VI DZ BANK Group and DZ BANK risk report

1 Legal basis and 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 – Group management report**.

The standards set forth in GAS 20 that are of relevance to the risk report are the following:
- The principles of group management reporting (**GAS 20.12–35**)
- The requirements pertaining to risk reporting (**GAS 20.135–164**)
- The requirements pertaining to the internal control system and risk management system that are relevant to the consolidated financial reporting process (**GAS 20.K168–K178**)
- The requirements pertaining to risk reporting relating to the use of financial instruments (**GAS 20.179–187**)
- The requirements pertaining to risk reporting by institutions (**GAS 20.A1.1–22**) and by insurance companies and pension funds (**GAS 20.A2.1–20**)

Furthermore, the risk report meets the disclosure requirements regarding risks applicable to DZ BANK as a separate entity that are specified in **section 289 HGB** in accordance with GAS 20.

With this report, DZ BANK also meets the risk reporting requirements specified in the International Accounting Standards (IAS) and International Financial Reporting Standards (IFRS), 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)

This information is referred to in the notes to the consolidated financial statements and, as such, is 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 85
- Maturity analysis in respect of financial assets and financial liabilities in accordance with **IFRS 7.39(a) and (b)**: note 86
- Sensitivity analyses in accordance with **IFRS 17.128**: note 96
- Claims rate trend for direct non-life insurance business and for the inward reinsurance business in accordance with **IFRS 17.130**: note 94
- Maturity analysis for insurance contracts issued and for reinsurance contracts held in accordance with **IFRS 17.132(b) and (c)**: note 96

The requirements in **IFRS 7.31–42** applicable to this risk report are limited to financial instruments in accordance with IAS 32 and IFRS 9. This shifts the focus of reporting to the types of risk directly related to financial instruments, namely liquidity risk, credit risk, equity investment risk, market risk, technical risk of a home savings and loan company, and the aspects of market risk and counterparty default risk that are not within the scope of IFRS 17.

The risk-related disclosure requirements in **IFRS 17.121–132** relate to contracts within the scope of IFRS 17. Consequently, the disclosure requirements from these standards relate to actuarial risk, the aspects of market risk and counterparty default risk not covered by IAS 32 or IFRS 9, and risks from entities in other financial sectors.

Unlike the limited perspective of IFRS 7 and IFRS 17, however, the DZ BANK Group takes a **holistic view** when using risk management tools and when assessing the risk position. As a consequence, the groupwide risk management system covers not only the aforementioned risks but also business risk, reputational risk, and operational risk. This integrated approach is reflected in this risk report. By fully disclosing all material risks, their aggregation in the form of an economic aggregate risk within the meaning of GAS 20.160, and a comparison of the economic aggregate risk with the risk coverage potential, the DZ BANK Group aims to present its economic capital adequacy clearly and understandably in accordance with GAS 20.161 (in conjunction with GAS 20.A1.22 and GAS 20.A2.20) and IAS 1.135 (d).

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** in accordance with GAS 20.31, GAS 20.116, and IFRS 7.34(a)). 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.

Detailed information on individual **subsidiaries of DZ BANK** is only provided in this risk report 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 position of the DZ BANK Group as a whole. However, subsidiaries are 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.

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.

In accordance with GAS 20.A1.3 and GAS 20.A2.3, the **structure** of the risk report is based on the risk types (chapters VI.8 to VI.21). The risk type-specific disclosures are preceded by general information and information relating to all risk types (chapters VI.1 to VI.7).

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 and its subsidiaries designed the risk management system, they 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.

Both the DZ BANK Group and 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 set out 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 Management units and sectors

Risk is managed groupwide on a consolidated basis and includes all entities in the DZ BANK Group. DZ BANK and its material subsidiaries – material in terms of their contribution to the DZ BANK Group's aggregate risk; also referred to below as management units – are directly incorporated into the group's risk management system, and managed, on the basis of the material risk types.

From a risk perspective, the 'DZ BANK' management unit equates to the central institution and corporate bank operating segment and the holding function. The non-material subsidiaries and investee entities of DZ BANK are integrated into the risk management system either directly as part of other types of risk or indirectly as part of equity investment risk. How they are integrated is decided annually.

Where a subsidiary defined as a management unit 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. This means that the subsidiaries, second-tier subsidiaries, and investees of the DZ BANK subsidiaries are also included in the DZ BANK Group's risk management system – indirectly via the entities that are included directly – with due regard to the minimum standards applicable throughout the group.

The management units represent the operating segments in the consolidated financial statements and form the core of the financial services 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 largely 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.

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

In the context of quantitative disclosures on the economic and the regulatory (normative) risk-bearing capacity of the DZ BANK Group and the DZ BANK financial conglomerate, the abbreviation R+V as used in this risk report refers to the R+V Versicherung AG insurance group for regulatory purposes. In contrast to the R+V subgroup defined in chapter I.3.1 of the group management report and chapter I.2.1 of the management report, the regulatory R+V Versicherung AG insurance group also comprises KRAVAG-SACH Versicherung des Deutschen Kraftverkehrs VaG, Hamburg.

The subject of **normative risk management** is the DZ BANK banking group as defined in accordance with section 10a KWG in conjunction with articles 11 and 18 of the Capital Requirements Regulation (CRR). The DZ BANK banking group 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. These entities essentially represent the Bank sector. Other subsidiaries that are consolidated for regulatory purposes are not included in the regulatory risk report owing to their minor significance. Equally, insurance companies and companies not in the financial sector are not part of the banking group for regulatory purposes. R+V is fully consolidated for commercial-law purposes but is not included in the banking group for regulatory purposes.

2.1.4 Liquidity waiver

DZ BANK and **DZ HYP** have elected to apply the **liquidity waiver** pursuant to article 8 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.

2.1.5 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 structural 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), which 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.

2.1.6 Specific features of sustainability risk management

The entities in the DZ BANK Group do not classify events or circumstances in the climate-related and environmental ('E'), social ('S'), or corporate governance ('G') spheres as a risk type in their own right. Instead, they view them as drivers of the financial and non-financial risk types that are managed in the internal liquidity adequacy assessment process (ILAAP) and the internal capital adequacy assessment process (ICAAP). Risks triggered by sustainability risk factors are also referred to as sustainability risks below.

The **regulatory basis** for managing sustainability risks comprises the European Central Bank (ECB) guide on climate-related and environmental risks, the EBA guidelines on loan origination and monitoring, the Minimum Requirements for Risk Management (MaRisk), the Guidance Notice on Dealing with Sustainability Risks issued by

the Bundesanstalt für Finanzdienstleistungsaufsicht (BaFin) [German Federal Financial Supervisory Authority], and the delegated regulation on the EU taxonomy.

Sustainability risks stem from risk factors affecting climate-related and environmental, social, or corporate governance matters. There are two ways of considering them:
– The 'inside-out' or impact perspective concentrates on the direct effects that the business activities of the DZ BANK Group have on the environment and society.
– The 'outside-in' or risk perspective considers the influence that ESG-related developments have on the DZ BANK Group.

This risk report is based on the **outside-in perspective**.

Sustainability risks are managed **centrally** at the level of the DZ BANK Group and on a **decentralized basis** at the level of DZ BANK and its material subsidiaries.

Different **time horizons** are considered in the management of sustainability risks. Whereas some risk factors, such as extreme weather events and regulatory changes, can have an effect in the short to medium term, others take effect over a much longer time horizon. A short-term time horizon is considered to be up to 1 year, which is in line with the time horizon used in the ICAAP economic perspective. The medium-term horizon is between more than 1 year and up to 4 years. This is consistent with the strategic planning horizon. Longer periods are considered to be long term.

ESG data is very important for regulatory purposes and for integrating sustainability matters into the bank's business processes. With this in mind, a number of activities have been initiated as part of the DZ BANK Advancing Sustainability program that are ensuring the availability of the required data in different ways. Examples include methods for assessing sustainability risk such as carbon accounting and ESG risk scoring, the procurement of data from external data providers, and the definition of architectural guidelines in the sustainability program.

2.2 Risk factors and risks

The entities in the DZ BANK Group are exposed to a number of risk factors. These include developments concerning the entities' environment that may have an adverse impact on the future financial position or financial performance of the DZ BANK Group and DZ BANK. Risk factors 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 VI.5. 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 32 of the notes to the consolidated financial statements are shown in Fig. VI.1 and Fig. VI.2 respectively. The risks shown there – broken down by financial and non-financial risks – 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. VI.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. VI.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 of the (group) management report) determine the risk profile. The main risks associated with the business models are shown in Fig. VI.1 and Fig. VI.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. VI.3 and Fig. VI.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.

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 Risk Committee of DZ BANK's Supervisory Board 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 corrective measures if observation thresholds are crossed. If the minimum thresholds are crossed, the escalation mechanisms set out in the recovery plan are triggered.

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 2024 and also complied with regulatory requirements for capital adequacy on every reporting date.

FIG. VI.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) 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	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 conditions – Materialization of sustainability risks
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, or from negative changes in the fair value of real estate	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 dynamic 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: – Escalation of geopolitical tensions and resulting trade friction – Global economic downturn – Economic policy divergence in the eurozone – Rise in interest rates – Fall in interest rates – Global financial market volatility
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 – Materialization of sustainability risks
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 sustainability 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 compliance 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 – Materialization of sustainability risks

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.

Risk management KPIs disclosed		Risks						
		DZ BANK	BSH	DZ HYP	DZ PRIVATBANK	TeamBank	UMH	VR Smart Finanz
– Liquid securities – Unsecured short-term and medium-term funding – Minimum liquidity surplus – Structural minimum liquidity surplus – LCR – NSFR	Chapter VI.6.2.6 Chapter VI.6.2.6 Chapter VI.6.2.7 Chapter VI.6.2.7 Chapter VI.6.3.2 Chapter VI.6.3.3	•	•	•	•	•		•
– Lending volume – Risk capital requirement for credit risk	Chapters VI.8.7 to VI.8.11 Chapter VI.8.12	•	•	•	•	•		•
– Carrying amounts of investments – Risk capital requirement for equity investment risk	Chapter VI.9.5 Chapter VI.9.5	•	•	•		•	•	•
– Value-at-risk for market risk – Periodic interest-rate risk and periodic spread risk in the banking book – Risk capital requirement for market risk	Chapter VI.10.6.1 Chapter VI.10.6.2 Chapter VI.10.6.3	•	•	•	•	•	•	•
Risk capital requirement for the technical risk of a home savings and loan company	Chapter VI.11.5		•					
Risk capital requirement for business risk	Chapter VI.12.6	•		•	•	•	•	•
		•	•	•	•	•		•
– Losses from operational risk – Risk capital requirement for operational risk	Chapter VI.14.8 Chapter VI.14.9	•	•	•	•	•	•	•

Management unit disclosures in the risk report:

- ● Quantitative and qualitative disclosures
- • Quantitative disclosures
- ☐ Not relevant

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

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	Chapter VI.16.6
	– 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	– Overall solvency requirement	Chapter VI.16.7
	– 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 – Inflationary effects driving the cost of claims – Rise in claims incurred as a result of silent cyber risk		
	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	– Escalation of geopolitical tensions and resulting trade friction – Global economic downturn – Economic policy divergence in the eurozone – Unexpected rise in interest rates – Unexpected fall in interest rates – Global financial market volatility – Transition risks of issuers	– Lending volume – Overall solvency requirement	Chapter VI.17.5 Chapter VI.17.6
	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 VI.18.4 Chapter VI.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 sustainability 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 – Materialization of sustainability risks	– Overall solvency requirement	Chapter VI.20.5
	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 VI.21

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

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

	Measured figure		External minimum target		Internal minimum threshold		Internal observation threshold	
	Dec. 31, 2024	Dec. 31, 2023	2024	2023	2024	2023	2024	2023
LIQUIDITY ADEQUACY								
DZ BANK Group (economic perspective)								
Minimum liquidity surplus (€ billion)[1]	22.7	18.5	0.0	0.0	4.0	4.0	5.0	5.0
DZ BANK banking group (normative perspective)								
Liquidity coverage ratio (LCR, percent)[2]	143.9	145.8	100.0	100.0	112.5	110.0	125.0	120.0
Net stable funding ratio (NSFR, percent)[3]	125.0	126.5	100.0	100.0	106.0	106.0	110.0	107.0
CAPITAL ADEQUACY								
DZ BANK Group (economic perspective)								
Economic capital adequacy (percent)[4]	197.7	209.1	100.0	100.0	120.0	120.0	140.0	140.0
DZ BANK financial conglomerate (normative perspective)								
Coverage ratio (percent)[5]	135.3	152.5	100.0	100.0	113.0	113.0	123.0	121.0
DZ BANK banking group (normative perspective)[6]								
Common equity Tier 1 capital ratio (percent)	15.8	15.5	10.0	9.8	11.8	11.3	13.0	12.5
Tier 1 capital ratio (percent)	17.8	17.7	11.8	11.7	13.5	13.3	14.8	14.3
Total capital ratio (percent)	20.1	20.1	14.2	14.1	16.0	15.8	17.3	16.8
Leverage ratio (percent)	6.6	6.2	3.0	3.0	4.0	4.0	4.3	4.3
MREL ratio as a percentage of risk-weighted assets	36.2	37.6	27.0	25.1	28.4	26.8	28.7	27.1
MREL ratio as a percentage of the leverage ratio exposure	13.4	13.2	9.5	7.3	9.9	9.7	10.2	10.0
Subordinated MREL ratio as a percentage of risk-weighted assets	29.5	31.1	27.0	23.8	28.4	26.6	28.7	27.1
Subordinated MREL ratio as a percentage of the leverage ratio exposure	10.9	10.9	8.4	7.1	8.8	9.7	9.1	10.0

1 For details, see chapter VI.6.2.7.
2 For details, see chapter VI.6.3.2.
3 For details, see chapter VI.6.3.3.
4 For details, see chapter VI.7.3.2.
5 For details, see chapter VI.7.4.2.
6 For details, see chapter VI.7.4.3.

FIG. VI.4 – LIQUIDITY AND CAPITAL ADEQUACY KPIS OF DZ BANK

	Measured figure		External minimum target		Internal observation threshold	
	Dec. 31, 2024	Dec. 31, 2023	2024	2023	2024	2023
LIQUIDITY ADEQUACY						
Economic perspective						
Minimum liquidity surplus of DZ BANK (€ billion)[1]	11.8	4.8	0.0	0.0	1.9	1.9
Minimum liquidity surplus of the liquidity subgroup (€ billion)	13.3	6.8	0.0	0.0	1.9	1.9
Normative perspective						
Liquidity coverage ratio (LCR) of the liquidity subgroup (percent)[2]	138.6	143.1	100.0	100.0	120.0	115.0
Net stable funding ratio (NSFR) of the liquidity subgroup (percent)[3]	119.0	119.0	100.0	100.0	106.0	106.0
CAPITAL ADEQUACY						
Normative perspective[4]						
Common equity Tier 1 capital ratio (percent)	14.6	14.6	7.7	7.7	10.3	10.3
Tier 1 capital ratio (percent)	17.5	17.6	9.2	9.2	11.8	11.8
Total capital ratio (percent)	21.2	21.4	11.2	11.2	13.8	13.8
Leverage ratio (percent)	6.7	6.8	3.0	3.0	4.3	4.3

1 For details, see chapter VI.6.2.7.
2 For details, see chapter VI.6.3.2.
3 For details, see chapter VI.6.3.3.
4 For details, see chapter VI.7.4.3.

3 Risk-oriented corporate governance

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 in line with the risk appetite specified by the Board of Managing Directors.
- **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 statement

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. VI.3. One of these principles and several threshold values in the risk appetite statement relate to sustainability risks. 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 and at DZ BANK. 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.

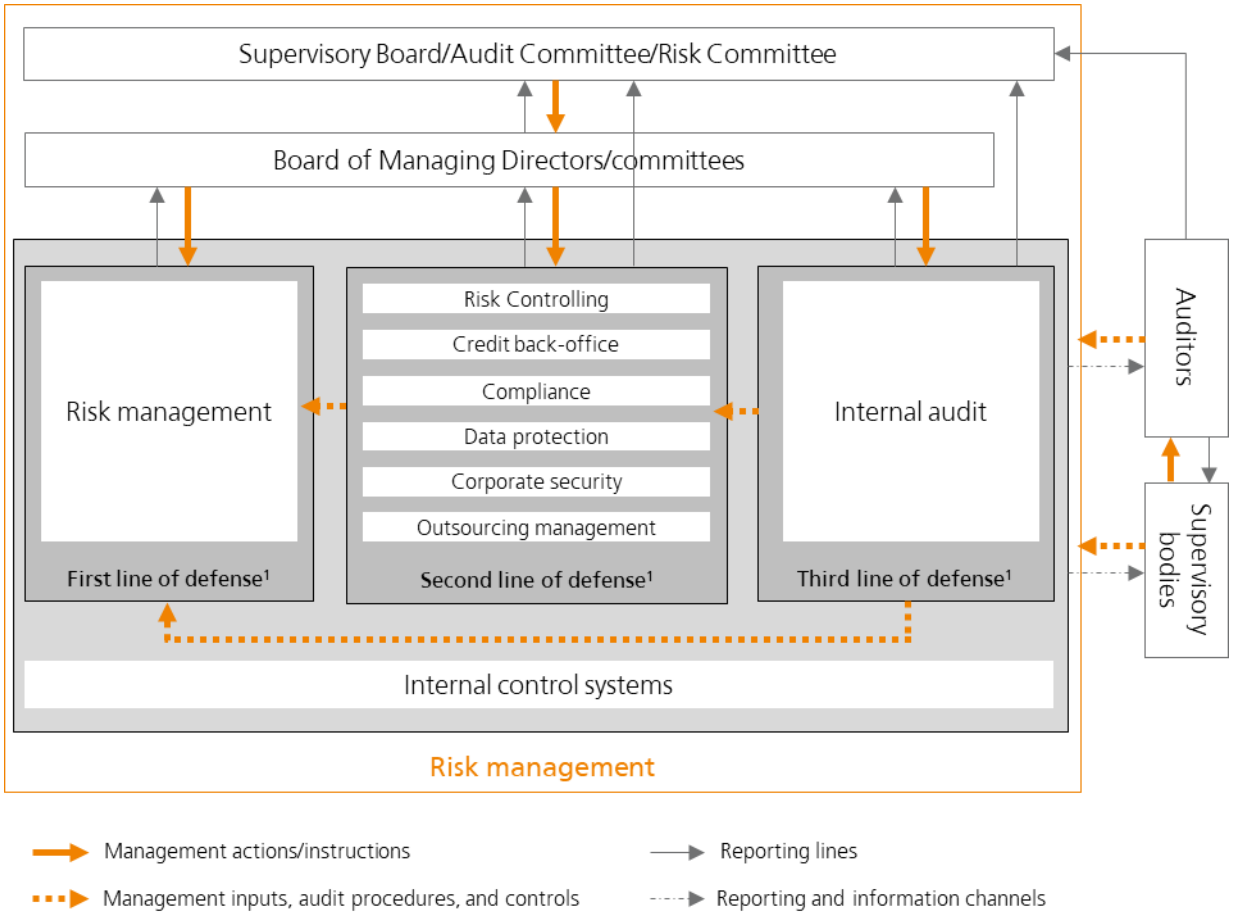
The annual updating of the risk strategies is integrated with the **strategic planning process** and is carried out by the Group Risk Controlling, Group Risk Control & Services, and Group Finance divisions in close consultation with other relevant divisions at DZ BANK and its subsidiaries.

The risk strategies are described in the chapters covering the individual risk types in this risk report. The strategic focus of the DZ BANK Group and DZ BANK that underlies the risk strategies is described in chapter I.1 of the (group) management report.

3.4 Governance structure of risk management

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. VI.5 shows the governance structure of risk management. R+V has implemented a modified governance structure because it is subject to different regulatory requirements.

FIG. VI.5 – 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.

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, and Compliance 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, Audit Committee and, where appropriate, the Risk Committee
– Communication with external control functions
– Tasks in the third line of defense are primarily carried out by Group Audit.

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 of the (group) management report.

3.5 Risk management committees

The **Group Risk and Finance Committee**, the **Risk Committee**, and the **Asset/Liability Committee** are the main committees responsible for risk management in the DZ BANK Group and at DZ BANK. The Supervisory Board's Risk Committee is also updated about the risk situation.

The organization and remit of the main committees responsible for risk management are described in chapter I.2.2.3 of the (group) management report.

3.6 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.

3.7 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.

3.8 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.

3.9 Compliance

3.9.1 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.

The entities of the DZ BANK Group that are subject to the German Supply Chain Due Diligence Act (LkSG) have taken steps to implement the relevant requirements. DZ BANK, for example, has created the role of human rights officer.

Further disclosures relating to compliance risk can be found in chapters VI.14.6.1 and VI.20.4.1.

3.9.2 Code of conduct

The risk culture principles (see chapter VI.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.

3.9.3 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.

3.10 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.

3.10.1 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 27001:2022.

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 27001:2022 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 VI.14.6.3 and VI.20.4.2.

3.10.2 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 VI.14.6.4 and VI.20.4.3.

3.11 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 VI.14.6.5 and VI.20.4.4.

3.12 Control functions

3.12.1 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.

3.12.2 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 monthly and quarterly overall risk reports, 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.

3.12.3 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.

3.13 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 VI.3.14 below, is a sub-system of the bank-wide internal control system.

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

3.14.1 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.

3.14.2 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.

3.14.3 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 deployed 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 defined benefit obligations 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 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.

3.14.4 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.

3.14.5 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.

4 Risk management tools

4.1 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. The risks identified in the risk inventory check are broken down by financial and non-financial risk.

As part of the risk inventory check, a **materiality assessment** is carried out for those types of risk that could arise in connection with the operating activities of the entities in the DZ BANK Group. The next step is to assess the extent to which there are concentrations of risk types classified as material in the Bank sector, the Insurance sector, and across sectors.

The risk inventory check and the materiality assessment also cover the **sustainability risk factors** of relevance to the DZ BANK Group's main types of risk. With regard to the risks that are backed by capital, the three sustainability dimensions (climate-related and environmental risks, social risks, and corporate governance risks) are each divided into several risk factor categories. The materiality assessment for these risk factors is based partly on concentration analysis and partly on scenarios, which are used to gauge the significance of potential transmission channels for the risks that are backed by capital. If a quantitative assessment is not possible, inhouse experts on the individual risk types are consulted instead. This materiality assessment of sustainability risks is based both on internal risk concentration data and portfolio data and on external data sources. It differentiates between short-term, medium-term, and long-term effects on the types of risk backed by capital.

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 were identified.

The risk inventory check and appropriateness test are coordinated in terms of content and timing between all management units in the DZ BANK Group. The findings from these processes are incorporated into the risk management process. In the material subsidiaries, risk inventory checks and appropriateness tests are generally conducted in a similar way to the approach used for the DZ BANK Group.

4.2 Risk manual

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.

4.3 Internal risk reporting

Internal risk reporting by DZ BANK Group entities is based on regulatory requirements. These include, in particular, the principles for the effective definition, collection, and processing of risk data set forth by the BCBS in BCBS 239, as well as MaRisk BA and KAMaRisk.

The primary aim of internal risk reporting is establishing and enhancing transparency about risks to a company's ability to continue as a going concern, detecting them at an early stage, and monitoring them in the course of risk management. Taking account of the materiality of the exposures, the risk reports are intended to ensure that decision-makers and supervisory bodies receive transparent information on DZ BANK's risk profile and the risks for which they are responsible at all times. The management inputs derived from the internal risk reports feed into the strategic management decisions made by the Board of Managing Directors. Escalation mechanisms that build on the internal risk reports are intended to ensure prompt and appropriate responses to limit overruns.

DZ BANK's internal risk reporting comprises two pillars: standard reporting and special reporting:

– **Standard reporting** is characterized by recurring analyses and reports that are prepared for a predefined group of recipients at fixed intervals. These reporting processes are standardized in terms of input parameters, processing times and timing, and reporting formats.

– **Special reporting** is one-off or ad hoc reporting that can be triggered for a variety of reasons, such as internal or external data requests. The special reports also include ad hoc reports that are triggered when a specific threshold is reached.

Standard risk reporting in the DZ BANK Group has a material monitoring and oversight function based on the KPIs set out in the risk appetite statement.

The standard reports are either aggregated and cover all risk types or they are specific to an individual risk type. While the reports covering all risk types relate solely to the DZ BANK Group, risk type-specific reports are prepared at the level of both the DZ BANK Group and DZ BANK.

The **subsidiaries** have comparable reporting systems for all relevant types of risk.

Fig. VI.6 provides an overview of the main internal risk reports of DZ BANK.

FIG. VI.6 – DZ BANK'S INTERNAL RISK REPORTS[1]

	Frequency[2]				Recipients				Risk types concerned									
	Daily	Monthly	Quarterly	Half-yearly	Board of Managing Directors[3]	Group Risk and Finance Committee	Risk Committee	Asset/Liability Committee	Aggregate risk	Liquidity risk	Credit risk[4]	Equity investment risk[4]	Market risk[4]	Technical risk of a home savings and loan company[4]	Business risk[4]	Reputational risk[4,5]	Operational risk[4]	Risks in the Insurance sector[6]
Reports covering all risk types																		
Integrated management report of the finance and risk function		•			•	•			•	•	•	•	•	•	•	•	•	•
Monthly overall risk report		•			•		•		•	•	•	•	•	•	•	•	•	•
Quarterly overall risk report			•		•	•			•	•	•	•	•	•	•	•	•	•
Sustainability risk report				•	•		•				•		•			•		
Stress tests report			•		•	•			•		•	•	•	•	•	•	•	•
Risk type-specific reports																		
Daily liquidity risk report	•				•					•								
Monthly liquidity risk report		•			•		•			•								
Credit risk report			•		•	•					•							•
Daily market risk report	•				•								•					
Monthly market risk report		•					•	•					•					
Monthly trading business report		•					•				•		•					
IRRBB and CSRBB reporting		•			•		•	•					•					
Reputational risk report				•	•		•									•		•
Operational risk report			•		•		•										•	•

1 Standard reporting.
2 The reports listed are prepared as at June 30 and December 31.
3 Full Board of Managing Directors or individual members of the Board of Managing Directors.
4 Bank sector.
5 Covered by business risk in the reports covering all risk types.
6 Insurance sector.

4.4 Accounting basis for risk management

4.4.1 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. 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. VI.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 VI.8.7.2.

The investments used for the purposes of measuring **equity investment risk** are the following items reported in note 53 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 can arise from the differing treatment of impairment amounts in the measurement of market risk and in the accounting figures. They can also arise due to differences between the transaction price and acquisition-date fair value (day-one profit or loss). Day-one profit or loss is presented in note 72 of the notes to the consolidated financial statements. Differences can 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 of 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 61 and 62 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.

4.4.2 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 VI.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 VI.7.3.2.

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

		Bank sector												Insurance sector									
		Credit risk				Market 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 risk	Asset-management risk	Technical risk of a home savings and loan company	Life actuarial risk	Health actuarial risk	Non-life actuarial risk	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.

4.5 Risk measurement

4.5.1 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 ILAAP and ICAAP. This involves dovetailing between the economic and normative perspectives.

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.

4.5.2 Economic perspective

Economic liquidity adequacy

To ascertain the DZ BANK Group's economic liquidity adequacy, the minimum surplus cash that would be available based on the relevant key figures if various scenarios were to materialize – within the following year and in a longer period of up to 10 years – 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

Economic capital adequacy is an internally defined management perspective aimed at ensuring that all of the DZ BANK Group's material capital risks – determined using internal risk measurement methods on the assumption that the group will continue to operate as a going concern – are fully backed by capital plus an internally specified management buffer. The risk measurement methods used are designed to ensure that risk capital management is integrated across the group.

Owing to the close ties between risk management at DZ BANK and that of the DZ BANK Group, the economic capital adequacy of DZ BANK is indirectly managed through the economic capital adequacy of the DZ BANK Group.

Economic capital adequacy is calculated as the ratio of available internal capital to the economic aggregate risk of the DZ BANK Group. The economic aggregate risk is calculated as the sum of the risk capital requirement of the Bank sector, the overall solvency requirement of the Insurance sector, and the central economic capital buffer. Economic capital adequacy of 100 percent or higher indicates that the DZ BANK Group has economic risk-bearing capacity.

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 calculate 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.

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 – also referred to as the **overall solvency requirement** – is determined with a confidence level of 99.5 percent over a period of 1 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. A distinction is made between centralized and decentralized capital buffer requirements. The **centralized capital buffer** is managed on the basis of a limit covering all sectors and risk types. The **decentralized capital buffer requirements** are determined for the individual risk types in the Bank sector and the Insurance sector and are contained in the risk capital requirement (Bank sector) and in the overall solvency requirement (Insurance sector). 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.

The risks relating to the Bank and Insurance sectors are aggregated, disregarding diversification effects between the sectors while taking account of the centralized capital buffer requirement.

4.5.3 Normative perspective

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

As is the case with the economic perspective, the normative perspective of **liquidity adequacy** relates to the DZ BANK banking group and the liquidity subgroup. No regulatory requirements for liquidity adequacy apply to the DZ BANK financial conglomerate.

The DZ BANK financial conglomerate is included in the normative perspective of **capital adequacy** in addition to the DZ BANK banking group and the liquidity subgroup.

4.6 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.

4.7 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.

With the help of exploratory scenario analyses, the stress tests examine the impact of physical and transition climate-related risks on the main types of risk affected, taking the channels of impact into account, in order to gauge the resilience of the risk strategy to adverse developments.

4.8 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.

4.9 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 83 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.

4.10 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. In addition, R+V prepares a hypothetical recovery plan in accordance with section 26 (1) sentence 4 VAG in conjunction with section 275 (1) VAG. **R+V's recovery plan** was voluntarily updated in 2024.

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 2024. It supplied the resolution authority with numerous analyses related to DZ BANK and completed standardized questionnaires.

5 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.

5.1 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 typically involves 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.

In 2023, it had not been possible to fully predict the effects of the regulatory measures relating to the sectoral systemic risk buffer and the countercyclical capital buffer on the capital ratios of the DZ BANK banking group and DZ BANK. Based on BaFin's related general administrative acts that have since come into force, these risk factors are no longer relevant. There are currently no material regulatory risk factors.

5.2 Macroeconomic risk factors

There are a number of macroeconomic risk factors of relevance to the DZ BANK Group and DZ BANK that, if they materialized, could have an adverse impact on financial position and financial performance. These risk factors are explained below.

Fig. VI.8 provides an overview of the types of risk potentially affected by negative macroeconomic conditions.

5.2.1 Escalation of 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 conflict in the **Middle East** are much more far-reaching than previous disputes in the region, and the conflict has spread. The situation could deteriorate further over the course of US President Donald Trump's term in office as he is seen as a supporter of Israel's Prime Minister Benjamin Netanyahu. The biggest military, and economic, risk continues to lie in Iran entering the war, which would pit the region's two largest armies against each other. 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.

FIG. VI.8 – MACROECONOMIC RISK FACTORS AT A GLANCE

Macroeconomic Risk factors	Year-on-year change	Risk type affected and relevant chapter in the risk report			
		Bank sector		Insurance sector	
Escalation of geopolitical tensions and resulting trade friction	Deterioration	Credit risk	Chapter VI.8.9	Market risk	Chapter VI.17.2 Chapter VI.17.5.3
		Market risk	Chapter VI.10.3		
		Operational risk	Chapter VI.14.7		
Global economic downturn	Deterioration	Credit risk	Chapter VI.8.8 Chapter VI.8.10	Market risk	Chapter VI.17.2
		Market risk	Chapter VI.10.3		
Economic policy divergence in the eurozone	No change	Market risk	Chapter VI.10.3	Market risk	Chapter VI.17.2 Chapter VI.17.5.3
Ongoing weakness in the German economy	No change	Credit risk	Chapter VI.8.8 Chapter VI.8.10	Market risk	Chapter VI.17.2
Correction in real estate markets	Improvement	Credit risk	Chapter VI.8.8.2	Market risk	Chapter VI.17.2
		Market risk	Chapter VI.10.3		
Scenarios involving interest-rate cuts	Higher probability of occurrence	Market risk	Chapter VI.10.3	Market risk	Chapter VI.17.2
Scenarios involving interest-rate hikes	Lower probability of occurrence	Market risk	Chapter VI.10.3	Life actuarial risk	Chapter VI.16.2
		Technical risk of a home savings and loan company	Chapter VI.11.3	Market risk	Chapter VI.17.2
Heightened volatility in the global financial markets	New	Market risk	Chapter VI.10.3	Market risk	Chapter VI.17.2

The economic impact of the **war in Ukraine** continues to 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. There is also a risk that Russia will step up its hybrid warfare against western countries. Hybrid warfare is a combination of conventional military operations, economic pressure, attacks on critical infrastructure, and propaganda in the media and on social networks. Attacks on critical infrastructure, in particular, can cause considerable economic damage. Other potential consequences of hybrid warfare in the affected economies would be a strain on public finances due to rising defense spending and a slowdown in economic growth due to increased uncertainty among economic players.

The dispute between **China and Taiwan**, in which Taiwan believes it is at constant risk of invasion, continues to simmer. The United States 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 United States. 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 United States 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, there is a risk of a renewed escalation of trade disputes between the United States, China, and the EU with a new US administration in place. Since entering office in January 2025, Trump has already imposed the first tariffs on Canada, Mexico, and China as well as on all imports of steel and aluminum. Tariffs will also be implemented for countries that impose their own tariffs on US imports. The new tariff

arrangements and the anticipated responses could have a negative impact on the global economy, and for the export-dependent German economy in particular. For companies in Germany, the restrictions on global trade could lead to higher import prices and a shortage of input products on the one hand and, on the other, to a decline in exports.

5.2.2 Global economic downturn

The future trajectory of the global economy continues to depend to a large extent on the United States and the People's Republic of China. The macroeconomic outlook for these two countries is illustrated in chapter IV.1.1 and chapter IV.1.2 of the (group) management report respectively.

The comparatively high level of stability of the **US economy** is attributable to exceptionally vast government support programs. The annual US budget deficit is currently running at between 7 and 8 percent of GDP. The country's significant public debt, standing at over 120 percent of GDP, will likely persist as the re-election of Trump could lead to more tax cuts and thus push up debt even further. If debt levels remain high in the United States, the interest burden could grow and thus dent consumer demand in the long term. This trend would be intensified by the inflationary impact of new tariffs and a more restrictive migration policy, exacerbating the country's labor shortage and, in the long term, damaging market confidence. In the near term, the US economy is likely to benefit from Trump's pro-business policies. However, if Trump does not change direction – in light of the response in the financial markets – this would, in turn, see capital spending fall, dampen economic activity, and ultimately bring about a recession in the United States.

A weakening of the US economy would have far-reaching adverse consequences for the world economy as the United States 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.

Although the **Chinese economy** achieved solid growth of 5.0 percent in 2024, there has been a deep loss of confidence among China's population, which has increased its propensity to save and dampened consumer sentiment. This is reflected in the real estate market and in consumer prices, which have increased only slightly following a period of deflation. Poor domestic demand in China is having an adverse effect on its demand for imports, such as input goods and capital goods from Germany, and this situation is expected to be further compounded by weaker Chinese exports to the United States as a result of the reciprocal tariffs. Although Beijing is supporting the economy with fiscal and monetary policy measures aimed at mitigating the economic slowdown, any recovery will likely be only temporary.

5.2.3 Economic policy divergence in the eurozone

Chapter IV.1.3 of the (group) management report describes the anticipated economic situation in the eurozone. The ongoing **fiscal problems** in Spain, Italy, France, 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.

Italy's high level of government debt remains its number one challenge and is highly likely to rise further over the next 3 years. The EU has announced excessive deficit procedures against Italy and other member states, the outcome of which remains uncertain. Despite countermeasures and positive growth forecasts for GDP, Italy's funding requirements will probably remain very high. Given that Italy's government debt remains high with large holdings of domestic government bonds and its credit quality still in need of improvement, Italian banks will have to continue to accept an appropriate risk premium if they want to obtain funding in the capital markets. 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 banks located there to access the capital markets.

France has not managed to substantially reduce its deficit for many years. Its high level of government debt and budget deficit are increasingly becoming a political and financial problem. The leading French index is recording losses, and risk premiums on French government bonds are reaching record highs. Despite a budget for 2025

having been recently adopted, the political situation remains unstable due to the forthcoming negotiations concerning the controversial pension reforms. Given the weak outlook in the country's own fiscal forecasts, it is also unclear what the next steps in a potential excessive deficit procedure would be. France's economy is the second-largest in the eurozone and very diversified. Its credit ratings remain good, but there is a risk that they will be downgraded if the pension reforms are reversed and government debt goes up as a result.

The increasing influence of certain political movements in a number of European states could lead to national governments putting their own interests first and being less prepared to seek common European solutions. This could lead to **protectionist economic policies**, with individual countries attempting to solve their economic challenges alone and passing costs onto other EU countries instead of working together. This could further reinforce existing economic divergence in the eurozone.

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. With the expiry of the pandemic emergency purchase program, this may change as a result of the potential renewed tightening of monetary policy. 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.

5.2.4 Ongoing weakness in the German economy

The **phase of weakness in the German economy** – with growth at around zero – could well continue for the time being, especially given the likely dampening effect of the announced US import tariffs for Germany and its huge export industry. There is also a risk that the months of political standstill during the recent federal election campaign and the subsequent process of forming a government will delay the extensive structural reforms and investment in the future that Germany urgently needs in order to restore its competitiveness and secure its prosperity.

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.

5.2.5 Correction in real estate markets

The macroeconomic challenges presented by the anticipated situation in the real estate markets are described in chapter IV.1.5 of the (group) management report. Further corrections in conjunction with the difficult wider economic conditions could limit investment appetite. The additional and persistently high level of borrowing costs could therefore see the crisis in the real estate sector flare up again. This scenario poses a macroeconomic risk factor for the DZ BANK Group.

5.2.6 Unpredictable interest-rate market

Scenarios involving interest-rate cuts

Following interest-rate cuts by the Federal Reserve Board (Fed) and the ECB in 2024, market interest rates are down from the peaks they reached in 2023. However, interest rates continue to have an effect on the rate of inflation, which was only slightly higher than the ECB's target rate of 2 percent during 2024 due to the weak state of the economy and base effects in energy prices. The markets expects the ECB, in particular, to remain on its expansionary course and reduce interest rates further. 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.

Scenarios involving interest-rate hikes

The re-election of Donald Trump and a Republican majority in Congress have led to reassessments of economic prospects and the outlook for interest rates in the United States. The implementation of numerous measures by the future administration of the United States could lead to the economy overheating and inflation picking up again. In this scenario, unexpected interest-rate hikes by the Fed cannot be ruled out. In the event of an interest-rate rise in the United States, it is likely that interest rates would also climb 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 higher interest rates in the eurozone.

5.2.7 Heightened volatility in the global financial markets

The stock market indices in Europe and the United States reached new heights in 2024 and the price/earnings ratios of listed companies were close to their cyclical peaks. At the same time, investor jitters increased, as was seen when implied volatility soared at the end of July 2024, for example. There is a systemic risk that the existing speculative interdependence of some asset classes or regions will give rise to large price falls in the stock markets around the world, which could diminish the value of market participants' assets and endanger financial stability. This would, in turn, have a negative impact on the global economy.

5.3 Sustainability risk factors

The DZ BANK Group and DZ BANK are exposed to a number of sustainability risk factors that, if they materialized, could have an adverse impact on financial position and financial performance. These risk factors are explained below.

Fig. VI.9 shows the sustainability risk factors of relevance to the different risk types and indicates the chapters containing more information.

FIG. VI.9 – SUSTAINABILITY RISK FACTORS OF RELEVANCE TO THE RISK TYPES IN THE BANK SECTOR AND INSURANCE SECTOR

Sustainability risk factors	Risk type affected and relevant chapter in the risk report			
	Bank sector		Insurance sector	
Physical climate risks	Credit risk	Chapter VI.8.3.2	Life and health actuarial risk	Chapter VI.16.2.2
			Non-life actuarial risk	Chapter VI.16.2.2
Transition risks	Credit risk	Chapter VI.8.3.2	Market risk	Chapter VI.17.2.2
	Business risk	Chapter VI.12.3.2		
	Reputational risk	Chapter VI.13.3	Reputational risk	Chapter VI.19.2
	Operational risk	Chapter VI.14.5	Operational risk	Chapter VI.20.3
Social risks	Reputational risk	Chapter VI.13.3	Reputational risk	Chapter VI.19.2
Corporate governance risks	Reputational risk	Chapter VI.13.3	Reputational risk	Chapter VI.19.2
	Operational risk	Chapter VI.14.5	Operational risk	Chapter VI.20.3

5.3.1 Physical climate risks

Physical risk refers to the financial impact of climate change or the financial impact of environmental conditions. These impacts include more frequent occurrence of extreme weather events, gradual climate change, and progressive environmental degradation. A physical risk is considered acute if it arises as a result of extreme events, such as earthquakes, droughts, floods, or storms. If it is the result of gradual changes (e.g. due to rising temperatures, rising sea levels, loss of biodiversity), the risk is classified as chronic. The impacts can occur directly (such as damage to property or a reduction in productivity) or can have indirect consequences, such as supply chain disruptions.

5.3.2 Transition risks

Transition risk is the danger of financial losses that may directly or indirectly occur for banks or insurance companies, for example, in connection with the process of switching to a lower-carbon and more environmentally sustainable economy. This risk could, for example, arise due to the rapid adoption of political initiatives to protect the climate and the environment, due to technological progress, or due to changes in market sentiment and preferences. DZ BANK makes a distinction between transition risk related to the climate and transition risk related to nature-related risk, with the latter mainly referring to the processes of adaptation in connection with the transition to a more environmentally sustainable economy.

5.3.3 Social risks and corporate governance risks

Social risks arise as a result of inadequate standards for upholding basic rights and protecting against discrimination, or as a result of unfair, opaque, or improper customer practices. Social risks can lead to the loss of employees who are particularly crucial to the success of the business. They can also lead to financial claims or liabilities caused by inappropriate practices. The social risks are reflected in reputational risk, in particular, where the negative effect on reputation can result in a change in customer behavior and demand along with financial losses for the entities in the DZ BANK Group.

Corporate governance risks can arise from insufficient or opaque corporate governance practices or from a lack of or inadequate codes of conduct. This includes a lack of established corporate policy on combating money laundering, bribery, and corruption. Inadequate management of critical supply chains can also increase corporate governance risks. The occurrence of corporate governance risks leads, in particular, to increased reputational risk due to a loss of confidence among customers and investors. This can result in lost income, higher funding costs, or penalties. It can also permanently impair the ability to carry out transactions.

5.4 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 VI.6.2.5).

The rating agencies S&P Global Ratings, Moody's Ratings, and Fitch Ratings confirmed **DZ BANK's ratings** in 2024. The outlooks for the ratings also remained stable.

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 perspective. Whereas the economic perspective (focusing on the DZ BANK Group) takes into account the requirements of the ECB Guide to the ILAAP and MaRisk BA, the normative perspective (focusing on the DZ BANK banking group) – 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 normative liquidity adequacy requirements by managing economic liquidity adequacy while still monitoring internal risk appetite in respect of the regulatory liquidity ratios.

The activities of DZ BANK and the management units that are deemed material in terms of liquidity risk in the risk inventory – BSH, DZ HYP, DZ PRIVATBANK, TeamBank, and VR Smart Finanz – are relevant to the **economic liquidity adequacy** of the DZ BANK Group. DZ BANK is considered to be an isolated management unit from the economic perspective. Due to regulatory requirements, DZ BANK along with all entities consolidated for regulatory purposes with regard to normative liquidity risk are included in the calculation of the **normative liquidity adequacy** of the DZ BANK banking group. Due to the liquidity waiver, another management-level focus in both economic and regulatory management is the **liquidity subgroup** comprising DZ BANK and DZ HYP.

6.2 Liquidity adequacy in the 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

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 DZ BANK Group as a whole and of the management units 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 lasting more than 1 year. Long-term liquidity of more than 1 year, also referred to as structural liquidity, is intended to ensure ongoing

compliance with this management target in a normal market and business environment at the level of the DZ BANK Group, DZ BANK, and DZ HYP. 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 VI.6.2.5).

6.2.4 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.

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 short-term time horizon of 1 year and a long-term time horizon of 10 years.

Using this model, four stress scenarios and one risk scenario are simulated on a daily basis for the short-term time horizon of 1 year. For the long-term time horizon of 10 years, a baseline scenario is simulated on a monthly 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 the risk scenario and the four stress scenarios. This figure quantifies the minimum surplus cash that would be available if the scenario were to materialize suddenly within the time horizon of 1 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.

For a baseline scenario, the **structural minimum liquidity surplus** is calculated by quantifying the surplus cash in the maturity bands 2 to 5 years and 6 to 10 years. This calculation is also carried out by comparing the forward cash exposure and the counterbalancing capacity.

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 S&P Global Ratings, Moody's Ratings, 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 for the time horizon up to 1 year 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.

For the purposes of DZ BANK's internal funding plan, which is closely linked to the business planning of the DZ BANK Group and is prepared at least once a year and reviewed monthly by retrospectively comparing the planned and actual volumes of business generated, the trend is forecast for the minimum liquidity surplus and structural minimum liquidity surplus KPIs in the time horizon of the next 3 calendar years. These forecasts are intended to ensure that DZ BANK's internal funding plan guarantees an adequate level of liquidity over the plan's time horizon.

Management of limits for liquidity risk

Liquidity risk is monitored and managed with the aim of ensuring economic and normative liquidity adequacy at every measurement date. This is based on the minimum liquidity surplus and the structural minimum liquidity surplus. An internal limit system aims to ensure that the DZ BANK Group remains solvent even in serious stress scenarios.

The **minimum liquidity surplus** at the level of the DZ BANK Group, for DZ BANK, and for the liquidity subgroup comprising DZ BANK and DZ HYP is restricted through the use of limits in line with external minimum targets laid down by the supervisory authorities. The limit system of the DZ BANK Group (which is the focus of liquidity risk management) that was established for the minimum liquidity surplus is complemented by the internal minimum threshold and the internal observation threshold, which are both higher than the limit. For DZ BANK and the liquidity subgroup, the management of limits is restricted to limits and internal observation thresholds.

The internal minimum threshold and the internal observation threshold are intended to ensure that corrective action can be initiated in good time before the limit is reached. Limits have also been set for the minimum liquidity surplus of each of the subsidiaries included in liquidity risk management. The internal minimum threshold, limit, and internal observation threshold relate to the stress scenario with the lowest minimum liquidity surplus (squeeze scenario).

The new **structural minimum liquidity surplus** introduced in 2024 is managed at the level of the DZ BANK Group and for DZ BANK using limits that have been established for the maturity bands 2 to 5 years and 6 to 10 years.

The limits and the internal observation thresholds are set by the **Board of Managing Directors**. The liquidity risk control function at DZ BANK **monitors** compliance with the limits and internal observation thresholds for the minimum liquidity surplus both at group level and for DZ BANK, the liquidity subgroup, and the subsidiaries. The limits and internal observation thresholds relating to the structural minimum liquidity surplus are monitored at group level and for DZ BANK.

For the DZ BANK Group as a whole and for each management unit, **emergency liquidity plans** that build on the limit system 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 by the liquidity risk control function at DZ BANK and other management units.

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 within 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 material influence on the minimum liquidity surplus and the structural 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 the largest 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. VI.10 shows the liquidity value of the liquid securities that would result from secured funding or if the securities were sold.

As at December 31, 2024, the total liquidity value at the level of the **DZ BANK Group** was €57.7 billion (December 31, 2023: €37.3 billion). The total liquidity value attributable to **DZ BANK** as at December 31, 2024 was €45.3 billion (December 31, 2023: €26.9 billion). The rise in liquid securities that are eligible for GC Pooling

and as collateral for central bank loans mainly resulted from the gradual growth of securities portfolios and from a higher number of reverse repos with customers, banks in the Cooperative Financial Network, and subsidiaries of DZ BANK.

FIG. VI.10 – LIQUID SECURITIES

	DZ BANK Group		DZ BANK	
€ billion	Dec. 31, 2024	Dec. 31, 2023	Dec. 31, 2024	Dec. 31, 2023
Liquid securities eligible for GC Pooling (ECB Basket)[1]	**27.3**	15.8	**20.2**	9.9
Securities in own portfolio	28.1	20.5	19.0	12.0
Securities received as collateral	11.4	5.9	11.4	5.9
Securities provided as collateral	-12.2	-10.6	-10.3	-8.0
Liquid securities eligible as collateral for central bank loans	**25.5**	17.9	**20.4**	13.6
Securities in own portfolio	23.0	18.0	17.3	13.2
Securities received as collateral	5.2	3.5	5.2	3.5
Securities provided as collateral	-2.7	-3.6	-2.0	-3.2
Other liquid securities	**4.9**	3.7	**4.7**	3.5
Securities in own portfolio	3.3	3.3	3.1	3.0
Securities received as collateral	1.6	0.6	1.6	0.6
Securities provided as collateral	-0.1	-0.2	–	-0.1
Total	**57.7**	37.3	**45.3**	26.9
Securities in own portfolio	54.5	41.8	39.4	28.3
Securities received as collateral	18.2	9.9	18.2	9.9
Securities provided as collateral	-15.0	-14.4	-12.3	-11.3

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

Unsecured short- and medium-term funding

The main factors determining the minimum liquidity surplus and the structural minimum liquidity surplus besides the liquid securities 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 within the approved limits. 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.

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. VI.11.

FIG. VI.11 – UNSECURED SHORT-TERM AND MEDIUM-TERM FUNDING

	DZ BANK Group		DZ BANK	
€ billion	Dec. 31, 2024	Dec. 31, 2023	Dec. 31, 2024	Dec. 31, 2023
Deposits	**100.6**	99.7	**89.7**	85.3
Deposits of local cooperative banks	64.8	59.7	64.2	59.1
Current account deposits of other customers	35.8	40.0	25.5	26.1
Money market borrowing	**73.9**	59.8	**68.0**	57.9
Central banks, interbank, and customer banks	10.7	7.8	9.6	7.8
Corporate customers and institutional customers	41.6	36.2	39.2	36.0
Certificates of deposit/commercial paper	21.6	15.8	19.1	14.1

The changes in the composition of the sources of funding compared with December 31, 2023 arose because customers and investors were focused on diversification due to the interest-rate situation. The changes included term extensions as a result of reallocations from current account deposits to fixed-term deposits, which were made on the basis of assumptions about anticipated interest-rate cuts by the ECB.

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

The **maturity analysis of contractual cash inflows and cash outflows** is set out in note 86 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

Minimum liquidity surplus

Short-term 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. VI.12 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. VI.12 – 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, 2024	Dec. 31, 2023	Dec. 31, 2024	Dec. 31, 2023	Dec. 31, 2024	Dec. 31, 2023
Downgrading	7.6	-43.6	42.5	90.6	50.1	46.9
Corporate crisis	-60.3	-45.6	83.0	64.1	22.7	18.5
Market crisis	-67.4	-47.9	101.0	78.9	33.6	31.0
Combination crisis	-66.7	-47.4	93.0	72.1	26.3	24.7

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

The liquidity risk value measured for the **DZ BANK Group** as at December 31, 2024 for the stress scenario with defined limits with the lowest minimum liquidity surplus (squeeze scenario) was €22.7 billion (December 31, 2023: €18.5 billion). The liquidity risk value attributable to **DZ BANK** as at December 31, 2024 was €11.8 billion (December 31, 2023: €4.8 billion). The liquidity risk value attributable to the **liquidity subgroup** as at December 31, 2024 was €13.3 billion (December 31, 2023: €6.8 billion).

The rise in the minimum liquidity surplus was largely due to the increase in current account deposits and overnight money from banks in the Cooperative Financial Network.

The minimum liquidity surplus as at December 31, 2024 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 limit for the minimum liquidity surplus of the **DZ BANK Group** as at December 31, 2024 was €1.0 billion. The internal observation threshold stood at €5.0 billion as at the reporting date. The limits and internal observation thresholds in place for **DZ BANK** and for the **liquidity subgroup** as at December 31, 2024 were unchanged compared with December 31, 2023 at €1.9 billion.

As at the reporting date, 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 minimum thresholds**, and the **internal observation thresholds**. The target/threshold values are shown in Fig. VI.3 and Fig. VI.4. The **limits** were adhered to.

Structural minimum liquidity surplus

The structural economic liquidity adequacy in the baseline scenario is ensured if there is no negative value below the relevant limit in either of the two maturity bands, 2 to 5 years and 6 to 10 years. The results of measuring liquidity risk in Fig. VI.13 are obtained by comparing the forward cash exposure and the counterbalancing capacity in the relevant maturity bands. The amount of the minimum liquidity surplus is disclosed for each maturity band.

The limits for the structural minimum liquidity surplus were adhered to as at December 31, 2024, both at the level of the DZ BANK Group and at DZ BANK.

FIG. VI.13 – STRUCTURAL MINIMUM LIQUIDITY SURPLUS OF THE DZ BANK GROUP AND DZ BANK[1]

		Limit		Structural minimum liquidity surplus	
€ billion	Period	Dec. 31, 2024	Dec. 31, 2023	Dec. 31, 2024	Dec. 31, 2023
DZ BANK Group	2–5 years	-4.0		50.6	
	6–10 years	-6.0		28.8	
DZ BANK	2–5 years	0.0		38.4	
	6–10 years	-6.0		14.2	

Not available

1 The structural minimum liquidity surplus was calculated for the first time in 2024, which is why no figures as at December 31, 2023 are available.

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 Liquidity adequacy in the normative perspective

6.3.1 Regulatory framework, organization, and responsibility

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.

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 DZ BANK banking group and the liquidity subgroup.

6.3.2 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. The LCR 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 DZ BANK banking group, calculated in accordance with the CRR in conjunction with Commission Delegated Regulation (EU) 2015/61, to the supervisory authority on a monthly basis.

The LCRs for the **DZ BANK banking group** and the **liquidity subgroup** can be found in Fig. VI.14. The liquidity subgroup comprises DZ BANK and DZ HYP. The changes in the LCR in 2024 were unremarkable both at the level of the DZ BANK banking group and for the liquidity subgroup.

FIG. VI. 14 – LIQUIDITY COVERAGE RATIOS AND THEIR COMPONENTS

	DZ BANK banking group		Liquidity subgroup	
	Dec. 31, 2024	Dec. 31, 2023	Dec. 31, 2024	Dec. 31, 2023
Total liquidity buffer (€ billion)	122.0	125.6	106.2	105.8
Total net liquidity outflows (€ billion)	84.8	86.1	76.6	74.0
LCR (percent)	**143.9**	**145.8**	**138.6**	**143.1**

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

6.3.3 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. Its longer-term perspective means that it complements the LCR, which has a short-term focus.

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

The NSFRs calculated for the **DZ BANK banking group** and the **liquidity subgroup** are presented in Fig. VI.15. The liquidity subgroup comprises DZ BANK and DZ HYP. The changes in the NSFRs in 2024 were unremarkable both at the level of the DZ BANK banking group and for the liquidity subgroup.

FIG. VI.15 – NET STABLE FUNDING RATIO AND ITS COMPONENTS

	DZ BANK banking group		Liquidity subgroup	
	Dec. 31, 2024	Dec. 31, 2023	Dec. 31, 2024	Dec. 31, 2023
Available stable funding (weighted equity and liabilities; € billion)	290.7	287.9	222.0	212.7
Required stable funding (weighted assets; € billion)	232.5	227.6	186.6	178.7
Excess cover/shortfall (€ billion)[1]	58.1	60.3	35.4	34.0
NSFR (percent)	**125.0**	**126.5**	**119.0**	**119.0**

1 Excess cover = positive values, shortfall = negative values.

As at the reporting date, the **external minimum target** laid down by the supervisory authorities, the **internal minimum threshold**, and the **internal observation threshold** for the NSFR were exceeded for both the DZ BANK banking group and the liquidity subgroup. The target/threshold values are shown in Fig. VI.3 and Fig. VI.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 R+V.

7.2 R+V's volatility adjustment and transitional measure on technical provisions

R+V uses two measures defined by the supervisory authorities – the volatility adjustment and the transitional measure on technical provisions – for individual personal insurance companies. Fundamentally, both measures have a positive impact on economic and regulatory capital adequacy.

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.

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. Having obtained permission to do so from BaFin, R+V has been using the transitional measure on technical provisions for individual personal insurance companies since 2020. Use of this measure generally reduces insurance liabilities and therefore means that additional own funds can be taken into account, which – all other things being equal – results in an increase in both economic and regulatory capital adequacy.

In view of the rise in interest rates, BaFin requested, at the start of 2024, that the affected insurance companies remeasure their transitional measure on technical provisions. The remeasurement carried out for R+V as at January 1, 2024 produced a value of zero for the transitional measure on technical provisions. As instructed by BaFin, DZ BANK has been using the remeasured figure to calculate economic and regulatory capital adequacy since June 30, 2024. This resulted in a reduction compared with the end of 2023 both in the DZ BANK Group's economic capital adequacy (see chapter VI.7.3.2) and in the coverage ratios of the DZ BANK financial conglomerate (see chapter VI.7.4.2) and of R+V (see chapter VI.7.4.4).

7.3 Capital adequacy in the economic perspective

7.3.1 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 2024 was kept unchanged year on year at 120.0 percent. The amber threshold serves as an early-warning indicator. The **red threshold** is the borderline between amber and red in the traffic light system. It was set at 110.0 percent in the year under review, again unchanged compared with 2023. The threshold values for economic capital adequacy are reviewed annually and adjusted if necessary.

7.3.2 Risk-bearing capacity

Retrospective recalculation of the overall solvency requirement

The annual recalculation of the overall solvency requirement took place as at December 31, 2024 owing to scheduled changes to the parameters for the risk measurement procedures carried out in the second quarter of 2025 for the Insurance sector on the basis of R+V's 2023 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, 2024 given in this risk report have been restated accordingly and are not directly comparable with the figures in the 2023 risk report.

Available internal capital and limit

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 R+V 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 DZ BANK Group's **available internal capital** as at December 31, 2024 stood at €28,987 million. The comparable figure as at December 31, 2023 was €31,720 million. The decrease in available internal capital compared with the end of 2023 was largely attributable to the remeasurement of the transitional measure on technical provisions. The inclusion of the resulting value of zero for the transitional measure on technical provisions served to increase insurance liabilities in the life insurance business and thereby decrease the surplus of assets over liabilities on the Solvency II balance sheet in the Insurance sector. Remeasuring the transitional measure on technical provisions had an overall impact of €3.6 billion on the DZ BANK Group's available internal capital.

The **limit** derived from the available internal capital was specified at €21,191 million as at December 31, 2024 (December 31, 2023: €19,698 million).

As at December 31, 2024, **aggregate risk** was calculated at €14,660 million. The comparable figure as at December 31, 2023 was €15,170 million.

Economic capital adequacy

As at December 31, 2024, the **economic capital adequacy ratio** for the DZ BANK Group was calculated at 197.6 percent. The comparable figure as at December 31, 2023 was 209.1 percent. The decrease in available internal capital compared with December 31, 2023 was sharper than the decrease in aggregate risk . This led to a decline in economic capital adequacy.

As at the reporting date, the economic capital adequacy ratio was above the **external minimum target**, the **internal minimum threshold**, and the **internal observation threshold**. The target/threshold values are shown in Fig. VI.3.

Fig. VI.16 provides an overview of economic capital adequacy and its components.

FIG. VI.16 – ECONOMIC CAPITAL ADEQUACY OF THE DZ BANK GROUP

	Dec. 31, 2024	Dec. 31, 2023
Available internal capital (€ million)[1]	28,987	31,720
Limit (€ million)	21,191	19,698
Aggregate risk (€ million)[1]	14,660	15,170
Economic capital adequacy (percent)[1]	**197.7**	**209.1**

1 Value as at December 31, 2023 after recalculation of R+V's overall solvency requirement. Different values were stated in the 2023 risk report.

The limits and risk capital requirements for the **Bank sector**, broken down by risk type, are shown in Fig. VI.17.

FIG. VI.17 – LIMITS AND RISK CAPITAL REQUIREMENTS IN THE BANK SECTOR

	Limit		Risk capital requirement	
€ million	Dec. 31, 2024	Dec. 31, 2023	Dec. 31, 2024	Dec. 31, 2023
Credit risk	4,994	4,988	4,011	3,971
Equity investment risk	1,364	1,281	807	998
Market risk	7,120	6,470	3,621	4,169
Technical risk of a home savings and loan company[1]	820	820	719	730
Business risk[2]	500	450	–	363
Operational risk	1,157	1,148	1,041	978
Total (after diversification)	**14,941**	**14,218**	**9,565**	**10,471**

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. VI.18 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. VI.18 – LIMITS AND OVERALL SOLVENCY REQUIREMENTS IN THE INSURANCE SECTOR

	Limit		Overall solvency requirement	
€ million	Dec. 31, 2024	Dec. 31, 2023	Dec. 31, 2024	Dec. 31, 2023[1]
Life actuarial risk[2]	1,100	1,060	927	946
Health actuarial risk	400	285	335	255
Non-life actuarial risk	2,250	1,900	2,013	1,823
Market risk	4,450	3,695	3,965	3,580
Counterparty default risk	325	245	252	219
Operational risk	800	700	678	627
Risks from entities in other financial sectors	265	225	194	217
Total (after diversification)	**5,700**	**4,800**	**4,620**	**4,308**

1 Values after recalculation of the overall solvency requirement. Different values were stated in the 2023 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. VI.17 and Fig. VI.18, the aggregate risk includes **a centralized capital buffer requirement across all types of risk**, which was calculated at €475 million as at December 31, 2024 (December 31, 2023: €391 million). The corresponding **limit** was €550 million (December 31, 2023: €680 million). The increase in the centralized capital buffer requirement was primarily due to equity investment risk.

7.3.3 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.

7.4 Capital adequacy in the normative perspective

7.4.1 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, risk-bearing capacity is assured if, in the medium term, all regulatory minimum solvency requirements are met, 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.

7.4.2 DZ BANK financial conglomerate

The DZ BANK financial conglomerate comprises the DZ BANK banking group and R+V. 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. VI.19.

FIG. VI.19 – REGULATORY CAPITAL ADEQUACY OF THE DZ BANK FINANCIAL CONGLOMERATE[1]

	Dec. 31, 2024[2]	Dec. 31, 2023[3]
Own funds (€ million)	37,651	39,195
Solvency requirements (€ million)	27,835	25,694
Coverage ratio (percent)	**135.3**	**152.5**

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. Preliminary figures were stated in the 2023 risk report.

The coverage ratio calculated for the DZ BANK financial conglomerate declined from 152.5 percent as at December 31, 2023 to 135.3 percent as at December 31, 2024. This was attributable, in particular, to the decrease of €1,545 million in own funds resulting from the remeasurement of the transitional measure on technical provisions as at January 1, 2024. It was also due to an increase in solvency requirements of €2,141 million. The effects that led to this change in the coverage ratio were attributable to the DZ BANK banking group and R+V (see also chapter VI.7.4.3 and chapter VI.7.4.4).

The preliminary coverage ratio calculated for the financial conglomerate as at December 31, 2024 was higher than the **external minimum target** laid down by the supervisory authorities, the **internal minimum threshold**, and the **internal observation threshold**. The target/threshold values are shown in Fig. VI.3.

7.4.3 DZ BANK banking group

Procedure for determining risk-weighted assets

Capital adequacy from a normative perspective serves to ensure that the regulatory capital requirements and rules on capital are met. As part of risk-based banking supervision, it is intended to ensure that a bank's exposures are backed by capital in a volume that is as appropriate as possible for the risk involved. Capital adequacy is defined as meeting the minimum requirements for the common equity Tier 1 capital ratio, the Tier 1 capital ratio, and the total capital ratio.

For all three ratios, the relevant items of capital are calculated using the CRR rules and compared with the total risk exposure determined under the CRR (referred to below as risk assets). If the ratios calculated in this way exceed the minimum regulatory ratios, the requirements are deemed met.

The entities in the DZ BANK banking group use the following methods to calculate the 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 minimum capital requirements

The minimum capital requirements that the DZ BANK banking group had to comply with in 2024 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 2023, also have 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 2024.

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. VI.20.

Regulatory capital ratios

The regulatory **own funds** of the **DZ BANK banking group** as at December 31, 2024 determined in accordance with the CRR transitional guidance amounted to a total of €32,738 million (December 31, 2023: €30,647 million). This equated to a rise in own funds of €2,091 million compared with December 31, 2023 that mainly resulted from an increase in common equity Tier 1 capital of €2,031 million.

The increase in **common equity Tier 1 capital** from €23,632 million as at December 31, 2023 to €25,663 million as at the reporting date was primarily due to the interim profit of €1,606 million as at the reporting date, which was calculated taking account of all regulatory dividends and charges and was approved in accordance with Decision (EU) 2015/656 of the ECB. Moreover, switching to the dividend actually distributed for 2023 in May 2024 raised the retained earnings by €332 million because the dividend of €780 million as forecast for 2023 on the basis of regulatory requirements in accordance with Decision (EU) 2015/656 of the ECB was previously taken into account.

The rise of €10,415 million in **risk-weighted assets** from €152,148 million as at December 31, 2023 to €162,563 million as at December 31, 2024 was largely attributable to three effects:

- Risk-weighted assets for credit risk (including long-term equity investments) went up by €7,727 million. This rise was mainly due to the higher measurement, using the equity method, of DZ BANK's long-term equity investment in R+V, business growth, portfolio adjustments during the course of the year, and changes to the internal model.
- The €1,861 million rise in risk-weighted assets for operational risk resulted from the improvement in earnings for the previous year (calculated in accordance with IFRS) compared with the corresponding earnings for 2023.
- Furthermore, the risk-weighted assets determined for market risk advanced by €826 million.

FIG. VI.20 – REGULATORY MINIMUM CAPITAL REQUIREMENTS

	DZ BANK banking group		DZ BANK	
Percent	2024	2023	2024	2023
Minimum requirement for common equity Tier 1 capital	4.5	4.5	4.5	4.5
Additional Pillar 2 capital requirement	1.1	1.0		
Capital conservation buffer	2.5	2.5	2.5	2.5
Countercyclical capital buffer[1]	0.7	0.7	0.7	0.7
Systemic risk buffer	0.1	0.2		
O-SII capital buffer	1.0	1.0		
Mandatory minimum requirement for common equity Tier 1 capital	**10.0**	**9.9**	**7.7**	**7.7**
Minimum requirement for additional Tier 1 capital[2]	1.5	1.5	1.5	1.5
Additional Pillar 2 capital requirement[2]	0.3	0.3		
Mandatory minimum requirement for Tier 1 capital	**11.8**	**11.7**	**9.2**	**9.2**
Minimum requirement for Tier 2 capital[2]	2.0	2.0	2.0	2.0
Additional Pillar 2 capital requirement[2]	0.4	0.5		
Mandatory minimum requirement for total capital	**14.2**	**14.2**	**11.2**	**11.2**

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 2024 and 2023 relate solely to the reporting dates.
2 The minimum requirement and additional capital requirement can also be satisfied with own funds from higher categories.

As at December 31, 2024, the DZ BANK banking group's **common equity Tier 1 capital ratio** was 15.8 percent, an increase of 0.3 percentage points compared with December 31, 2023 (15.5 percent). The **Tier 1 capital ratio** of 17.8 percent calculated as at the reporting date was 0.1 percentage points higher than the figure as at December 31, 2023 (17.7 percent). The **total capital ratio** remained unchanged year on year at 20.1 percent as at December 31, 2024.

Fig. VI.21 provides an overview of the regulatory capital ratios for the DZ BANK banking group and for DZ BANK.

The **external minimum targets**, **internal minimum thresholds** , and **internal observation thresholds** 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, 2024. The target/threshold values are shown in Fig. VI.3 and Fig. VI.4.

FIG. VI.21 – REGULATORY CAPITAL RATIOS[1]

	DZ BANK banking group		DZ BANK	
	Dec. 31, 2024	Dec. 31, 2023	Dec. 31, 2024	Dec. 31, 2023
Capital				
Common equity Tier 1 capital (€ million)	25,663	23,632	15,191	14,871
Additional Tier 1 capital (€ million)	3,293	3,293	3,043	3,043
Tier 1 capital (€ million)	**28,956**	**26,925**	**18,234**	**17,914**
Total Tier 2 capital (€ million)	3,782	3,722	3,867	3,836
Own funds (€ million)	**32,738**	**30,647**	**22,101**	**21,751**
Risk-weighted assets				
Credit risk including long-term equity investments (€ million)	145,975	138,249	94,808	93,332
Market risk (€ million)	5,509	4,683	4,975	4,296
Operational risk (€ million)	11,078	9,217	4,615	4,110
Total (€ million)	**162,563**	**152,148**	**104,398**	**101,738**
Capital ratios				
Common equity Tier 1 capital ratio (percent)	15.8	15.5	14.6	14.6
Tier 1 capital ratio (percent)	17.8	17.7	17.5	17.6
Total capital ratio (percent)	20.1	20.1	21.2	21.4

1 In accordance with the CRR transitional guidance.

Leverage ratio

The **leverage ratio** shows the ratio of Tier 1 capital to the total exposure measure. 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 measure without being weighted. The total exposure measure comprises exposures reported on the balance sheet (excluding derivatives and securities financing transactions), derivatives exposures, securities financing transaction exposures, and other off-balance-sheet exposures.

The leverage ratio and its components are shown in Fig. VI.22.

FIG. VI.22 – LEVERAGE RATIO AND ITS COMPONENTS

	DZ BANK banking group		DZ BANK	
	Dec. 31, 2024	Dec. 31, 2023	Dec. 31, 2024	Dec. 31, 2023
Tier 1 capital (€ billion)	29.0	26.9	18.2	17.9
Total exposure measure (€ billion)	440.6	432.6	272.0	262.4
Leverage ratio (percent)	**6.6**	6.2	**6.7**	**6.8**

The leverage ratio of the **DZ BANK banking group** determined in accordance with the CRR transitional guidance was up by 0.4 percentage points as at December 31, 2024. This is due to the €2.0 billion rise in Tier 1 capital in the numerator and a comparatively low €8.0 billion increase in the total exposure measure in the denominator. The leverage ratio of **DZ BANK** calculated as at the reporting date decreased slightly year on year.

The leverage ratios for the DZ BANK banking group and DZ BANK exceeded the **external minimum targets**, the **internal minimum thresholds**, and the **internal observation thresholds** as at the reporting date. The target/threshold values are shown in Fig. VI.3 and Fig. VI.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.

The MREL requirements introduced with the BRRD 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 **MREL ratio as a percentage of risk-weighted assets** is the ratio of the MREL volume to the total risk exposure amount (risk-weighted assets) of the DZ BANK banking group. The MREL volume is the total of the regulatory own funds of the DZ BANK banking group and the eligible external MREL liabilities of DZ BANK. To calculate the **subordinated MREL ratio as a percentage of risk-weighted assets**, only the subordinated MREL liabilities are included in the numerator in addition to the regulatory own funds of the DZ BANK banking group. The denominator is the same as for the MREL ratio.

The **MREL ratio as a percentage of the leverage ratio exposure** is the ratio of the MREL volume to the total exposure measure, which comprises on-balance-sheet asset items and off-balance-sheet items (including derivatives), known as the leverage ratio exposure of the DZ BANK banking group. To calculate the **subordinated MREL ratio as a percentage of the leverage ratio exposure**, only the subordinated MREL liabilities are included in the numerator in addition to the regulatory own funds of the DZ BANK banking group. The denominator is the same as for the MREL ratio.

The MREL ratios are calculated for the DZ BANK banking group, but not for DZ BANK. The calculated MREL ratios are shown in Fig. VI.23.

FIG. VI.23 – MINIMUM REQUIREMENT FOR OWN FUNDS AND ELIGIBLE LIABILITIES OF THE DZ BANK BANKING GROUP

Percent	Dec. 31, 2024	Dec. 31, 2023
MREL ratio		
as a percentage of risk-weighted assets[1]	36.2	37.6
as a percentage of the leverage ratio exposure[2]	13.4	13.2
Subordinated MREL ratio		
as a percentage of risk-weighted assets[3]	29.5	31.1
as a percentage of the leverage ratio exposure	10.9	10.9

1 Corrected figure as at December 31, 2023. Original figure given in the 2023 risk report: 42.4 percent.
2 Corrected figure as at December 31, 2023. Original figure given in the 2023 risk report: 14.9 percent.
3 Corrected figure as at December 31, 2023. Original figure given in the 2023 risk report: 31.0 percent.

The **external minimum targets**, **internal minimum thresholds**, and **internal observation thresholds** applicable to the MREL ratios and the subordinated MREL ratios were exceeded as at December 31, 2024. The target/threshold values are shown in Fig. VI.3.

7.4.4 R+V

The regulatory solvency requirements for insurance companies and insurance groups provide a means of evaluating the overall risk position at R+V.

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 R+V as a whole and each of its constituent entities are analyzed at least once a quarter.

The preliminary figure for the **regulatory risk-bearing capacity** of R+V as at December 31, 2024 was calculated at 168.5 percent. The coverage ratio was thus above the external minimum target of 100.0 percent, which was the same target as had applied in 2023. The final figure as at December 31, 2023 was 224.1 percent (preliminary figure given in the 2023 risk report: 230.2 percent).

Fig. VI.24 shows how the solvency requirements are covered by eligible own funds.

FIG. VI.24 – REGULATORY CAPITAL ADEQUACY OF R+V

	Dec. 31, 2024[1]	Dec. 31, 2023[2]
Own funds (€ million)	14,810	17,642
Solvency requirements (€ million)	8,791	7,871
Coverage ratio (percent)	**168.5**	**224.1**

1 Preliminary figures.
2 Final figures. The preliminary figures were stated in the 2023 risk report.

The changes in the regulatory risk-bearing capacity are primarily due to the decrease in own funds resulting from the remeasurement of the transitional measure on technical provisions. In addition, the solvency requirements increased as a result of lower policyholder participation in risk.

The **recalculation of the overall solvency requirement** described in chapter VI.7.3.2 for economic risk-bearing capacity also affected the regulatory risk-bearing capacity of R+V and led to retrospective changes in the solvency requirements as at the end of 2023. The prior-year figures as at December 31, 2023 given in this risk report have been restated accordingly and are not directly comparable with the figures in the 2023 risk report.

7.5 Stress tests for types of risk covered by capital

7.5.1 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.

7.5.2 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.

7.5.3 Scenario analyses in the risk types

The adverse and reverse stress tests are supplemented by a credit risk stress test in the normative perspective and by various risk type-specific scenario analyses in the economic perspective. These analyses serve as a link between vulnerabilities and sensitivities on the one hand and between potential events and adverse scenarios on the other. 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.

7.5.4 Climate stress tests

DZ BANK carries out **exploratory climate risk scenario analysis** in order to obtain a quantitative assessment of the materiality of relevant climate risk factors. This analysis includes the simulation of effects of different physical scenarios (including river flooding and forest fire) and transition scenarios on the DZ BANK Group. For the transition scenarios, macroeconomic models are combined with company- and sector-specific channels of impact and with data relating to the energy efficiency of real estate collateral. Various transmission channels are examined in terms of credit risk, market risk, reputational risk, operational risk, and insurance-related risks. The impacts on economic and normative capital adequacy are presented too.

Climate risks in the adverse stress tests are also factored in, for example by analyzing a specific adverse scenario that represents accelerated climate transition.

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 due payments. It also includes risks arising from contingent liabilities (such as issued guarantees and indemnities). In addition to loans that have already been drawn down (including any existing overdrawn accounts), the calculation of the exposure encompasses undrawn loan facilities promised to third parties. Migration risk is a sub-risk within traditional credit risk and reflects the risk of changes in the fair value of types of exposure in the traditional lending business 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 default of issuers of tradable debt or equity instruments (such as bonds, shares, profit-participation certificates), of underlying instruments in derivatives (for example, credit or equity derivatives), or a default in connection with investment fund units or the underlying assets.

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 arises in connection with both delivery-versus-payment (DVP) settlement and unilateral payments in a trading transaction and is the result of the counterparty in a trading transaction being unable to perform its contractual obligation.

Migration risk is another sub-risk within replacement risk and reflects the danger of changes in fair value caused by a change in the rating for a counterparty (rating migration). For the migration risk of OTC derivatives, the term CVA risk is used, which also includes spread risk. CVA stands for credit valuation adjustment.

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 (CTPM 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. It also includes the danger that a creditor is prohibited from accepting a payment due to sanctions or other restrictive measures imposed by intermediary countries or the creditor's home country.

Another form of CTPM risk is the risk of cross-border payments no longer being made in the agreed currency and instead being made in another currency (local currency or third-party currency). This can be due to statutory rules or individual agreements requiring this in response to a CTPM risk event in relation to the contractual currency. 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, DZ HYP, BSH, 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 fulfilling the role 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

Negative macroeconomic conditions

In addition to the general risk factors, negative macroeconomic conditions could lead to higher credit risk, more defaults among individual counterparties, and therefore a greater need to recognize impairment losses in the lending business. The biggest threats to general borrower credit quality stem from the following adverse factors:

- Escalation of geopolitical tensions and resulting trade friction (chapter VI.5.2.1)
- Global economic downturn (chapter VI.5.2.2)
- Ongoing weakness in the German economy (chapter VI.5.2.4)
- Correction in real estate markets (chapter VI.5.2.5)

If the macroeconomic trends described there persist for a while longer yet, or escalate, credit risk in the Bank sector will likely rise significantly.

The lending exposures affected to differing extents by these macroeconomic risk factors are described in chapters VI.8.8, VI.8.9, and VI.8.10.

Sustainability risk factors

Negative cross-sectoral or sector-specific **climate-related developments** and negative **transition effects** can directly or indirectly cause the financial circumstances of counterparties – borrowers, issuers, and other counterparties – to deteriorate. This can lead to higher probabilities of default and lower credit ratings for the relevant counterparties and to a greater need for the entities in the Bank sector to recognize impairment losses. There is also a risk that collateral for loan exposures could become impaired. The degree to which the entities in the Bank sector are affected by climate-related and environmental risks depends on their individual business model.

8.4 Organization and responsibility

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.

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 and loan monitoring processes. In addition, internal ratings are used to incorporate the credit quality of the counterparties when calculating expected and unexpected losses in the credit portfolio. In this way, credit quality is included in risk measurement, pricing, risk management, and the calculation of loss allowances.

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 large corporates, 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 small and medium-sized enterprises (corporate customers, including agricultural businesses and not-for-profit organizations; foreign SMEs), countries, object finance, acquisition financing, public-sector entities, and insurance companies.

Most of the other entities in the Bank sector use the DZ BANK rating systems for banks, countries, and large corporates. 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. In the first half of 2024, the new corporate customer rating system was introduced to replace the previous system for SMEs, agricultural businesses, and not-for-profit organizations. A substantially revised rating system for project finance was also implemented.

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. VI.25 shows DZ BANK's credit rating master scale and matches the internal credit ratings to the ratings used by S&P Global Ratings, Moody's Ratings, 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. VI.25 – 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 Ratings	S&P Global Ratings	Fitch Ratings	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 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 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 risk management tool for 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.

8.5.3 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 (**pre- and post-transaction control**) is included in an IT-supported limit monitoring system, to which all relevant trading systems are directly or indirectly connected. Furthermore, the trading exposure in the Bank sector is managed on a decentralized basis at management unit level.

As in the traditional lending business, processes have also been established in the trading business to provide **early warnings and notification of limit overruns** and for daily and monthly reporting. 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.

8.5.4 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 borrowers and groups of connected customers 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 VI.658.5.5.

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.

Through the **monthly trading business report**, DZ BANK's **Risk Committee** is informed about relevant wrong-way risk and concentration risk arising in connection with derivatives and securities financing, including any necessary exposure adjustments.

8.5.5 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 VI.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 Ratings) or A- (S&P Global Ratings, 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.

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.

Other risk mitigation methods

Under EMIR, market players must report and promptly confirm all exchange-traded and OTC derivatives to central trade repositories. The regulation also requires a daily portfolio reconciliation of transactions for which the bilateral variation margin is exchanged.

Central counterparties

Under EMIR, market players must also 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 London Clearing House Ltd, London, (LCH Ltd), which is Europe's largest clearing house for interest-rate derivatives, and of Eurex Clearing AG, Eschborn. 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 S.A., Paris, (LCH S.A) via clearing broker Deutsche Bank AG, Frankfurt am Main.

As a direct member, DZ BANK is connected to LCH S.A. and LCH Ltd for the purpose of clearing repos. Derivatives on foreign exchanges are settled through UBS Group AG, Zurich.

8.5.6 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 subsidiaries that have a material traditional lending business (**BSH**, **DZ HYP**, and **TeamBank**), 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.

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.

8.5.7 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. Credit value-at-risk is calculated on the basis of a holding period of 1 year and a confidence level of 99.9 percent. 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 VI.4.5.2. A **traffic light system** is used to monitor Bank sector management units' compliance with the limits specified for credit risk.

8.6 Managing sustainability risks in the lending business

8.6.1 Principles of sustainability risk management in the lending business

The **group credit standard** on the consideration of risks associated with ESG factors in the DZ BANK Group provides guidelines for the lending business on sustainable lending in the Bank sector. The document contains exclusion criteria that prohibit lending that does not satisfy the minimum ESG requirements or entails heightened greater reputational risk. The sustainability assessment considers positive criteria and ascertains that the funding has a sustainability-oriented focus. In addition, the group credit standard includes a definition of sustainability risks and a description of how these should be addressed in the business activities, especially in the granting and monitoring of loans and the valuation of collateral.

The rules on taking account of sustainability matters in **lending processes** encompass processes for the extension of loans, the monitoring of loans, and the valuation of collateral. Sustainability matters are also taken into account in regular and ad hoc credit control. The rules are continually refined. Employees working in front-office divisions and credit analysis are kept up to date and trained on any changes.

Before a detailed sustainability-related credit check is carried out, funding projects are checked as to whether **exclusion criteria** apply and whether **sector criteria** are satisfied. If the findings of the check are negative, the funding project is not pursued further.

DZ BANK has committed to the 10 universally accepted principles of responsible conduct in relation to human rights, labor standards, environmental protection, and the fight against corruption set forth in the **United Nations Global Compact** and it observes these principles when considering funding projects. It has also undertaken to comply with other voluntary frameworks, such as the **Equator Principles** – a voluntary set of guidelines adopted by banks to ensure compliance with environmental and social standards in project finance – and the **International Finance Corporation (IFC) Performance Standards**. The above standards are operationalized using the exclusion criteria, the sector criteria, and an ESG checklist.

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.

8.6.2 Exclusion criteria and sector criteria

The entities in the Bank sector have developed sector-specific **exclusion criteria** for lending activities in order to prohibit lending that does not satisfy the minimum ESG requirements or entails heightened reputational risk. The exclusion criteria are reviewed on an ongoing basis, and adapted and expanded as necessary. The current principles applicable to the Bank sector are very similar to DZ BANK's exclusion criteria.

DZ BANK's exclusion criteria primarily relate to the following activities and types of business:

- Oil extraction activities (upstream) and oil/gas extraction that involves fracking, oil shale/oil sands, Arctic drilling, or deep sea mining
- Activities connected with the construction, operation, or maintenance of nuclear power stations
- Trading of endangered animal or plant species
- Significant threats to the environment, particularly uranium/asbestos extraction, mining activities involving the mountain-top removal method, and projects, assets, or activities that pose a high risk of nuclear, biological, or chemical contamination (excluding biogas facilities), or hazardous goods with insufficient measures to minimize risk

A borrower's corporate governance can also pose a risk in the course of lending business. Indications of such risk include suspected corruption, tax evasion proceedings, and ongoing antitrust proceedings. In these cases, the risk lies in the potentially negative effects of judicial proceedings on the borrower's reputation, which could lead to declining revenue and a reduction in earnings power. The lending and loan monitoring 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 relating to anti-corruption, competition, and tax are conducted and evaluated in a standardized manner prior to lending.

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 sector criteria mainly focus on the following aspects:
- Dams and water infrastructure
- Commodities industry
- Agriculture
- Forestry
- Fishing
- Maritime industry
- Palm oil

8.6.3 ESG checklists

Factors of relevance to the financing arrangement in question are systematically assessed and documented in relation to social, ethical, and environmental risks using **ESG checklists**, which are based on the 10 principles of the UN Global Compact. Various asset-class-specific ESG checklists exist for corporates, finance companies, and countries as well as for project finance. The ESG checklist for project finance looks at whether the Equator Principles are applied. The corporates ESG checklist used by DZ BANK and DZ HYP forms the basis for all other ESG checklists, which differ from the corporates checklist in that they only include questions that are relevant to the specific asset class.

The ESG checklists are intended to help to gauge the sustainability efforts of a customer or the sponsor of a funding project and to determine the funding's reputational impact on DZ BANK. They contain up to 16 questions that examine the environmental, social, and corporate governance dimensions and analyze the customer's / project sponsor's general engagement with sustainability. The ESG checklists also enable possible negative environmental impacts of a funding project (such as air pollution and water shortages), including on biodiversity, to be identified. As a rule, the ESG checklists are initially filled in for each counterparty to the application by front-office employees and are then checked by credit analysis employees.

The findings of the sustainability assessment are depicted on a four-level scale that ranges from neutral/green (neutral impact on DZ BANK's reputation) to high/red (strong negative impact on DZ BANK's reputation). Loan applications with an elevated or strong ESG-related negative reputational impact require approval at a higher authorization level.

8.6.4 ESG credit risk score and pricing

Since 2023, DZ BANK has used the **ESG credit risk score** to assess the effects of sustainability matters on DZ BANK customers' credit risk. This score supplements the internal credit rating for corporate customers by providing an additional statement on the probability and scope of a potential future change in creditworthiness due to sustainability matters for a medium-term time horizon (5 to 10 years). The process provides a cross-sectoral statement on creditworthiness. This means that two corporate customers that operate in different sectors but have the same ESG credit risk score can be affected to a similar degree, irrespective of how their respective sector is affected by ESG risk.

The underlying methodology of the ESG credit risk score is based on relative revenue intensity, which is calculated, for example, as the absolute greenhouse gas emissions of a counterparty relative to the entity's revenue. In addition to internally available revenue data, data from external sources is also used.

The ESG credit risk score encompasses physical environmental risks and transition risks, social risks, and corporate governance risks, providing a separate subscore for each risk type. The individual results for the different risk types within the ESG credit risk score have five possible risk levels, ranging from A (very low risk) to E (very high risk).

Particularly in the case of transition risks, statutory measures such as a ban on internal combustion engines will lead to credit rating downgrades and potentially even loan defaults if companies fail to transform in the ESG sphere. However, such effects will materialize only in the medium term. Poor ESG credit risk scores are therefore mainly significant for long-term loan agreements and less so for short-term lending. The greenhouse gases associated with a financing arrangement are critical in determining transition risk. In 2024, this information was only publicly available from companies that were subject to statutory ESG disclosure requirements. Greenhouse gas emissions were therefore not available for all of DZ BANK's borrowers. Average industry figures were used in these cases.

The ESG credit risk score is factored into **pricing** for lending business with corporate customers by adding an ESG markup factor to the standard risk costs for corporates in pre- and ex-post analysis of loans. Changes in the probability of default for a customer (known as a PD shift) are determined in a two-step process. In the first step, the average anticipated markups for the corporate portfolio are calculated using the simulation results from the climate scenarios devised by the Network for Greening the Financial System (NGFS) and from the NGFS baseline scenario. In a second step, these average markups are used to define customer-specific markups, taking the customers' individual ESG credit risk scores into account. The level of the customer-specific markup depends on the customer's individual score. In line with the observation period for the ESG credit risks, the markups are only applied to business with a term of more than 5 years. This process applies both to new business and to extensions.

8.6.5 Sustainability-related valuation of collateral

The sustainability-related valuation of collateral has been integrated in DZ BANK's general collateral valuation process. DZ BANK checks and documents relevant sustainability matters that could negatively affect the value of collateral in the first valuation and any subsequent valuation of collateral. The main types of collateral concerned are real estate and immovable collateral (machinery, equipment, inventories). On the one hand, the recoverability of such collateral may be jeopardized by physical climate-related and environmental risks, such as flooding or heavy rain. On the other hand, these types of collateral may themselves have an adverse impact on the climate or environment, for example due to harmful emissions or consumption of energy and other resources. In turn, this may have a negative or positive (e.g. where a building is exceptionally energy-efficient) effect on market value and thus on the value of the collateral.

If elevated physical climate-related and environmental risks are identified for collateral, DZ BANK checks whether any mitigation measures – such as sufficient insurance cover for identified risks or construction work following a property inspection – need to be requested. If any uncertainty remains as to whether the risk has been reasonably mitigated, the organizational unit responsible for handling collateral reduces the valuation by an adequate amount.

The real estate finance providers in the Bank sector largely classify collateral risk at asset level. At **BSH**, physical and transition risks in the existing credit portfolio are regularly monitored, in particular because properties with poor energy efficiency are exposed to heightened transition risk, for example due to statutory requirements regarding building renovation. In recent years, **DZ HYP** has developed a scorecard for measuring physical and transition risks, the results of which are considered in lending decisions.

The mortgageable value of a property is based on the long-term and sustainability-related characteristics of that property. **BSH** and **DZ HYP** take into account all circumstances that affect this value. Identifiable sustainability risks that may arise due to the property's characteristics or location are also factored into the valuation, such as risks resulting from flooding or poor energy efficiency.

8.6.6 Overall assessment of a loan application from a sustainability perspective

The findings from application of all of the ESG tools (check against exclusion criteria and sector criteria, ESG checklist, ESG credit risk score) are factored 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.

8.7 Lending volume in the entire credit portfolio

8.7.1 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.

Business with **central banks** of EU countries, the Bank of England, the Swiss National Bank, and the Federal Reserve Board that is denominated in the currency of the relevant central bank is not included in the determination of the risk capital requirement or in the presentation of the credit portfolio.

8.7.2 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. VI.26 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.

8.7.3 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 the 'corporates' asset class and the 'asset-based lending / project finance' asset class. 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 3 percent in the year under review, from €471.0 billion as at December 31, 2023 to €486.1 billion as at December 31, 2024. The rise in the lending volume was mainly due to an increase in volume in the 'public sector' asset class, which went up by €9.2 billion compared with the end of 2023. DZ BANK made a particularly large contribution to this increase, which was driven by investments in bonds, especially bonds of the Federal Republic of Germany, the German federal states, and other European countries. The 'financials' asset class recorded an increase of €4.2 billion, while the 'corporates' asset class (Corporate Banking and Structured Finance) saw a rise of €3.6 billion. However, the lending volume in business with entities within the Cooperative Financial Network, especially development lending business, money market loans, and undrawn credit lines, decreased by €5.2 billion.

As at December 31, 2024, a significant proportion (40 percent) of the **Bank sector's** lending volume was concentrated in the financial sector (December 31, 2023: 41 percent). The financial sector comprises entities within the Cooperative Financial Network (cooperative banks) and the 'financials' asset class (mainly banks from other sectors of the banking industry and other financial institutions).

As at December 31, 2024, a significant proportion (59 percent) of **DZ BANK's** lending volume was also concentrated in the **entities within the Cooperative Financial Network** and **financials** asset classes (December 31, 2023: 62 percent). The composition of these asset classes is the same both at DZ BANK and in the Bank sector.

Fig. VI.27 shows the breakdown of the credit portfolio by asset class.

FIG. VI.26 – BANK SECTOR: RECONCILIATION OF THE LENDING VOLUME

€ billion	Lending volume for internal management accounts		Reconciliation				Lending volume for the consolidated financial statements				Note
			Scope of consolidation		Carrying amount and measurement						
	Dec. 31, 2024	Dec. 31, 2023	Dec. 31, 2024	Dec. 31, 2023	Dec. 31, 2024	Dec. 31, 2023	Dec. 31, 2024		Dec. 31, 2023		
Traditional lending business	381.3	379.8	6.3	6.3	20.8	18.5	408.4	113.4	404.7	111.0	Loans and advances to banks
								113.4		111.0	of which: loans and advances to banks excluding money market placements 49
								–		–	of which: loss allowances for loans and advances to banks 58
								202.9		200.4	Loans and advances to customers
								205.7		202.6	of which: loans and advances to customers excluding money market placements 50
								-2.8		-2.2	of which: loss allowances for loans and advances to customers 58
								92.2		93.3	Financial guarantee contracts and loan commitments 98
Securities business	83.8	70.6	–	–	-17.8	-17.8	66.1	66.1	52.8	52.8	Bonds and other securities
								9.1		8.3	of which: financial assets held for trading / bonds excluding money market placements 52
								1.0		1.0	of which: financial assets held for trading / promissory notes and registered bonds 52
								56.0		43.5	of which: investments / bonds excluding money market placements 53
Derivatives business	13.5	13.1	–	-0.1	-12.1	-13.3	1.4	1.4	-0.3	-0.3	Derivatives
								0.8		0.9	of which: derivatives used for hedging (positive fair values) 51
								16.2		16.5	of which: financial assets held for trading / derivatives (positive fair values) 52
								-0.7		-0.6	of which: derivatives used for hedging (negative fair values) 64
								-15.0		-17.1	of which: financial liabilities held for trading / derivatives (negative fair values) 65
Money market business	7.4	7.4	–	–	29.8	21.4	37.2	37.2	28.8	28.8	Money market placements
								30.1		17.8	of which: loans and advances to banks / money market placements 49
								3.0		2.2	of which: loans and advances to customers / money market placements 50
								1.4		0.1	of which: financial assets held for trading / money market instruments 52
								0.7		7.8	of which: financial assets held for trading / money market placements 52
								2.1		0.9	of which: investments / money market instruments 53
Total	486.1	471.0	6.2	6.2	20.8	8.8	513.1		486.0		
Difference							27.0		15.0		
Difference (percent)							5.6		3.2		

FIG. VI.27 – BANK SECTOR: LENDING VOLUME, BY ASSET CLASS

	Bank sector		DZ BANK	
€ billion	Dec. 31, 2024	Dec. 31, 2023	Dec. 31, 2024	Dec. 31, 2023
Entities within the Cooperative Financial Network[1]	143.4	148.6	143.0	148.2
Financials	48.7	44.5	36.3	32.6
Corporates[2]	84.5	80.9	79.0	75.3
Asset-based lending/project finance	13.6	12.7	13.6	12.7
Public sector	45.2	36.0	22.2	12.6
Real estate (commercial and retail customers)	118.6	118.4	–	–
Retail business (excluding real estate customers)	18.3	18.0	–	–
Asset-backed securities and asset-backed commercial paper	12.3	9.2	12.1	9.0
Other	1.5	2.6	–	1.0
Total	**486.1**	**471.0**	**306.3**	**291.5**

1 Cooperative banks.
2 Including cooperatives for the purchase/sale of goods.

8.7.4 Geographical structure of the credit portfolio (excluding Germany)

Fig. VI.28 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, 2024, 67 percent of the Bank sector's lending outside Germany and 62 percent of DZ BANK's lending outside Germany was concentrated in Europe. These figures were unchanged year on year.

FIG. VI.28 – BANK SECTOR: LENDING VOLUME, BY COUNTRY GROUP

	Bank sector		DZ BANK	
€ billion	Dec. 31, 2024	Dec. 31, 2023	Dec. 31, 2024	Dec. 31, 2023
Europe	60.8	54.5	44.7	39.7
of which: eurozone	38.6	35.1	26.3	23.8
North America	16.1	14.5	15.0	13.2
Central America	0.2	0.2	0.2	0.2
South America	1.1	1.0	1.1	1.0
Asia	8.9	7.8	8.6	7.6
Africa	1.2	1.3	1.2	1.3
Other	2.0	2.0	1.6	1.6
Total	**90.3**	**81.2**	**72.4**	**64.3**

8.7.5 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 88 percent as at the reporting date (December 31, 2023: 89 percent). Rating classes 3B to 4E (non-investment grade) represented 10 percent as at the reporting date, which was unchanged compared with the end of 2023. Defaults, represented by rating classes 5A to 5E, increased by €1.7 billion to €5.5 billion as at December 31, 2024 (December 31, 2023: €3.8 billion). They thus accounted for 1 percent of the total lending volume, as had also been the case at the end of 2023.

Rating classes 1A to 3A (investment grade) also dominated lending at **DZ BANK**, where they accounted for 91 percent of the total lending volume (December 31, 2023: 92 percent). Rating classes 3B to 4E (non-investment grade) represented 8 percent as at the reporting date (December 31, 2023: 7 percent). Defaults increased by €1.1 billion to €3.3 billion as at the reporting date (December 31, 2023: €2.2 billion), accounting for 1 percent of the total lending volume, as had also been the case at the end of 2023.

Fig. VI.29 shows the lending volume in the Bank sector and at DZ BANK by rating class according to the VR credit rating master scale.

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

		Bank sector		DZ BANK	
€ billion		Dec. 31, 2024	Dec. 31, 2023	Dec. 31, 2024	Dec. 31, 2023
Investment grade	1A	43.0	31.9	26.6	15.6
	1B	5.7	6.2	3.6	4.1
	1C	158.4	162.7	151.1	154.1
	1D	19.6	14.4	10.8	9.1
	1E	21.9	23.9	10.9	13.2
	2A	21.3	25.4	11.6	12.6
	2B	30.1	33.5	15.9	14.6
	2C	34.7	27.7	15.1	13.6
	2D	33.7	32.2	14.6	11.6
	2E	37.5	35.4	13.2	12.7
	3A	23.1	23.6	5.4	5.8
Non-investment grade	3B	14.6	13.4	6.7	5.6
	3C	11.1	10.0	4.4	3.4
	3D	8.1	8.4	4.9	4.8
	3E	5.7	5.9	3.2	3.2
	4A	3.2	3.1	1.5	1.4
	4B	2.5	2.8	1.5	1.6
	4C	1.3	1.3	0.6	0.7
	4D	0.3	0.6	0.1	0.3
	4E	2.1	2.1	0.8	1.0
Default		5.5	3.8	3.3	2.2
Not rated		2.5	2.6	0.5	0.7
Total		**486.1**	**471.0**	**306.3**	**291.5**

8.7.6 Collateralized lending volume

In the **traditional lending business**, the lending volume is a gross figure that has not been offset by collateral. The uncollateralized lending volume is defined as lending volume less the collateral received. In **derivatives and money market business**, where the lending volume already reflects the risk-mitigating effects of netting agreements and credit support annexes, collateral values are relatively low. In the **securities business**, there is generally no further collateralization to supplement the collateral already taken into account in the lending volume. For this reason, securities business is not included in the presentation of the collateralized lending volume.

Fig. VI.30 shows the breakdown of the collateral value by type of collateral.

FIG. VI.30 – BANK SECTOR: COLLATERAL VALUE, BY TYPE OF COLLATERAL

	Bank sector		DZ BANK	
€ billion	Dec. 31, 2024	Dec. 31, 2023	Dec. 31, 2024	Dec. 31, 2023
Guarantees, indemnities, risk subparticipation	6.9	7.0	2.0	1.7
Credit insurance	6.6	6.0	6.6	6.0
Land charges, mortgages, registered ship and aircraft mortgages	113.3	114.1	1.8	1.9
Pledged loans and advances, assignments, other pledged assets	1.8	2.0	1.0	1.2
Financial collateral	2.5	1.4	0.4	0.4
Other collateral	0.3	0.4	0.2	0.3
Total collateral	**131.4**	**130.8**	**12.0**	**11.4**
Lending volume	402.2	400.3	248.3	246.3
Uncollateralized lending volume	**270.8**	**269.5**	**236.3**	**234.8**
Collateralization rate (percent)	**32.7**	**32.7**	**4.8**	**4.6**

Total collateral value in the **Bank sector** rose from €130.8 billion as at December 31, 2023 to €131.4 billion as at December 31, 2024. The collateralization rate as at the reporting date was 32.7 percent, as had also been the case at the end of 2023.

At €12.0 billion, **DZ BANK's** total collateral value as at December 31, 2024 was also up year on year (December 31, 2023: €11.4 billion). The collateralization rate had increased to 4.8 percent as at the reporting date (December 31, 2023: 4.6 percent).

8.8 Credit portfolios particularly affected by negative macroeconomic conditions

The following sections describe the lending volume of credit portfolios in which the effects of negative macroeconomic conditions were more noticeable than in the rest of the credit portfolios.

8.8.1 Structural change in the automotive sector

The automotive sector has been undergoing a period of transformation 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. A major aspect of the transformation is the progressive switch from internal combustion engines to alternative drives, especially electric drives. In addition, new manufacturers – especially from China – have made headway in the field of electric vehicles, generating a high market share in their domestic markets while also starting to play a role in international markets. This brings German vehicle manufacturers, in particular, under pressure and has already triggered extensive cost-cutting programs. Long-term trends relating to digitalization, assistance systems, and autonomous driving are playing an ever greater role in the industry's transformation too. These developments are maintaining a very high level of pressure on the industry to transform.

The automotive industry recorded lackluster growth in the three major markets of Europe, North America, and China in 2024. Globally, the industry is also being adversely affected by geopolitical tensions, the tariffs that have already been imposed, and potential trade disputes. The outlook for 2025 remains muted. In the medium term, therefore, growth is expected to be weaker, especially for German and European vehicle manufacturers.

The volume of lending in DZ BANK's automotive finance portfolio came to €5.1 billion as at December 31, 2024 (December 31, 2023: €5.3 billion). This portfolio includes loans to automotive suppliers, which are analyzed separately in chapter VI.8.10.2.

8.8.2 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. Prices and the number of transactions in the commercial real estate market stabilized in 2024, while rent prices generally rose across all types of property over the course of the year. Nevertheless, the commercial real estate finance segment continued to be affected by muted economic conditions, a rise in company insolvencies, and a difficult climate for businesses and consumers. Global political headwinds, and the related macroeconomic headwinds, also added to the challenges. Among other factors, elevated borrowing costs resulting from the persistently high interest rates had a dampening effect on the market. As a result of these macroeconomic challenges and the associated reluctance to invest, 2024 saw little in the way of transactions overall.
The portfolios in question have so far proven to be crisis-resistant with no structural anomalies. Although the number of exposures with increased risk content subject to close monitoring rose over the course of 2024, these loans remained at a moderate level relative to unproblematic financing as at December 31, 2024. Moreover,

critical exposures were often able to be transferred back to normal processing because counterparties stabilized or because of portfolio restructuring. The heightened requirements established in recent years with regard to the underlying value and cash flow performance of financed real estate had a supportive effect.

Nevertheless, uncertainty stemming from risk factors of relevance for commercial real estate finance persists, particularly in terms of whether financially viable rental and purchase prices can be achieved. This could adversely impact on cash flow, capital expenditure, and market values in 2025. For a return to a normal level, interest rates must be stable and the economy and the macroeconomic climate must stage a significant and sustained recovery.

Risks specific to individual real estate finance segments

Since 2023, **hotel** occupancy has largely stabilized and in 2024 was on a par with the level seen before the pandemic. In 2024, room occupancy at most hotels was higher than in 2023 almost across the board. Higher room prices provided a further boost to revenue. Material risk factors for hotel real estate continue to be the shortage of skilled workers and the ongoing pressure from competitors and rising costs.

Office real estate was subject to uncertainty with regard to tenants' future wishes and their space requirements in light of the new ways of working, which involve new space concepts and remote working. It is becoming apparent that less space will be required going forward, with demand focused on modern, high-quality, and ESG-compliant space in city centers or well connected locations with good access to services and amenities. Another adverse factor for this segment is the ongoing weakness of the economy, which is resulting in reduced demand for office space as it is causing many businesses to reconsider their growth and investment plans.

The rental markets for **department stores**, **shopping malls, and inner-city commercial properties** that are mainly used for retail/wholesale businesses not offering day-to-day essentials made a modest recovery in 2024 on the back of the rise in rents on new contracts. However, there are few signs of an upturn in consumer spending as price- and calendar-adjusted retail sales were only marginally higher year on year. Consumer sentiment remains very subdued, as do the general economic conditions.

The market for construction transactions remained challenging in 2024, with market participants adopting a wait-and-see approach and there was very little fresh impetus. Real estate rentals and sales continued to suffer delays.

Property development transactions showed the first signs of growth, led by private own and third-party use. The market for **project development** remained difficult in 2024. Notably, the traditional project development model of building for subsequent sale did not see an improvement. There were also challenges in relation to **construction projects that had not yet commenced** as a result of delayed planning permissions, increased construction costs, and difficulty in exiting projects. An increase in interest rates during the planning period also had a braking effect on construction projects. This affected DZ HYP's financing for land purchases, in particular.

Lending volume by finance segment

As at December 31, 2024, the volume of corporate loans extended by DZ HYP amounted to a total of €46.5 billion (December 31, 2023: €46.7 billion). Of this total, the following amounts were attributable to the aforementioned asset classes as at the reporting date (figures as at December 31, 2023 shown in parentheses):

- Hotel financing: €2.2 billion (€2.2 billion)
- Office real estate financing: €14.6 billion (€14.8 billion)
- Department store financing: €0.4 billion (€0.5 billion)
- Shopping mall financing: €2.5 billion (€2.6 billion)
- Financing for inner-city commercial properties mainly used for retail/wholesale businesses not offering day-to-day essentials: €0.8 billion (€0.9 billion)
- Property developer and project developer financing and financing for land purchases: €5.8 billion (€5.7 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, which had a volume of €2.5 billion as at December 31, 2024 (December 31, 2023: €2.6 billion).

8.8.3 Financing for retail customers in the consumer finance business

The economic conditions described in chapter VI.5.2 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 2024. Among other things, this led to a rise in non-performing loans.

As at December 31, 2024, the volume of consumer finance extended by TeamBank amounted to €14.1 billion (December 31, 2023: €13.4 billion).

8.9 Credit portfolios particularly affected by acute global crises

The following sections present the lending volume in the credit portfolios in which the effects of acute global crises were more noticeable than in the rest of the credit portfolios.

This exposure mainly comprised short-dated trade finance, project finance backed by export credit agencies, and syndicated bank loans. Fig. VI.31 shows the breakdown of the lending volume in the countries affected by the various crises.

In 2024, Saudi Arabia was classified as a country affected, in the broader sense, by the war between Israel and Hamas. This means that the total lending volume and total uncollateralized lending volume differ from the corresponding disclosures in the 2023 risk report.

The lending volume of the **Bank sector** in countries affected by global crises accounted for 0.9 percent of the total lending volume as at December 31, 2024, as it had done at the end of 2023. **DZ BANK's** lending volume accounted for 1.5 percent of the total lending volume, which was also largely unchanged year on year (figure in the 2023 risk report excluding Saudi Arabia: 1.4 percent).

8.10 Credit portfolios with increased risk content

The lending volume in the credit portfolios with increased risk content is analyzed separately because of their significance for the risk position.

Finance for cruise ships, which had previously been assigned to the credit portfolios with increased risk content, was no longer a special focus of credit risk management as at the end of 2024. This was in light of the positive changes in the industry, including substantial growth in operating income and a significant improvement in the liquidity situation. This means that the disclosures on finance for cruise ships that had still been included in the risk report in the 2024 interim group management report have now been omitted.

FIG. VI.31 – BANK SECTOR: LENDING VOLUME IN COUNTRIES PARTICULARLY AFFECTED BY ACUTE GLOBAL CRISES

	Bank sector		DZ BANK	
€ million	Dec. 31, 2024	Dec. 31, 2023	Dec. 31, 2024	Dec. 31, 2023
Lending volume in countries affected directly by the war in Ukraine	**650**	684	**635**	675
of which uncollateralized: Belarus	1	2	1	2
of which uncollateralized: Russia	86	91	72	83
of which uncollateralized: Ukraine	–	2	–	2
Lending volume in countries affected by the Israel-Hamas war	**2,416**	2,018	**2,415**	2,015
of which uncollateralized: Egypt	13	58	13	57
of which uncollateralized: Iraq	2	2	2	2
of which uncollateralized: Israel	1	1	1	1
of which uncollateralized: Saudi Arabia	143	182	143	181
of which uncollateralized: Turkey	504	371	504	371
Lending volume in countries affected directly by the dispute between China and Taiwan	**1,547**	1,690	**1,518**	1,660
of which uncollateralized: China	1,146	1,008	1,121	982
of which uncollateralized: Taiwan	92	100	90	97
Lending volume	**4,613**	4,392	**4,568**	4,351
of which uncollateralized lending volume	1,989	1,815	1,947	1,778

8.10.1 Finance for cruise ship building

A distinction is made between cruise ship finance and the financing of cruise ship building. This segment, which exclusively affects **DZ BANK** in the Bank sector, is still undergoing a large-scale transformation process.

The shipyards' basic level of capacity utilization is ensured for 2025 and 2026. Growing demand for cruise ships has resulted in further orders being generated, which, in some cases, has secured capacity utilization until part way through 2029. Nevertheless, the challenges of the last few years have taken a heavy toll on customers' credit quality. The affected companies' financial circumstances have not yet stabilized sufficiently, making the outlook uncertain.

The lending volume related to the financing of cruise ship building stood at €422 million as at December 31, 2024 (December 31, 2023: €337 million). Collateral worth €354 million was available as at December 31, 2024 (December 31, 2023: €258 million). As at the reporting date, the collateral chiefly comprised export credit insurance of €177 million (December 31, 2023: €179 million) and €152 million from other public-sector guarantees.

8.10.2 Finance for automotive suppliers

In addition to the factors described in chapter VI.8.8.1 that apply to the automotive sector as a whole, conditions remain particularly challenging for automotive suppliers in Germany.

The automotive supply industry's capital requirements remain at a record level and margins are under increasing pressure. Compared with vehicle manufacturers, automotive suppliers are in a relatively weak competitive position. Financial performance in the supply industry hinges primarily on the volume of vehicles produced, which was low in 2024 due to waning demand. This is reflected in a fall in the number of order call-offs, which remain very volatile. The general expectation is that this will also be the case in 2025, especially in Europe and Germany.

The technology and development expertise of major global suppliers will ensure that they remain the partner of choice for global vehicle manufacturers. However, they are also in competition with new market players from Asia, who are leading the way when it comes to assistance systems and digitalization and will therefore acquire a growing share of value added at the expense of established suppliers. In the years ahead, growth impetus is anticipated first and foremost from Asia, and also to a lesser extent from member countries of the North

American Free Trade Agreement (NAFTA). Uncertainty surrounding future drive systems and vehicle designs as well as expected geopolitical tensions and tariffs will likely have a long-term adverse impact on the market and thus also on suppliers and their transformation. It is also anticipated that the cost-cutting programs of European vehicle manufacturers will eat into suppliers' financial performance.

Within the Bank sector, finance for companies in the automotive supply industry, which falls into the 'corporates' asset class, mainly relates to DZ BANK. As at the reporting date, the loans and advances in the **Bank sector** and at **DZ BANK** amounted to €2,887 million (December 31, 2023: €3,475 million) and €2,709 million (December 31, 2023: €3,338 million) respectively. The year-on-year decline in the lending volume was primarily due to changes in how the portfolio is defined at DZ BANK. This effect amounted to around €600 million.

8.10.3 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 has seen an increased number of insolvencies of late. Although revenue had picked up sharply in 2023, it tailed off again in 2024 amid persistently slack consumer demand. The luxury and upper price segment, which had previously been robust, also recorded falling or flat revenue. Wage increases, a rise in energy costs, and inflation had not yet been fully priced in by dealers, which weighed heavily on the margin in some cases.

The clothing and textile industry depends to a large extent on the procurement of goods from Asia. Although supply chains were intact once again in 2024, there were sporadic delays because freight ships had to be rerouted due to attacks by Houthi rebels in the Red Sea. Unrest in Bangladesh and the resulting temporary factory closures led to a backlog in production. This meant that procurement continued to be expensive, stockpiling had to be stepped up, and uncertainty remained high. The current appreciation of the US dollar is making imports increasingly expensive, and it is difficult to pass on the higher procurement costs to consumers amid the present challenging market environment.

Within the Bank sector, the lending exposure to the clothing and textile industry is concentrated at DZ BANK. As at December 31, 2024, the lending volume in the **Bank sector** and at **DZ BANK** in this industry amounted to €1,718 million (December 31, 2023: €1,757 million) and €1,658 million (December 31, 2023: €1,690 million) respectively.

8.10.4 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 fell once again in the year under review, and the number of residential planning permissions also experienced a further substantial decline. The level of orders on hand forecast for industrial, commercial, and public-sector construction in 2025 is largely stable. In the year ahead, impetus is expected from the financing options that have been agreed for railway infrastructure and in energy supply and network expansion. Overall, it is unlikely that the decline in orders on hand in residential construction will be able to be offset, and capacity utilization is expected to continue to go down in the construction segment. Nevertheless, construction companies with international operations can compensate for the situation in the German economy to some extent.

Despite the stabilizing effect of cost-conscious customers who are increasingly carrying out repairs themselves, the level of consumer demand experienced by home improvement stores is being dampened by geopolitical tensions, the dependence on the construction industry, and a bleak economy. Even though profit margins have

since been able to be increased slightly as a result of product range adjustments, cost cutting, and renegotiations with suppliers, there are no signs yet of a turnaround.

The lending volume in this portfolio is mainly attributable to DZ BANK. As at December 31, 2024, loans and advances in the **Bank sector** and at **DZ BANK** amounted to €6,630 million (December 31, 2023: €7,456 million) and €5,930 million (December 31, 2023: €6,776 million) respectively. The reduction in the lending volume compared with December 31, 2023 was due in particular to redemptions by a number of individual borrowers.

8.11 Volume of closely monitored and non-performing loans

8.11.1 Closely monitored loans and forborne exposure

Fig. VI.32 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. VI.32 – BANK SECTOR: CLOSELY MONITORED LENDING VOLUME AND FORBORNE EXPOSURE

	Bank sector		DZ BANK	
€ million	Dec. 31, 2024	Dec. 31, 2023	Dec. 31, 2024	Dec. 31, 2023
Yellow list lending volume	**4,842**	3,786	**3,367**	2,665
of which: forborne exposure	152	626	94	463
Watchlist lending volume	**4,712**	4,901	**2,425**	3,094
of which: forborne exposure	1,068	999	677	741
Default list lending volume	**5,475**	3,792	**3,332**	2,185
of which: forborne exposure	2,759	1,473	1,927	884
Total lending volume on monitoring lists	**15,029**	12,479	**9,124**	7,943
of which: forborne exposure	3,979	3,097	2,698	2,088
Off-monitoring-list forborne exposure	**207**	327	**–**	–
Total forborne exposure[1]	**4,186**	3,424	**2,698**	2,088

1 Both on and off the monitoring lists.

The **closely monitored lending volume** in the **Bank sector** rose by 20 percent from December 31, 2023 to December 31, 2024. This increase was chiefly due to rises of €1,181 million at DZ BANK, €944 million at DZ HYP, €222 million at BSH, and €140 million at TeamBank.

The closely monitored lending volume at **DZ BANK** rose from €7,943 million as at December 31, 2023 to €9,124 million as at December 31, 2024, which constituted an increase of 15 percent. This rise was mainly attributable to an increase of €1,148 million in the lending volume on the default list.

The **forborne exposure** rose from €3,424 million as at December 31, 2023 to €4,186 million as at December 31, 2024, predominantly owing to an increase of €610 million at DZ BANK.

8.11.2 Non-performing loans

As at December 31, 2024, the volume of non-performing loans (NPLs) in the **Bank sector** had risen to €5,475 million from €3,792 million as at December 31, 2023. This increase was chiefly due to the rise in non-performing loans of €1,148 million at DZ BANK, €320 million at DZ HYP, and €105 million at TeamBank. This caused the NPL ratio to advance from 0.8 percent as at December 31, 2023 to 1.1 percent as at December 31, 2024.

Non-performing loans at **DZ BANK** amounted to €3,332 million as at December 31, 2024 (December 31, 2023: €2,185 million). This caused the NPL ratio to also advance to 1.1 percent (December 31, 2023: 0.7 percent).

Fig. VI.33 shows the key figures relating to non-performing loans.

FIG. VI.33 – BANK SECTOR: KEY FIGURES FOR NON-PERFORMING LOANS

	Bank sector		DZ BANK	
	Dec. 31, 2024	Dec. 31, 2023	Dec. 31, 2024	Dec. 31, 2023
Total lending volume (€ billion)	486.1	471.0	306.3	291.5
Volume of non-performing loans (€ billion)[1]	5.5	3.8	3.3	2.2
Balance of loss allowances (€ billion)[2]	2.3	1.6	1.5	1.0
Coverage ratio (percent)[3]	74.3	79.7	67.9	78.8
NPL ratio (percent)[4]	1.1	0.8	1.1	0.7

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.

8.12 Risk position

8.12.1 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, 2024, the **credit value-at-risk** in the Bank sector was €4,011 million (December 31, 2023: €3,971 million). The credit risk **limit** as at December 31, 2024 amounted to €4,994 million (December 31, 2023: €4,988 million).

DZ BANK's credit value-at-risk as at December 31, 2024 amounted to €2,306 million (December 31, 2023: €2,359 million), with a **limit** of €2,800 million (December 31, 2023: €2,760 million).

Fig. VI.34 shows the credit value-at-risk together with the average probability of default and expected loss.

FIG. VI.34 – BANK SECTOR: FACTORS DETERMINING THE CREDIT VALUE-AT-RISK

	Bank sector		DZ BANK	
	Dec. 31, 2024	Dec. 31, 2023	Dec. 31, 2024	Dec. 31, 2023
Average probability of default (percent)	0.4	0.3	0.2	0.2
Expected loss (€ million)	462	440	184	186
Credit value-at-risk (€ million)	4,011	3,971	2,306	2,359

In the analysis of **individual concentrations** as at December 31, 2024, the 20 counterparties associated with the largest credit value-at-risk accounted for 23 percent of the total credit value-at-risk in the **Bank sector** (December 31, 2023: 28 percent) and 38 percent of the total credit value-at-risk at **DZ BANK** (December 31, 2023: 40 percent). Compared with the end of 2023, these shares were down by 5 percentage points and 2 percentage points for the Bank sector and DZ BANK respectively.

8.12.2 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. VI.35.

FIG. VI.35 – BANK SECTOR: CREDIT VALUE-AT-RISK[1] FOR CREDIT PORTFOLIOS WITH INCREASED RISK CONTENT

	Bank sector		DZ BANK	
€ million	Dec. 31, 2024	Dec. 31, 2023	Dec. 31, 2024	Dec. 31, 2023
Finance for cruise ship building	25	4	25	4
Finance for automotive suppliers	55	46	54	45
Finance for borrowers in the clothing and textile industry	14	10	12	9
Finance for borrowers in the construction industry (including home improvement stores)	56	50	35	35

1 Excluding decentralized capital buffer requirement.

The increase in credit value-at-risk for finance for cruise ship building compared with December 31, 2023 was largely due to deterioration in individual credit standings.

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 and responsibility

Risk strategy requirements must be observed in the management of long-term equity investments. Such management is subject to the principle that equity investment risk (measured as risk capital requirement) may be taken on only if 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.

Equity investment risk in the Bank sector is **measured and monitored** by DZ BANK.

9.3 Risk factors

The level of equity investment risk is significantly influenced by specific risk factors such as the equity investment's industry sector, the location of its registered office, and the amount of the investment. The possibility cannot be ruled out that a future impairment test on the long-term equity investments held by the entities in the Bank sector could lead to a significant reduction in the carrying amounts of these investments reported on the balance sheet. In the case of non-controlling interests, there is also a risk that key information may not be available or cannot be obtained promptly by virtue of the fact that the investment is a minority stake and this could result in a need to recognize impairment losses.

9.4 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. Unlike in 2023, a historical simulation is now used instead of the previous assumption of logarithmic normal distribution. The risk capital requirement is influenced, in particular, by the market values of the long-term equity investments and by past changes in market value, 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

As at December 31, 2024, the **carrying amounts of long-term equity investments** relevant for the measurement of equity investment risk amounted to €2,827 million in the **Bank sector** (December 31, 2023: €3,046 million) and €2,139 million at **DZ BANK** (December 31, 2023: €2,175 million).

The **risk capital requirement** for equity investment risk in the **Bank sector** was calculated to be €807 million as at the reporting date (December 31, 2023: €998 million). The **limit** was €1,364 million (December 31, 2023: €1,281 million). The **risk capital requirement** for **DZ BANK** as at December 31, 2024 came to €653 million (December 31, 2023: €664 million) with a **limit** of €870 million (December 31, 2023: €795 million).

The decline in the risk capital requirement was attributable to the sale of individual long-term equity investments. A change in the risk modeling methods used also contributed to the reduction in risk.

10 Market risk

10.1 Definition

Market risk is the risk of loss that could arise from adverse changes in market prices or in parameters that influence prices. Market risk encompasses a number of risk subtypes, including interest-rate risk in the banking book, interest-rate risk in the trading book, spread risk (constantly monitored component; broken down by banking book and trading book) 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.

The subcategories of market risk are defined as follows:

- **Interest-rate risk** is the risk of losses that could arise from financial instruments due to a change in the (notionally credit-risk-free) basis yield curve or the interest-rate volatility used for valuation. It also comprises the risk of losses that could arise from the change in the spread of discount and forward curves relative to the basis yield curve if there are differences in collateralization, payment frequency (known as the tenor basis spread), or the base currency (known as the cross-currency spread) relative to the basis yield curve. Credit spreads or issuer-specific spreads are explicitly not a component of interest-rate risk. They are subsumed under spread risk.
- **Spread risk** is the risk of losses that could arise from financial instruments due to a change in the credit spreads with an unchanged credit rating.
- **Migration risk** is the risk of losses that could arise from financial instruments due to a change in the issuer credit ratings or issue ratings, which are parameters that have an influence on prices.
- **Currency risk** is the risk of losses that could arise from financial instruments due to a change in exchange rates or exchange-rate volatility.
- **Equity risk** is the risk of losses that could arise from financial instruments due to a change in share prices or share price volatility.
- **Fund price risk** is the risk of losses that could arise from a change in fund prices where the funds' risks are not covered by other types or subtypes of market risk or by equity investment risk.
- **Commodity risk** is the risk of losses that could arise from financial instruments (including cryptocurrencies) due to a change in commodity prices or commodity price volatility.
- **Asset-management risk** is the risk that further margin payments have to be made to investors due to contractual obligations. These payments fall due if guaranteed minimum capital values are not met for guarantee funds or guarantee products.
- **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 dynamic risk management on a limited basis.

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.

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; traditional lending business largely aimed at financing privately owned real estate; 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

UMH's Riester fund-linked savings plans 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 together with any increase in value achieved during the contributory phase. 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.

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 hedged within defined limits. In contrast, interest-rate risk from defined benefit 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 hedged.
- **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

10.3.1 General market risk factors

Spread and migration risk, interest-rate risk, equity risk, fund price risk, commodity risk, and currency risk are caused by changes in the yield curve, credit spreads, exchange rates, share prices, and commodity prices. Spread risk, including migration risk, is the most significant type of market risk for the entities in the Bank sector.

The widening of credit spreads is triggered by an elevated level of market uncertainty about assets subject to default risk. Rising credit spreads stem from market players being more reluctant to buy – or more willing to sell – assets subject to default risk. If there is also a deterioration in rating agencies' assessments of credit risk, this triggers a downgrade in the issuer credit rating or issue rating (migration of credit ratings).

10.3.2 Specific market risk factors

A widening of credit spreads and migrations of credit ratings can stem from a number of macroeconomic risk factors. These include the **escalation of geopolitical tensions** and resulting **trade friction** (chapter VI.5.2.1), a **global economic downturn** (chapter VI.5.2.2), and **economic policy divergence in the eurozone** (chapter VI.5.2.3). Such developments can lead to increased credit spreads and to the migration of credit ratings of bonds held by entities in the Bank sector. This could particularly affect government bonds from countries in poor financial health, such as Italy and France.

The unexpected movements in the interest-rate market described in chapter VI.5.2.6 could also have an adverse impact on the Bank sector's investments as follows:

A **rise in interest rates** and a widening of bond spreads would lead to a reduction in the fair values of investments and funding. Falls in fair value caused by a rapid rise in interest rates or the widening of spreads could – depending on the term structure of the capital market asset or liability products – have a temporary or permanent impact on profit and equity. A negative change in the fair values of investments associated with a widening of credit spreads in isolation could also cause a deterioration in risk-bearing capacity.

For the asset management activities of UMH, there is also a risk that rising interest rates 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.

By contrast, a **fall in interest rates** would increase the fair values of the investments and funding, which, for terms of liabilities that are longer than the average investment horizon (for example, defined benefit obligations and pension schemes with an unfavorable duration asymmetry), could have an adverse impact on profit and equity.

A share price slump in the equity markets in the wake of heightened **volatility in the global financial markets** could result in fair value losses on the investments of entities in the Bank sector and on the shareholdings in UMH's pension products. The potential causes of such a development are explained in chapter VI.5.2.7.

10.4 Organization and responsibility

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.

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. VI.36.

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 relevant risk factor groups considered in the risk model 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 1-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 VI.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 1-year holding period, and taking into account the specific investment selections made in the customer investment account.

Decentralized measurement of periodic interest-rate risk and spread risk in the banking book

In addition to the present-value perspective, which considers the total term when determining the risk of transactions involving risk, the interest-rate risk in the banking book (IRRBB) and the credit spread risk in the banking book (CSRBB) are managed in a periodic approach limited to a period of 1 year. These risks are also referred to as periodic interest-rate risk and spread risk. Periodic risk management is based on specific regulatory requirements.

Periodic interest-rate risk and spread risk in the banking book represent the impact of changes – stipulated by the supervisory authority – in interest rates and spreads on the accounting profit of the DZ BANK Group and DZ BANK. Building on the periodic net interest income (NII) risk, which measures the effects of interest-rate and spread changes on net interest income without considering measurement effects, the NIIMV risk also includes the risk resulting from present-value changes in market value (MV) in respect of transactions recognized in the income statement or directly in equity (other comprehensive income, OCI) in accordance with IFRS. OCI consists of changes in equity that are not captured in the income statement and are not attributable to deposits or withdrawals by owners. In this manner, all earnings risks impacting on the income statement or equity for a forecast horizon of 1 year are condensed into a periodic key risk indicator.

The interest-rate scenarios used to calculate periodic interest-rate risk in the banking book contain substantial parallel shifts and rotations of the current yield curve. To calculate periodic spread risk in the banking book, both general and rating-dependent spread changes are taken into account.

The interest-rate sensitivities for periodic interest-rate risk and spread risk in the banking book are determined by changing the yield curve. Some of the management units use behavior-based models to measure periodic interest-rate risk. These models help, in particular, to accurately reflect the optionalities in the traditional lending business and in building society operations. Examples of these include options for drawing down loans or credit lines, termination options, and special repayment options. Calculating NII risk involves a 1-year future projection of NII. This is based on assumptions regarding interest-rate changes (swap curves) and an assumption of a constant balance sheet to aid comparability and predictability. The difference between the NII simulated in the baseline scenario (constant interest rates) and the NII simulated in an assumed interest-rate scenario is described as the periodic interest income risk for the particular interest-rate scenario.

NII risk is determined by the management units on a decentralized basis in line with DZ BANK's rules. DZ BANK's Group Risk Controlling division supplements the results of the decentralized calculations with market value effects relevant to the balance sheet (NIIMV) and condenses the results into an aggregate figure representing the Bank sector's NIIMV risk.

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 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.

Periodic and present-value risk is taken into account when managing interest-rate 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 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 portfolios 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 UMH's separate internal system and is monitored regularly by UMH.

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.

10.6 Risk position

10.6.1 Value-at-risk

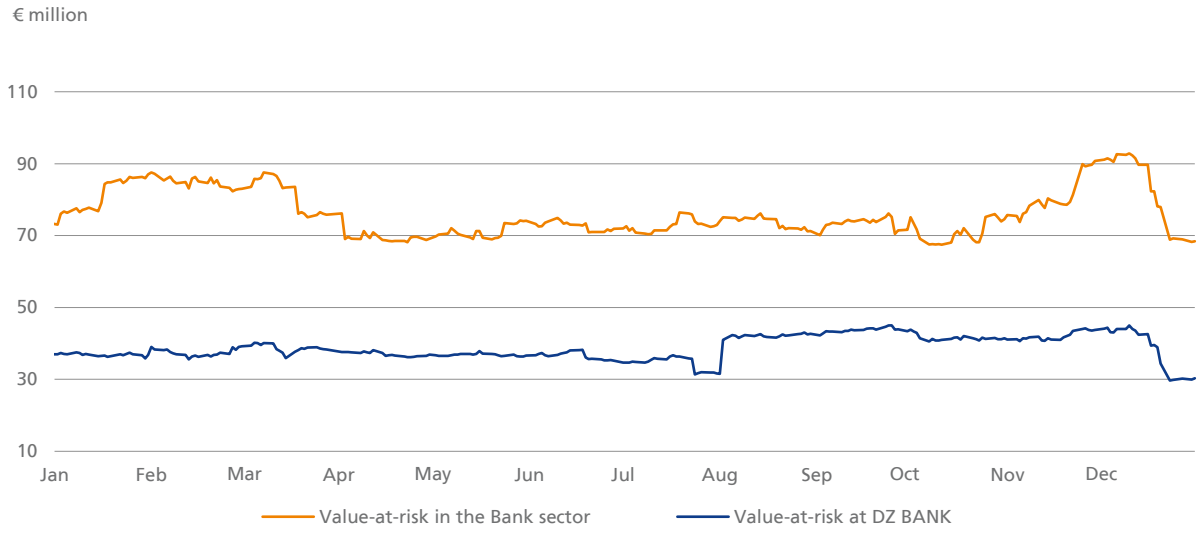
Fig. VI.36 shows the average, maximum, and minimum values-at-risk measured for the Bank sector and DZ BANK over the reporting year, including a further breakdown by type of market risk. In addition, Fig. VI.37 shows the change in market risk for the Bank sector by trading day in the reporting period. In both figures, the value-at-risk relates to the **trading and banking books for regulatory purposes.**

FIG. VI.36 – BANK SECTOR: CHANGE IN MARKET RISK, BY RISK SUBTYPE[1, 2]

	Bank sector					DZ BANK				
€ million	**Dec. 31, 2024**	Average	Maximum	Minimum	Dec. 31, 2023	**Dec. 31, 2024**	Average	Maximum	Minimum	Dec. 31, 2023
Interest-rate risk	**39**	43	63	31	49	**7**	9	15	5	10
Spread risk	**56**	63	67	56	58	**33**	37	41	31	31
Equity risk[3]	**15**	11	15	8	9	**3**	3	3	2	3
Currency risk	**4**	6	7	3	5	**4**	5	7	3	4
Commodity risk	**1**	1	2	1	2	**1**	1	1	1	1
Aggregate risk[4]	**68**	76	93	67	74	**30**	39	45	30	37

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. VI.37 – 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.

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.

As at December 31, 2024, the value-at-risk for the **interest-rate risk in the banking book for regulatory purposes** was calculated as follows (prior-year figures in parentheses):
– **Bank sector**: €37 million (€48 million)
– **DZ BANK**: €4 million (€9 million)

The reduction in risk was partly attributable to particular scenarios no longer being included in the rolling observation period in the risk model. An improvement in the methods used to measure non-outsourced defined benefit obligations also contributed to the reduction in risk.

The decrease in value-at-risk in the Bank sector from €74 million as at December 31, 2023 to €68 million as at December 31, 2024 was mainly attributable to a reduction in spread risk, in addition to the diversification effect. This was due to particular scenarios no longer being included in the rolling observation period in the risk model.

10.6.2 Periodic interest-rate risk and periodic spread risk in the banking book

The periodic interest-rate risk and spread risk calculated for the banking book are shown in Fig. VI.38.

FIG. VI.38 – BANK SECTOR: PERIODIC INTEREST-RATE RISK AND PERIODIC SPREAD RISK IN THE BANKING BOOK

	Bank sector		DZ BANK	
€ million	Dec. 31, 2024	Dec. 31, 2023	Dec. 31, 2024	Dec. 31, 2023
Periodic interest-rate risk (IRRBB NIIMV risk)	288	558	185	563
Periodic spread risk (CSRBB NIIMV risk)	90	202	70	17

The year-on-year decline in the IRRBB NIIMW risk of the Bank sector and of DZ BANK measured as at December 31, 2024 was largely attributable to the improved recognition of exposures as a result of enhancements to the IT infrastructure. The enhancements related to a new IT system from an external provider that went live for calculating periodic NII risk. Furthermore, this IT system draws on higher quality business data. Changes in fixed interest rates for short maturities also contributed to the decline in the IRRBB NIIMW risk.

In 2024, pension assets and liabilities were additionally included in the calculation of the CSRBB NIIMW risk. This led to a reduction in the CSRBB NIIMW risk in the Bank sector but to an increase in this risk at DZ BANK. The countervailing change in risk is due to the use of different worst-case scenarios.

10.6.3 Risk capital requirement

As at December 31, 2024, the risk capital requirement for **market risk** in the **Bank sector** and at **DZ BANK** amounted to €3,621 million (December 31, 2023: €4,169 million) and €1,972 million (December 31, 2023: €1,757 million) respectively, with **limits** of €7,120 million (December 31, 2023: €6,470 million) and €3,000 million (December 31, 2023: €3,000 million) respectively. The reduction in risk was largely due to particular scenarios no longer being included in the rolling observation period in the risk model.

The Bank sector's risk capital requirement encompasses the **asset-management risk of UMH**. Asset-management risk as at December 31, 2024 amounted to €90 million (December 31, 2023: €273 million). The decrease in risk was mainly due to movements in interest rates and the buoyant equity markets.

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.

A higher starting rate of interest could lead to outflows in collective building society operations, thereby exacerbating the adverse impact of varied parameters in the technical risk of a home savings and loan company and increasing that risk. The causes of a potential interest-rate rise are explained in chapter VI.5.2.6.

11.4 Responsibility 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.

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 input parameters are selected to ensure a confidence level of 99.9 percent. Due to the specifics of building society operations, effects beyond a holding period of 1 year are taken into account for the technical risk of a home savings and loan company. The results from the collective simulation for the technical risk of a home savings and loan company are fed into a long-term forecast of earnings. The variance between the actual earnings in the risk scenario and the earnings in a base forecast with the same reference date is used as a risk measure. The variance is discounted to produce a present value. The total present value of the variances

represents the technical risk of a home savings and loan company and therefore the risk capital requirement for this type of risk. **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, 2024, the **risk capital requirement** for the technical risk of a home savings and loan company amounted to €719 million (December 31, 2023: €730 million) with a **limit** of €820 million (December 31, 2023: €820 million).

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

12.3.1 General risk factors for business risk

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 DZ BANK or that do not adequately cover the risk arising from the corresponding transactions.

12.3.2 Sustainability-related risk factors for business risk

Transition risks can increase business risk through the following political initiatives, technological innovations, and changes in behavior:

- Actions in connection with the change in energy policy, such as the coal phase-out and increases in carbon emission prices
- The development of alternative drive systems to reduce the use of fossil fuels in the transportation sector, especially switching away from the internal combustion engine
- Enhanced requirements for reducing the consumption of resources such as energy, water, and commodities and improving energy efficiency
- The use of energy-saving technologies
- Changed consumer behavior as part of a growing awareness of the negative impact of consumption on the climate

These developments could lead to rising costs and falling customer demand, and thus to a deterioration in the financial performance of DZ BANK and the DZ BANK Group.

12.4 Organization and responsibility

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 of the (group) management report.

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 management and for the divisions of DZ BANK. The strategic planning process is described in chapter I.2.4 of the (group) management report.

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, 2024, the **risk capital requirements** for business risk both in the **Bank sector** and at **DZ BANK** amounted to €0 million. As at December 31, 2023, the risk capital requirements had amounted to €363 million and €335 million respectively. The decline in risk to zero was because the planning assumptions concerning parameters with business risk implications had been raised compared with the end of 2023.

The **limits** as at the reporting date were €500 million in the **Bank sector** (December 31, 2023: €450 million) and €425 million at **DZ BANK** (December 31, 2023: €410 million). The limits were increased in 2024 due to the high level of limit utilization as at December 31, 2023 and in expectation of a volatile earnings performance.

Reputational risk is included in the figures shown.

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, partners in the Cooperative Financial Network, and employees – necessary to conduct business operations. The possibility cannot be ruled out either that R+V will be affected if entities in the Bank sector have a negative reputation.

Reputational risk is particularly affected by **sustainability-related risk factors** in the form of transition risks, social risks, and corporate governance risks. If such sustainability-related risks materialize, this can lead to increased reputational risk. The effect can spread both indirectly via customers or products and directly via the entities' own processes or business activities.

The DZ BANK Group may suffer reputational damage if stakeholders of the entities in the Bank sector regard the DZ BANK Group's approach to sustainability matters as inappropriate, in particular if they deem existing or future products or current or proposed business relationships to have an adverse impact on the climate or environment.

Reputational risk could also increase if stakeholders believe that entities in the Bank sector are not acting sustainably, either actively or passively. The reputational damage may lead to a deterioration in the financial position and financial performance of the DZ BANK Group through a variety of channels of impact, such as a reduction in new business and existing business.

13.4 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.

Reputational risk control follows a **stakeholder approach** that is based on the principle that the material stakeholders' perception of the DZ BANK Group is the critical metric for reputational risk. The stakeholders' responses are evaluated in the context of ongoing reporting using a mood barometer, particularly if a reputation-damaging incident occurs. This is underpinned by indicators for each stakeholder that implicitly and explicitly take account of **sustainability matters**.

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 compliance 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 and responsibility

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.

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 net 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 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 Consideration of sustainability risks

There is a risk that third parties could assert claims due to **transition risks** or that negative climate-related and environmental events could cause shortages in the supply of energy/electricity to entities in the Bank sector.

Corporate governance risk can also lead to operational risk. This would be the case, for example, if inadequate systems for control and risk management create conditions conducive to prohibited or criminal acts that could lead to financial losses.

The instruments used to identify operational risk – such as the loss database, risk self-assessment, and risk indicators – also incorporate sustainability matters through the use of an ESG label in the operational risk database. This ensures that sustainability-driven operational risks are managed and monitored.

To expand the management of operational risks driven by ESG factors, an ESG-specific label is currently being introduced as part of the aforementioned management tools. This will enable reliable statements to be made on the basis of expert assessments – by the organizational units responsible for risk management – that indicate the impact of sustainability risk factors on operational risk.

14.6 Operational risk subtypes

14.6.1 Compliance risk including compliance 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) also 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 or as employers 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 VI.3.9. 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.

14.6.2 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 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 66 of the notes to the consolidated financial statements under 'Other provisions'.

14.6.3 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 VI.3.10. 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 what threats exist in certain aspects of IT and what risk scenarios they give rise to. Detailed requirements for a level of security 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 security level.

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 VI.3.10.

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 quarterly information security reports to the Board of Managing Directors.

14.6.4 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 VI.3.10.

14.6.5 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 VI.3.11.

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.

14.6.6 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.

14.7 Heightened sanction and embargo requirements resulting from geopolitical tensions

The monitoring of sanctions necessitates 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’.

14.8 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, 2024 – represent the relevant reporting period for an analysis of net losses. Fig. VI.39 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.

In 2024, the highest losses were attributable to **other operational risk**. The main reason for the losses in other operational risk was a procedural error that was made when posting to accounts and switching over accounts. Based on the long-term mean, internal losses both in the **Bank sector** and at **DZ BANK** were dominated by **compliance risk**, **legal risk**, and **other operational risk**.

All in all, the losses in the past four quarters were lower than in the prior period. Losses did not reach a critical level relative to the expected loss from operational risk at any point during 2024, either in the Bank sector or at DZ BANK.

FIG. VI.39 – BANK SECTOR: NET LOSSES[1] BY OPERATIONAL RISK SUBTYPE

	Bank sector		DZ BANK	
€ million	Jan. 1. 2024 – Dec. 31, 2024	Long-term mean[2]	Jan. 1. 2024 – Dec. 31, 2024	Long-term mean[2]
Compliance risk	1	22	–	14
Legal risk	3	21	–	12
Information risk including ICT risk	1	3	1	1
Security risk	2	2	1	1
Outsourcing risk	1	1	–	–
Project risk	–	1	–	–
Other operational risk	22	9	9	5
Total[3]	**29**	**58**	**11**	**33**

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.

14.9 Risk position

As at December 31, 2024, the capital requirement for operational risk at **Bank sector** level was calculated at €1,041 million (December 31, 2023: €978 million) with a **limit** of €1,157 million (December 31, 2023: €1,148 million).

As at December 31, 2024, the corresponding requirement at **DZ BANK** was €582 million (December 31, 2023: €550 million). The **limit** as at December 31, 2024 was €652 million (December 31, 2023: €651 million).

Fig. VI.40 shows the structure of the risk profile for operational risk in the Bank sector and at DZ BANK based on **risk subtypes**.

FIG. VI.40 – BANK SECTOR: DISTRIBUTION OF RISK CAPITAL REQUIREMENT FOR OPERATIONAL RISK, BY RISK SUBTYPE[1]

	Bank sector		DZ BANK	
Percent	Dec. 31, 2024	Dec. 31, 2023	Dec. 31, 2024	Dec. 31, 2023
Compliance risk	30.4	30.4	13.4	13.4
Legal risk	19.1	19.4	8.2	8.4
Information risk including ICT risk	16.8	16.9	6.0	6.1
Security risk	5.0	5.0	1.9	1.8
Outsourcing risk	6.0	5.9	2.3	2.3
Project risk	6.3	6.3	2.6	2.6
Other operational risk	16.4	16.0	8.5	8.5

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, 2024 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.

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, the liquidity situation, achieving defined minimum investment returns in stress scenarios, and ensuring consistent earnings. Investment composition is managed in operational terms on the basis of the following criteria: definition of minimum or average credit ratings, durations, transaction volumes,

the proportion of assets at risk, the proportion of foreign currency, sustainability criteria, and liquidity requirements.

In line with the risk strategy for **counterparty default risk**, R+V aims to maintain a high minimum or 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 and responsibility

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.

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

16.2.1 General risk factors for actuarial risk

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 the contract terms are long. 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.

Unexpected movements in the interest-rate market are further risk factors for **life actuarial risk**. In the event of an unexpected interest-rate rise, there would be a risk that policyholders could increasingly allow existing life insurance contracts to lapse and that new business declines.

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.

R+V's **direct non-life insurance and inward non-life reinsurance business** involves the provision of cover for a range of disasters, for example. This includes both natural disasters, such as earthquakes, storms, and floods, and man-made disasters. These events cannot be predicted. Generally speaking, there is both the risk of particularly significant individual loss events and also the risk of a large number of loss events that are each not necessarily significant in themselves. In any one year, the actual impact from the size and frequency of losses could therefore exceed the forecast impact. Inflationary effects represent a cost driver for claims incurred because, for example, higher prices for procuring commodities and other items can result in higher claims settlement expenses. This may lead to adjustments to premiums.

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).

16.2.2 Sustainability-related risk factors for actuarial risk

Physical risks such as environmental pollution and climate change represent sustainability-related 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.

Climate change represents a sustainability-related risk factor for **catastrophe risk** as part of non-life actuarial risk 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.

16.3 Management of life actuarial risk

16.3.1 Risk measurement

The **overall solvency requirement** for actuarial risk is determined in accordance with the standard formula in Solvency II over a period of 1 year with a confidence level of 99.5 percent.

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. Risk management in direct life insurance business also encompasses protection in the event of occupational incapacity. The following main 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

The **overall solvency requirement** for actuarial risk is determined in accordance with the standard formula in Solvency II over a period of 1 year with a confidence level of 99.5 percent. 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 VI.16.3) and non-life actuarial risk (chapter VI.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, 2024, R+V used the new PKV mortality table valid for 2024 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 **overall solvency requirement** for actuarial risk is determined in accordance with the standard formula in Solvency II over a period of 1 year with a confidence level of 99.5 percent. 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. In 2024, an increase in costs for claims and repairs, especially in residential buildings insurance and motor vehicle insurance, led to premiums being adjusted.

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 natural 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

Under IFRS 17, the **claims rate in direct non-life insurance and inward non-life reinsurance business** is calculated as the ratio of changes in the liabilities for incurred claims (including payments for claims) to insurance revenue.

Under IFRS 17, **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. VI.41.

FIG. VI.41 – INSURANCE SECTOR: CLAIMS RATES[1] AND SETTLEMENTS[2] IN NON-LIFE INSURANCE

	2024	2023	2022	2021	2020	2019	2018	2017	2016	2015
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
Excluding major/natural disaster claims			66.1	68.0	70.4	72.7	71.1	72.8	72.3	74.0
Claims rate according to IFRS 17										
Including major/natural disaster claims	81.8	77.3	73.2							
Excluding major/natural disaster claims	74.3	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
Settlements according to IFRS 17	-3.4	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, 2024, the **overall solvency requirement** for **life actuarial risk** amounted to €927 million (December 31, 2023: €946 million) with a **limit** of €1,100 million (December 31, 2023: €1,060 million).

The **overall solvency requirement** for **health actuarial risk** was calculated to be €335 million as at the reporting date (December 31, 2023: €255 million). The **limit** was €400 million (December 31, 2023: €285 million). The increase in risk was primarily the result of lower policyholder participation in risk.
The **overall solvency requirement** for **non-life actuarial risk** amounted to €2,013 million as at December 31, 2024 (December 31, 2023: €1,823 million) with a **limit** of €2,250 million (December 31, 2023: €1,900 million). The increased overall solvency requirement was mainly attributable to increased premiums and sums insured.

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

17.2.1 General risk factors for market risk

The material general risk factors for R+V's market risk generally correspond to the risk factors impacting on market risk in the Bank sector, which are described in chapter VI.10.3.

An exception to this are unexpected movements in the interest-rate market, which have a differing impact on the Bank sector and on the Insurance sector. The interest-rate-related risk factors described in chapter VI.5.2.6 could have an adverse impact on R+V's investments as follows:
- A **rise in interest rates** and a widening of bond spreads would lead to a 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 negative impact on operating profit, or a permanent negative 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 impair R+V's solvency situation.
- By contrast, a **fall in interest rates** would have a positive valuation effect on R+V's portfolio of interest-bearing exposures in the near term. However, 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.

17.2.2 Sustainability-related risk factors for market risk

Other risk factors associated with R+V's 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, the share prices of equities, or the fair value of real estate 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.

17.3 Risk management

17.3.1 Market risk measurement

The **overall solvency requirement** for market risk is determined in accordance with the standard formula in Solvency II over a period of 1 year with a confidence level of 99.5 percent. 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 of the standard formula in Solvency II 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 VI.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 ensuring a good balance between 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. Special attention is paid to the effects of interest-rate changes 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. VI.46 in chapter VI.17.5.2). 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.

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. VI.42 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.

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.

FIG. VI.42 – 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 2024		Proportion of liabilities for remaining coverage as required by German commercial law in 2023	
	€ million	Percent	€ million	Percent
0.00%	6,087	8.7	6,759	9.6
0.01%	–	–	47	0.1
0.08%	5	–	5	–
0.10%	16	–	18	–
0.15%	272	0.4	153	0.2
0.25%	5,148	7.4	3,858	5.5
0.30%	161	0.2	160	0.2
0.35%	894	1.3	962	1.4
0.40%	63	0.1	63	0.1
0.50%	258	0.4	244	0.3
0.75%	123	0.2	34	–
0.90%	7,833	11.2	8,118	11.5
1.00%	36	0.1	59	0.1
1.10%	472	0.7	468	0.7
1.25%	2,917	4.2	2,844	4.0
1.50%	63	0.1	57	0.1
1.55%	1	–	4	–
1.75%	6,933	9.9	6,861	9.8
1.80%	218	0.3	251	0.4
2.00%	792	1.1	825	1.2
2.25%	11,846	17.0	11,821	16.8
2.50%	86	0.1	94	0.1
2.75%	9,248	13.3	9,334	13.3
3.00%	985	1.4	1,218	1.7
3.25%	6,936	9.9	7,021	10.0
3.50%	2,070	3.0	2,382	3.4
3.75%	89	0.1	105	0.1
4.00%	6,234	8.9	6,570	9.3

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.

17.4 Managing sustainability risks arising from investment activity

Transition risks can be reflected in the market risk of R+V as a result of negative changes in the fair values of investments.

R+V has a science-based climate target for its investment activity, which involves cutting greenhouse gas emissions from investment activities to make them climate-neutral by 2050.

R+V's investment portfolio is 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 United Nations Global Compact. R+V can initiate processes to engage with individual issuers in order to mitigate sustainability risks. These processes serve to clarify sustainability-related matters or controversies.

Sustainability risks in R+V's investment process are monitored and managed by two committees. The ESG task force monitors general sustainability risks at individual issuer level, while the carbon task force manages climate

targets at portfolio level. The amount of climate risk from various asset classes is also taken into account in the risk capital calculation.

17.5 Lending volume

17.5.1 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. VI.43 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 VI.8.7.2.

FIG. VI.43 – INSURANCE SECTOR: RECONCILIATION OF THE LENDING VOLUME

€ billion		Reconciliation								
Lending volume for internal management accounts		**Scope of consolidation**		**Definition of the lending volume**		**Carrying amount and measurement**		**Lending volume for the consolidated financial statements**		
Dec. 31, 2024	Dec. 31, 2023	**Dec. 31, 2024**	Dec. 31, 2023	**Dec. 31, 2024**	Dec. 31, 2023	**Dec. 31, 2024**	Dec. 31, 2023	**Dec. 31, 2024**	Dec. 31, 2023	**Investments held by insurance companies (note 54 of the notes to the consolidated financial statements)**
								12.7	12.0	of which: mortgage loans
								6.0	6.0	of which: promissory notes and loans
								5.7	5.5	of which: registered bonds
								0.9	1.0	of which: other loans
								12.3	11.9	of which: variable-yield securities
								55.4	53.6	of which: fixed-income securities
								0.1	0.2	of which: derivatives (positive fair values)
								–	–	of which: deposits with ceding insurers
90.8	89.8	**-1.7**	-1.8	**-0.7**	-0.7	**4.7**	3.0	**93.0**	90.2	
Difference								2.3	0.5	
Difference (percent)								2.5	0.5	

Not relevant

17.5.2 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, 2024, the **total lending volume** of R+V had increased by 1 percent to €90.8 billion (December 31, 2023: €89.8 billion).

The financial sector and the public sector, which are the dominant **asset classes**, together accounted for 68 percent of the total lending volume as at December 31, 2024 (December 31, 2023: 67 percent).

The explanation of the asset class concept in the Bank sector (see chapter VI.8.7.3) applies analogously to the Insurance sector. Fig. VI.44 shows the breakdown of the lending volume by asset class.

FIG. VI.44 – INSURANCE SECTOR: LENDING VOLUME, BY ASSET CLASS

€ billion	Dec. 31, 2024	Dec. 31, 2023
Financials	40.7	40.1
Corporates	11.9	12.3
Public sector	20.8	19.7
Real estate (commercial and retail customers)	16.5	16.5
Other retail business	0.1	0.1
Asset-backed securities and asset-backed commercial paper	0.9	1.2
Total	**90.8**	**89.8**

In the real estate asset class (commercial and retail customers), the volume of lending in the **home finance** business came to €14.3 billion as at December 31, 2023 (December 31, 2023: €14.2 billion). Of this amount, 87 percent was accounted for by loans for less than 60 percent of the value of the property as at December 31, 2024, a situation that was unchanged compared with December 31, 2023.

As at the reporting date, the volume of home finance was broken down by finance type as follows (figures as at December 31, 2023 shown in parentheses):

- Consumer home finance: €13.0 billion (€12.8 billion)
- Commercial home finance: €0.1 billion (€0.1 billion)
- Commercial finance: €1.2 billion (€1.3 billion)

In the case of home finance, the entire volume disbursed is backed by traditional loan collateral.

FIG. VI.45 – INSURANCE SECTOR: LENDING VOLUME, BY COUNTRY GROUP

€ billion	Dec. 31, 2024	Dec. 31, 2023
Europe	45.6	43.9
of which: eurozone	36.8	34.9
North America	8.2	8.2
Central America	0.6	0.5
South America	0.9	1.0
Asia	3.4	3.5
Africa	0.3	0.3
Other	1.9	1.9
Total	**60.9**	**59.3**

Fig. VI.45 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, 2024, 75 percent of the total lending outside Germany was concentrated in Europe (December 31, 2023: 74 percent).

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 Fig. VI.25 (chapter VI.8.5.1).

The **rating structure** of the lending volume in the Insurance sector is shown in Fig. VI.46. Of the total lending volume as at the reporting date, 76 percent was attributable to investment-grade borrowers (December 31, 2023: 75 percent). Defaults, represented by rating classes 5A to 5E, continued to account for less than 1 percent of the total lending volume, as had also been the case as at December 31, 2023. The lending volume that is not rated, which also remained unchanged at 23 percent of the total lending volume, essentially comprised consumer home finance for which external ratings were not available. Consumer home finance 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 16 percent of R+V's total lending volume as at December 31, 2024 (December 31, 2023: 17 percent).

FIG. VI.46 – INSURANCE SECTOR: LENDING VOLUME, BY INTERNAL RATING CLASS

€ billion		Dec. 31, 2024	Dec. 31, 2023
Investment grade	1A	27.8	23.0
	1B	7.6	11.4
	1C	–	–
	1D	10.5	10.6
	1E	–	–
	2A	6.5	6.3
	2B	4.7	5.6
	2C	5.8	4.9
	2D	3.3	2.7
	2E	–	–
	3A	2.8	3.0
Non-investment grade	3B	0.4	0.4
	3C	0.4	0.3
	3D	–	–
	3E	0.2	0.2
	4A	0.1	0.2
	4B	0.1	–
	4C	–	–
	4D	–	–
	4E	–	–
Default		0.2	–
Not rated		20.5	21.0
Total		**90.8**	**89.8**

17.5.3 Credit portfolios particularly affected by a negative environment

Economic policy divergence in the eurozone

Differences in economic policy in the eurozone are particularly affecting investments of R+V in **Italy**. As at December 31, 2024, the affected exposure amounted to €3,308 million (December 31, 2023: €2,493 million). The increase in the exposure compared with December 31, 2023 was largely due to higher fair values and bond purchases.

Acute global crises

The following sections present the lending volume in the credit portfolios in which the effects of acute global crises were more noticeable than in the rest of R+V's credit portfolios. The regional allocation of the exposures, which mainly comprise fixed-income securities, is shown in Fig. VI.47.

FIG. VI.47 – INSURANCE SECTOR: LENDING VOLUME IN COUNTRIES PARTICULARLY AFFECTED BY ACUTE GLOBAL CRISES

€ million	Dec. 31, 2024	Dec. 31, 2023
Lending volume in countries affected by the Israel-Hamas war	**590**	572
of which: Egypt	–	4
of which: Israel	290	293
of which: Jordan	32	20
of which: Saudi Arabia	268	254
Lending volume in countries affected directly by the dispute between China and Taiwan	**161**	168
Lending volume	**751**	740

In 2024, Saudi Arabia and Jordan were classified as countries affected, in the broader sense, by the war between Israel and Hamas. This means that the total lending volume differs from the corresponding disclosure in the 2023 risk report.

As at December 31, 2024, the volume of lending extended to countries affected by the dispute between **China and Taiwan** related exclusively to China. As at the reporting date, there was no exposure to borrowers based in Taiwan, a situation that was unchanged compared with December 31, 2023.

The proportion of R+V's lending volume that was associated with acute crises stood at 0.8 percent of its total lending volume as at December 31, 2024. This situation was also unchanged year on year. In the 2023 risk report, the relevant lending volume had made up 0.5 percent of the total lending volume excluding Saudi Arabia and Jordan.

17.6 Risk position

As at December 31, 2024, the **overall solvency requirement** for market risk amounted to €3,965 million (December 31, 2023: €3,580 million) with a **limit** of €4,450 million (December 31, 2023: €3,695 million). The increase in risk related first and foremost to spread risk and equity risk and was attributable to lower policyholder participation in risk in the life insurance business.

Fig. VI.48 shows the overall solvency requirement for the various types of market risk.

FIG. VI.48 – INSURANCE SECTOR: OVERALL SOLVENCY REQUIREMENT FOR MARKET RISK, BY RISK SUBTYPE

€ million	Dec. 31, 2024	Dec. 31, 2023
Interest-rate risk	2,318	2,392
Spread risk	1,028	718
Equity risk	1,631	1,232
Currency risk	381	335
Real-estate risk	473	432
Total (after diversification)	**3,965**	**3,580**

18 Counterparty default risk

18.1 Definition and business background

Counterparty default risk reflects potential 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 **overall solvency requirement** for counterparty default risk is determined in accordance with the standard formula in Solvency II over a period of 1 year with a confidence level of 99.5 percent. 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 continued to stand at 0.1 percent as at December 31, 2024.

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 €68 million as at December 31, 2024 (December 31, 2023: €73 million). Of this amount, 100 percent was accounted for by entities with an external rating of A or better under the system of rating agency S&P Global Ratings, a situation that was unchanged compared with December 31, 2023.

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 under the system of rating agency S&P Global Ratings, are shown in Fig. VI.49. Ratings that were not available at the reporting date are now shown as 'Not rated', whereas they had been included in 'Other ratings' in the 2023 risk report.

FIG. VI.49 – INSURANCE SECTOR: VOLUME OF REINSURANCE CONTRACTS HELD, BY EXTERNAL RATING CLASS

€ million	Dec. 31, 2024	Dec. 31, 2023
AAA	1	–
AA+ to AA-	44	21
A+ to A-	119	119
B	3	1
Not rated	13	12
Total	**180**	**154**

Overdue receivables from policyholders and insurance brokers more than 90 days past due as at the reporting date amounted to €12 million as at December 31, 2024 (December 31, 2023: €16 million).

As at December 31, 2024, the **overall solvency requirement** for counterparty default risk amounted to €252 million (December 31, 2023: €219 million) with a **limit** of €325 million (December 31, 2023: €245 million). The increased overall solvency requirement was mainly attributable to lower policyholder participation in risk.

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 **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 partners in the Cooperative Financial Network and employees – necessary to conduct business operations. The possibility cannot be ruled out either that entities in the Bank sector will be affected if R+V has a negative reputation.

Reputational risk is particularly affected by **sustainability-related risk factors** in the form of transition risks, social risks, and corporate governance risks. If such sustainability-related risks materialize, this can lead to increased reputational risk. The effect can spread both indirectly via customers or products and directly via the entities' own processes or business activities.

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.

Potential causes of **corporate governance risk** 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. A lack of, or only inadequate, measures to tackle money laundering, financing of terrorism, and all forms of corruption (e.g., acceptance of advantages, granting of advantages, active bribery, and passive corruption) constitute further forms of corporate governance risk. They may damage R+V's reputation among employees, customers, and business partners.

Transition risk can arise if stakeholders regard R+V's approach to sustainability matters as inappropriate, in particular if they deem existing or future products or current or proposed business relationships to have an adverse impact on the climate or environment. Furthermore, transition risk can be triggered by investments 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.

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. This analysis implicitly and explicitly takes account of **sustainability matters**.

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 subtypes:
- 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.

20.2 Central risk management

The **overall solvency requirement** for operational risk in the Insurance sector is determined in accordance with the standard formula in Solvency II over a period of 1 year with a confidence level of 99.5 percent. 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 Consideration of sustainability risks

There is a risk that third parties could assert claims due to **transition risks**.

Potential causes of **corporate governance risk** 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.
The instruments used to identify operational risk – such as the risk self-assessment and risk indicators – also incorporate ESG matters. This ensures that sustainability-driven operational risks are managed and monitored.

To expand the management of operational risks driven by ESG factors, an ESG-specific label is currently being introduced as part of the aforementioned management tools. This will enable reliable statements to be made on

the basis of expert assessments by the risk management units that indicate the impact of sustainability risk factors on operational risk.

20.4 Operational risk subtypes

20.4.1 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 or as an employer 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 VI.3.9. 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.

20.4.2 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 VI.3.10.

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.

A material aspect in the deployment of IT is digital operational resilience aimed at minimizing the impact of IT outages, particularly for critical business processes, and to avoid business interruptions.

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.

20.4.3 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 R+V 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 VI.3.10.

20.4.4 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.

The outsourcing of activities to external providers or within the Group and the use of external IT procurement in line with the Digital Operational Resilience Act (DORA) can bring benefits in terms of quality and costs. At R+V, many tasks are performed centrally by certain R+V subsidiaries acting as service providers that render these activities in a joint operation for other R+V subsidiaries.

Outsourcing and external IT procurement entail different, specific risks 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, business interruptions, claims for damages from customers, or regulatory sanctions. 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 VI.3.11.

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 and external procurement
- 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

20.4.5 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. The projects are 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.

20.5 Risk position

As at December 31, 2024, the **overall solvency requirement** determined for operational risk amounted to €678 million (December 31, 2023: €627 million). The **limit** was €800 million as at the reporting date (December 31, 2023: €700 million). This increase in risk was 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 R+V for regulatory purposes 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 over a multi-year period 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, Wiesbaden, (R+V Pensionskasse) is exposed to risks comparable with those faced by the life insurance entities. The main risk management activities applicable in this case are those relating to life actuarial risk (see chapter VI.16.3.2), market risk (see chapter VI.17.3), counterparty default risk (see chapter VI.18.3), and operational risk (see chapter VI.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, 2024, the **overall solvency requirement** for risks from entities in other financial sectors stood at €194 million (December 31, 2023: €217 million) with a **limit** of €265 million (December 31, 2023: €225 million). The reduction in risk was attributable to the lower forecast funding requirements of R+V Pensionskasse.