Brussels, Belgium	6.49		64,094	-15,634	*
Partners Group Direct Equity IV (EUR) S.C.A., SICAV-RAIF 1)	Luxembourg, Luxembourg	6.84		1,959,620	-23,113	*
Interessengemeinschaft Frankfurter Kreditinstitute GmbH	Frankfurt am Main	7.01		23,660	7,978	*
Copenhagen Infrastructure IV K/S 1)	Copenhagen, Denmark	7.15		459,636	70,012	**
Kreditgarantiegemeinschaft für den Handel in Bayern GmbH	Munich	7.19		6,317	-	*
Gründerfonds Ruhr GmbH & Co. KG 1)	Essen	7.25		15,890	-611	*
Crown Secondaries Special Opportunities II S.C.S. 1)	Luxembourg, Luxembourg	7.66		1,279,628	145,976	*
Blackrock Renewable Income Europe Fund 1)	Dublin, Ireland	7.69		674,927	114,807	*
True Sale International GmbH	Frankfurt am Main	7.69		4,672	136	*
Raiffeisen-Kassel A-Beteiligungs GmbH & Co. KG	Kassel	8.22		-	296	*
Raiffeisen-Kassel B-Beteiligungs GmbH & Co. KG	Kassel	8.22		-	296	*
EDEKABANK Aktiengesellschaft	Hamburg	8.35		169,857	7,537	*
PANELLINIA BANK SOCIETE ANONYME (under special liquidation)	Athens, Greece	8.42	5.28	-	-	**
Copenhagen Infrastructure Energy Transition Fund I K/S 1)	Copenhagen, Denmark	8.81		669,872	269,439	**
Mittelständische Beteiligungsgesellschaft Berlin-Brandenburg mbH	Potsdam	8.89		26,407	1,061	*
BLHV Versicherungs-Service GmbH 1)	Freiburg	9.00		338	158	*
Kreditgarantiegemeinschaft des bayerischen Gartenbaues GmbH	Munich	9.07		649	-	*
BayBG Bayerische Beteiligungsgesellschaft mbH	Munich	9.38		264,128	5,263	*
Mittelständische Beteiligungsgesellschaft Sachsen mbH	Dresden	9.38		49,636	189	*
Verimi GmbH	Berlin	9.56	10.17	5,940	-14,213	*
Kreditgarantiegemeinschaft des Hotel- und Gaststättengewerbes in Bayern GmbH	Munich	9.66		649	-	*
Blackstone Real Estate Partners International I.E. L.P. 1)	New York, USA	9.77		-26,468	30,572	**
Crown Secondaries Special Opportunities III Feeder SCSp 1)	Luxembourg, Luxembourg	9.78		n/a	n/a	
MBG Mittelständische Beteiligungsgesellschaft Rheinland-Pfalz mbH	Mainz	9.80	11.11	17,273	571	*
MBG Mittelständische Beteiligungsgesellschaft Baden-Württemberg Gesellschaft mit beschränkter Haftung	Stuttgart	9.94	8.33	99,598	7,387	*
KLV BAKO Vermittlungs-GmbH	Karlsruhe	10.00		268	8	*
MBG Mittelständische Beteiligungsgesellschaft Hamburg mbH	Hamburg	10.00		5,602	306	*
RPD Real Property Development GmbH 1)	Langenwang, Austria	10.00		1,434	221	*
Target Partners Capital GmbH & Co. KG 1)	Munich	10.00	10.01	273	-8	**
Teko - Technisches Kontor für Versicherungen Gesellschaft mit beschränkter Haftung 1)	Düsseldorf	10.00		144	34	*
VNT Automotive GmbH 1)	Langenwang, Austria	10.00		10,285	575	*
Kreditgarantiegemeinschaft des Handels Baden-Württemberg Verwaltungs-GmbH	Stuttgart	10.05		1,022	-	*
Kreditgarantiegemeinschaft des Handwerks Baden-Württemberg Verwaltungs-GmbH	Stuttgart	10.05		1,001	-	*
HANDWERKSBAU NIEDERRHEIN AKTIENGESELLSCHAFT	Düsseldorf	10.15		30,718	1,747	*
Mittelständische Beteiligungsgesellschaft Thüringen mbH	Erfurt	10.28		29,137	529	*
Architrave GmbH 1)	Berlin	10.42		3,401	-2,019	**
Curzon Capital Partners IV LP 1)	London, UK	10.73		140,553	15,155	*
GMB Systems GmbH & Co. KG 1)	Hamburg	10.75		n/a	n/a	
GIP Capital Solutions Feeder Fund II (EEA) 1)	Luxembourg, Luxembourg	10.97		171,078	15,973	*
Splash Investment GmbH 1)	Kerpen	10.98		133,559	-80,353	*
GIP CAPS II Finco, L.P. 1)	Wilmington, USA	11.36		n/a	n/a	
Bürgschaftsbank Schleswig-Holstein Gesellschaft mit beschränkter Haftung	Kiel	11.79		42,278	-	*
Curzon Capital Partners III LP 1)	London, UK	11.99		43,320	-12,772	*
Kredit-Garantiegemeinschaft des bayerischen Handwerks Gesellschaft mit beschränkter Haftung	Munich	12.00		4,846	-	*
Kreditgarantiegemeinschaft des Gartenbaues Baden-Württemberg Verwaltungs-GmbH	Stuttgart	12.00		138	-	*
Banco Cooperativo Español S.A.	Madrid, Spain	12.03		665,013	43,998	*
BGG Bayerische Garantiegesellschaft mit beschränkter Haftung für mittelständische Beteiligungen	Munich	13.15		62,542	883	*
Copenhagen Infrastructure III US AIV Non-QFPF Blocker K/S 1)	Copenhagen, Denmark	13.20		n/a	n/a	

SHAREHOLDINGS OF LESS THAN 20%

Name	Location	Shareholding	Voting rights, if different	Equity in € '000	Profit/loss in € '000	
ARDIAN Infrastructure Fund V B S.C.S., SICAV-RAIF 1)	Luxembourg, Luxembourg	13.58		1,162,157	147,243	*
GI Data Infrastructure Fund-A LP 1)	Wilmington, USA	13.60		1,108,876	-27,370	*
Hines European Value Fund SCSp 1)	Luxembourg, Luxembourg	13.87		639,315	25,391	*
EIG Energy Fund XVI (Scotland) L.P. 1)	Edinburgh, UK	14.02		394,807	22,820	*
Domus Beteiligungsgesellschaft der Privaten Bausparkassen mbH Berlin 1)	Berlin	14.13		26	-2	*
Bürgschaftsbank Rheinland-Pfalz GmbH	Mainz	14.31		17,626	270	*
MBG Mittelständische Beteiligungsgesellschaft Schleswig-Holstein mbH	Kiel	14.59	15.22	49,299	2,205	*
Bürgschaftsbank Sachsen GmbH	Dresden	14.66	16.59	44,936	500	*
AgroRisk Polska Spólka z ograniczona odpowiedzialnoscia 1)	Poznań, Poland	15.00		30	-75	*
GIP CAPS II Feeder Fund AIV 1, L.P. 1)	Wilmington, USA	15.00		n/a	n/a	
KLAAS MESSTECHNIK GmbH 1)	Seelze-Harenberg	15.00		61	20	**
CI IV US AIV Non-QFPF K/S 1)	Copenhagen, Denmark	15.24		115,022	-15,628	**
Kreditgarantiegemeinschaft der Industrie, des Verkehrsgewerbes und des Gastgewerbes Baden-Württemberg Verwaltungs-GmbH	Stuttgart	15.28		1,300	-	*
EIG Energy Fund XVII (Scotland) L.P. 1)	Edinburgh, UK	15.61		600	137	*
Prosa Beteiligungs GmbH & Co. KG 1)	Frankfurt am Main	15.63		28	-23	*
Bürgschaftsbank Nordrhein-Westfalen GmbH Kreditgarantiegemeinschaft	Neuss	15.75		41,490	1,205	*
Partners Group Direct Infrastructure III (EUR), L.P. S.C.Sp., SICAV-RAIF 1)	Luxembourg, Luxembourg	15.80		523,183	54,890	*
Bürgschaftsbank Hessen GmbH	Wiesbaden	15.87		24,716	967	*
Mittelständische Beteiligungsgesellschaft Mecklenburg-Vorpommern mbH	Schwerin	16.00		19,614	273	*
Deutsche Börse Commodities GmbH	Frankfurt am Main	16.20	14.48	11,276	7,797	*
Deutsche Bauernsiedlung - Deutsche Gesellschaft für Landentwicklung (DGL) mbH 1)	Frankfurt am Main	16.26		5,642	-222	*
MBG H Mittelständische Beteiligungsgesellschaft Hessen GmbH	Wiesbaden	16.26		11,649	12	*
AERS Consortio AG 1)	Stuttgart	16.50		114	-18	**
Copenhagen Infrastructure Energy Transition Fund I DK B K/S 1)	Copenhagen, Denmark	16.71		669,872	269,439	**
Copenhagen Infrastructure Energy Transition Fund I US Non-QFPF K/S 1)	Copenhagen, Denmark	17.09		n/a	n/a	
Global Infrastructure Partners IV-C2, L.P. 1)	Luxembourg, Luxembourg	17.17		2,303,373	148,270	*
GLADBACHER BANK Aktiengesellschaft von 1922	Mönchengladbach	17.53		39,879	1,498	*
Niedersächsische Bürgschaftsbank (NBB) Gesellschaft mit beschränkter Haftung	Hannover	17.68		35,022	2,328	*
RREEF Pan-European Infrastructure Feeder GmbH & Co. KG 1)	Eschborn	17.70		348,880	-116	**
EURO Kartensysteme GmbH	Frankfurt am Main	19.60		12,641	199	*
Mittelständische Beteiligungsgesellschaft Sachsen-Anhalt (MBG) mbH	Magdeburg	19.84		25,378	704	*
Mittelständische Beteiligungsgesellschaft Niedersachsen (MBG) mit beschränkter Haftung	Hannover	19.92		16,815	388	*
SCHUFA Holding AG 2)	Wiesbaden	19.93		157,165	50,866	*

1) Held indirectly.
2) Including shares held indirectly.
3) A letter of comfort exists.
4) Profit-and-loss transfer agreement with DZ BANK (direct or indirect).
5) Section 264 (3) HGB and section 264b HGB have been applied.
n/a = no figures available.
* Prior-year figures.
** Latest available financial statements before 2022
*** The company does not prepare financial statements / exemption

» 46 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, Düsseldorf
- Konsortium der Absatzfinanzierungsinstitute plettac-assco GbR, Wuppertal
- VR GbR, Frankfurt am Main

» 47 Events after the balance sheet date

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

Frankfurt am Main, February 27, 2024

DZ BANK AG
Deutsche Zentral-Genossenschaftsbank

The Board of Managing Directors

Fröhlich

Dr. Riese

Benkredda

Berghaus

Dr. Brauckmann

Brouzi

Koch

Speth

Ullrich

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, February 27, 2024

DZ BANK AG
Deutsche Zentral-Genossenschaftsbank

The Board of Managing Directors

Fröhlich   Dr. Riese

Benkredda   Berghaus   Dr. Brauckmann   Brouzi

Koch   Speth   Ullrich

Independent auditor's report[1]

To DZ BANK AG Deutsche Zentral-Genossenschaftsbank, Frankfurt am Main

Report on the audit of the annual financial statements and of the management report

Audit 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 2023, and the statement of profit and loss for the financial year from 1 January to 31 December 2023 and notes to the financial statements, including the presentation of the recognition and measurement policies. In addition, we have audited the management report of DZ BANK AG Deutsche Zentral-Genossenschaftsbank for the financial year from 1 January to 31 December 2023. In accordance with the German legal requirements, we have not audited the content of the statement on corporate governance pursuant to § [Article] 289f Abs. [paragraph] 4 HGB [Handelsgesetzbuch: German Commercial Code] (disclosures on the quota for women on executive boards).

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 and give a true and fair view of the assets, liabilities and financial position of the Company as at 31 December 2023 and of its financial performance for the financial year from 1 January to 31 December 2023 in compliance with German Legally Required Accounting Principles and
– the accompanying management report as a whole provides an appropriate view of the Company'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 audit opinion on the management report does not cover the content of the statement on corporate governance referred to above.

Pursuant to § 322 Abs. 3 Satz [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 Audit Opinions

We conducted our audit of the annual financial statements and of the management report in accordance with § 317 HGB and the EU Audit Regulation (No. 537/2014, referred to subsequently as "EU Audit Regulation") 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

[1] Translation of the auditor's report issued in German language on the annual financial statements prepared in German language by the management of DZ BANK AG Deutsche Zentral-Genossenschaftsbank. The German auditor's report is authoritative.

Financial Statements and of the Management Report" section of our auditor's report. We are independent of the Company 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 Article 10 (2) point (f) of the EU Audit Regulation, we declare that we have not provided non-audit services prohibited under Article 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 audit 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 judgment, were of most significance in our audit of the annual financial statements for the financial year from 1 January to 31 December 2023. These matters were addressed in the context of our audit of the annual financial statements as a whole, and in forming our audit opinion thereon; we do not provide a separate audit opinion on these matters.

In our view, the matters of most significance in our audit were as follows:

❶ Valuation of long-term equity investments and shares in affiliated companies

❷ Risk provisioning in the credit business

Our presentation of these key audit matters has been structured in each case as follows:

① Matter and issue

② Audit approach and findings

③ Reference to further information

Hereinafter we present the key audit matters:

❶ Valuation of long-term equity investments and shares in affiliated companies

① In the Company's annual financial statements, the balance sheet items "shares in affiliated companies" and "long-term equity investments" amount to € 10.395 million (2,78 % of total assets).

The valuation under commercial law of shares in affiliated companies and long-term equity investments is based on the lower of amortized cost or 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. The fair values are determined as the present values of the expected future cash flows based on the planning calculations prepared by the legal representatives using discounted cash flow models. This also takes into account expectations about future market developments and assumptions about the development of macroeconomic factors and their effects on the business activities of the affiliated companies and companies in which an equity investment is held. Discounting is based on the individually determined cost of capital of the respective financial asset. Based on the values determined and further documentation write-downs of € 91 million respectively resulted for the financial year.

The result of this valuation is highly dependent on how the legal representatives estimate the future cash flows, as well as on the discount rates and growth rates used in each case. The valuation is therefore subject to significant uncertainties, also against the background of the uncertain further development of the macroeconomic factors (in particular geopolitical risks, high inflation and the significant increase in interest rates). Against this background and due to the high complexity of the valuation and the material significance for the Company's financial position and results of operations, this matter was of particular importance in the context of our audit.

② As part of our audit, we assessed the appropriateness of the IT system and the design of the controls in the company's relevant internal control system and tested the effectiveness of the controls. In addition, we involved internal specialists with particular expertise in the field of business valuation and, among other things, the methodological approach to the valuation. In particular, we assessed whether the fair values of the material shares in affiliated companies and long-term equity investments were determined appropriately using discounted cash flow models in accordance with the relevant valuation standards. In doing so, we relied, among other things, on a comparison with general and industry-specific market expectations as well as on extensive explanations by the legal representatives on the significant value drivers underlying the expected cash flows. We also assessed the legal representatives' assessment of the impact of macroeconomic factors on the business activities of the affiliated companies and the companies in which equity investments are held, and took these into account when determining the expected cash flows. Knowing that even relatively small changes in the discount rate used can have a significant impact on the amount of the enterprise value determined in this way, we dealt intensively with the parameters used in determining the discount rate used and understood the calculation scheme.

In our opinion, the valuation parameters applied by the legal representatives and the underlying valuation assumptions, taking into account the available information, are overall suitable for the appropriate valuation of the shares in affiliated companies and long-term equity investments.

③ Information on the principles of valuation of shares in affiliated companies and long-term equity investments are included in the notes to the annual financial statements in section A, note 2. Information on the development of shares in affiliated companies and of long-term equity investments are included in section B, note 14, and the list of shareholdings in section D, note 45.

❷ Risk provisioning in the credit business

① In the annual financial statements of DZ BANK AG, loans and advances amounting to € 46.6 billion (12.4 % of the balance sheet total) are shown under the balance sheet item "Loans and advances to customers" and loans and advances amounting to € 251.1 billion (67.1 % of the balance sheet total) are shown under the balance sheet item "Loans and advances to banks". In addition, the off-balance sheet item comprises "contingent liabilities" in the amount of € 11.5 billion and "other obligations" in the amount of € 45.9 billion. As of 31 December 2023, there is an allowance for credit losses for the portfolio of loans consisting of specific and general loan loss provision and provisions for credit business. The measurement of risk provisioning in the credit business is determined in particular by the structure and quality of the loan portfolios, macroeconomic factors and the estimates of the legal representatives with regards to future loan defaults, also against the background of the further development of macroeconomic factors on the lending business. The amount of specific loan loss provisions corresponds to the difference between the outstanding loan amount and the lower value to be attributed to it on the reporting date. In doing so, the Bank applies a discounted cash flow method by forming at least two scenarios on the recoveries still expected from the loan exposure. Existing collateral is taken into account. General loan loss provisions are accounted for foreseeable counterparty risks in the lending business that have not yet been specified for individual borrowers. For this purpose, general loan loss provisions are recognized for loans that are not individually impaired in the amount of the expected loss for an observation period of twelve months, unless the credit default risk is significantly increased since initial recognition. In this case, a general loan loss provision is recognized for the foreseeable losses over the remaining term of the loan. To take into account economic developments due to the macroeconomic environment, the bank has updated the macroeconomic forecasts and made expert-based adjustments to the statistically determined shift factors.

The value adjustments and provisions in the credit business are, on the one hand, highly significant for the asset and result of the operations of the Company and, on the other hand, are associated with considerable scope for discretion on the part of the legal representatives with regards to the macroeconomic forecasts and shift factors used as well as the cash flows still expected from an individually impaired loan exposure. In addition, the valuation parameters applied, which are also subject to significant uncertainties due to the uncertain effects of the macroeconomic factors, have a significant influence on the recognition and the amount of any necessary value adjustments and provisions. Against this background, this matter was of particular importance in the context of our audit.

② As part of our audit, we first assessed the adequacy of the IT system for determining loan loss provisions and the design of the controls in the relevant internal control system of the Company and tested the effectiveness of the controls, in particular with regards to the collection of business data, the risk classification of borrowers, the determination of the risk provisioning and the validation of the valuation models. In addition, we assessed the valuation of loan receivables contingent liabilities and other obligations from the credit business, including the appropriate application of valuation methods and appropriateness of estimated values, on the basis of samples of loan exposures. In doing so, we evaluated, among other things, the available documentation of the Company with regards to the economic circumstances as well as the recoverability of the corresponding collateral. We also understood and assessed the legal representatives' assessment with regards to the effects of the macroeconomic factors and their consideration in the valuation of the loans and advances. With regards to the valuation of ship and wind power financing, with the involvement of our specialists for the valuation of ships and for renewable energies, we have traced the application of the valuation models and assessed the appropriateness of the input factors and forward-looking assumptions.

Furthermore, in order to assess the value adjustments made, we traced and assessed the valuation methods applied by the Company, the underlying input data, macroeconomic assumptions and parameters as well as the results of the validation procedures. In particular, we assessed the expert-based adjustments of the statistically determined shift factors with the involvement of our internal specialists. On the basis of the audit procedures we performed, we were able to conclude on the overall of the reasonableness of the assumptions made by the legal representatives in the impairment test of the loan portfolio as well as the appropriateness and effectiveness of the controls implemented by the Company.

③ The Company's disclosures on risk provisioning in credit business are included in the notes to the annual financial statements in section A, note 2, and in the management report in section II, business report, section 3, "Financial performance".

Other Information

The executive directors are responsible for the other information. The other information comprises the statement on corporate governance pursuant to § 289f Abs. 4 HGB (disclosures on the quota for women on executive boards) as an unaudited part of the management report.

The other information comprises further the separate non-financial report to comply with §§ 289b to 289e HGB and with §§ 315b to 315c HGB.

Our audit opinions on the annual financial statements and on the management report do not cover the other information, and consequently we do not express an audit opinion or any other form of assurance conclusion thereon.

In connection with our audit, our responsibility is to read the other information mentioned above and, in so doing, to consider whether the other information

– is materially inconsistent with the annual financial statements, with the management report disclosures audited in terms of content or with our knowledge obtained in the audit, or
– otherwise appears to be materially misstated.

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, and that the annual financial statements give a true and fair view of the assets, liabilities, financial position and financial performance of the Company 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 (i.e., fraudulent financial reporting and misappropriation of assets) or error.

In preparing the annual financial statements, the executive directors are responsible for assessing the Company'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 Company'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 Company'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 Company'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 audit 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 § 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 judgment and maintain professional skepticism 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 audit opinions. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal controls.
- 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 audit opinion on the effectiveness of these systems of the Company.
- 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 Company’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 audit 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 Company 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 Company 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 Company’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 audit 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, actions taken to eliminate threats or safeguards applied.

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

Report on the Assurance on the Electronic Rendering of the Annual Financial Statements and the Management Report Prepared for Publication Purposes in Accordance with § 317 Abs. 3a HGB

Assurance Opinion

We have performed assurance work in accordance with § 317 Abs. 3a HGB to obtain reasonable assurance as to whether the rendering of the annual financial statements and the management report (hereinafter the "ESEF documents") contained in the electronic file dzbankag-2023-12-31.zip and prepared for publication purposes complies in all material respects with the requirements of § 328 Abs. 1 HGB for the electronic reporting format ("ESEF format"). In accordance with German legal requirements, this assurance work extends only to the conversion of the information contained in the annual financial statements and the management report into the ESEF format and therefore relates neither to the information contained within these renderings nor to any other information contained in the electronic file identified above.

In our opinion, the rendering of the annual financial statements and the management report contained in the electronic file identified above and prepared for publication purposes complies in all material respects with the requirements of § 328 Abs. 1 HGB for the electronic reporting format. Beyond this assurance opinion and our audit opinion on the accompanying annual financial statements and the accompanying management report for the financial year from 1 January to 31 December 2023 contained in the "Report on the Audit of the Annual Financial Statements and on the Management Report" above, we do not express any assurance opinion on the information contained within these renderings or on the other information contained in the electronic file identified above.

Basis for the Assurance Opinion

We conducted our assurance work on the rendering of the annual financial statements and the management report contained in the electronic file identified above in accordance with § 317 Abs. 3a HGB and the IDW Assurance Standard: Assurance Work on the Electronic Rendering, of Financial Statements and Management Reports, Prepared for Publication Purposes in Accordance with § 317 Abs. 3a HGB (IDW AsS 410 (06.2022)) and the International Standard on Assurance Engagements 3000 (Revised). Our responsibility in accordance therewith is further described in the "Auditor's Responsibilities for the Assurance Work on the ESEF Documents" section. Our audit firm applies the IDW Standard on Quality Management: Requirements for Quality Management in the Audit Firm (IDW QMS 1 (09.2022)).

Responsibilities of the Executive Directors and the Supervisory Board for the ESEF Documents

The executive directors of the Company are responsible for the preparation of the ESEF documents including the electronic rendering of the annual financial statements and the management report in accordance with § 328 Abs. 1 Satz 4 Nr. [number] 1 HGB.

In addition, the executive directors of the Company are responsible for such internal control as they have considered necessary to enable the preparation of ESEF documents that are free from material non-compliance with the requirements of § 328 Abs. 1 HGB for the electronic reporting format, whether due to fraud or error. The supervisory board is responsible for overseeing the process for preparing the ESEF-documents as part of the financial reporting process.

Auditor's Responsibilities for the Assurance Work on the ESEF Documents

Our objective is to obtain reasonable assurance about whether the ESEF documents are free from material non-compliance with the requirements of § 328 Abs. 1 HGB, whether due to fraud or error. We exercise professional judgment and maintain professional skepticism throughout the assurance work. We also:

- Identify and assess the risks of material non-compliance with the requirements of § 328 Abs. 1 HGB, whether due to fraud or error, design and perform assurance procedures responsive to those risks, and obtain assurance evidence that is sufficient and appropriate to provide a basis for our assurance opinion.
- Obtain an understanding of internal control relevant to the assurance work on the ESEF documents in order to design assurance procedures that are appropriate in the circumstances, but not for the purpose of expressing an assurance opinion on the effectiveness of these controls.
- Evaluate the technical validity of the ESEF documents, i.e., whether the electronic file containing the ESEF documents meets the requirements of the Delegated Regulation (EU) 2019/815 in the version in force at the date of the annual financial statements on the technical specification for this electronic file.
- Evaluate whether the ESEF documents provide an XHTML rendering with content equivalent to the audited annual financial statements and to the audited management report.

Further Information pursuant to Article 10 of the EU Audit Regulation

We were elected as auditor by the annual general meeting on 24 May 2023. We were engaged by the supervisory board on 12 Ocotber 2023. We have been the auditor of the DZ BANK AG Deutsche Zentral-Genossenschaftsbank, Frankfurt am Main, without interruption since the financial year 2021.

We declare that the audit opinions expressed in this auditor’s report are consistent with the additional report to the audit committee pursuant to Article 11 of the EU Audit Regulation (long-form audit report).

Reference to an other matter – Use of the auditor’s report

Our auditor’s report must always be read together with the audited annual financial statements and the audited management report as well as the assured ESEF documents. The annual financial statements and the management report converted to the ESEF format – including the versions to be filed in the company register – are merely electronic renderings of the audited annual financial statements and the audited management report and do not take their place. In particular, the “Report on the Assurance on the Electronic Rendering of the Annual Financial Statements and the Management Report Prepared for Publication Purposes in Accordance with § 317 Abs. 3a HGB” and our assurance opinion contained therein are to be used solely together with the assured ESEF documents made available in electronic form.

German public auditor responsible for the engagement

The German Public Auditor responsible for the engagement is Kerstin Voeller.

Frankfurt am Main, 1 March 2024

PricewaterhouseCoopers GmbH
Wirtschaftsprüfungsgesellschaft

Kerstin Voeller
Wirtschaftsprüfer
(German Public Auditor)

Leon Münning
Wirtschaftsprüfer
(German Public Auditor)

Editorial information

DZ BANK AG
Deutsche Zentral-Genossenschaftsbank,
Frankfurt am Main
Platz der Republik
60325 Frankfurt am Main
Germany

Postal address:
60265 Frankfurt am Main
Germany

Telephone +49 (0)69 7447 01
Fax +49 (0)69 7447 1685
mail@dzbank.de
www.dzbank.com

DZ BANK AG
Deutsche Zentral-Genossenschaftsbank,
Frankfurt am Main
Platz der Republik
60325 Frankfurt am Main
Germany

www.dzbank.com