Deutsche Börse Group

Combined Management Report and Consolidated Financial Statements 2023

Combined management report of Deutsche Börse AG for the financial year from 1 January to 31 December 2023

Deutsche Börse: Fundamental information about the Group

Deutsche Börse Group is one of the largest providers of market infrastructure in the world. We provide our clients with a broad spectrum of products and services along the value chain of financial market transactions. Securities, derivatives, commodities, currencies and digital assets are traded on our platforms.

About this report

This combined management report covers both Deutsche Börse Group and Deutsche Börse AG. The combined management report also includes the combined non-financial declaration. It meets the requirements of HGB (German Commercial Code) and Deutscher Rechnungslegungs Standard Nr. 20 (DRS 20, German Accounting Standard No. 20). The information about our net assets, financial position and result of operations is based on the requirements of International Financial Reporting Standards (IFRS), and if applicable, German commercial law (HGB) and German Financial Reporting Standards (DRS). The contents of the combined non-financial declaration are subject to PwC's audit.

Business operations and Group structure

Deutsche Börse AG was established in 1992 and is a global company based in Frankfurt/Main, Germany. It is the parent company of Deutsche Börse Group. Altogether we have over 14,000 employees from 131 nations working at 56 sites.

As one of the largest providers of capital market infrastructure worldwide, we offer our clients a broad range of products and services along the value chain of financial market transactions. Our offering ranges from portfolio management software, analytics solutions, the ESG business and index development, via services for trading, clearing and settling orders through to custody services for securities and funds, and liquidity and collateral management services. We also develop and operate the IT systems and platforms that support all these processes. In addition to securities, our platforms are also used to trade derivatives, commodities, foreign exchange and digital assets.

Our business takes place in four segments: Investment Management Solutions, Trading & Clearing, Fund Services and Securities Services. This structure is used for the internal Group controlling and forms the basis for our financial reporting. The new segment Investment Management Solutions was introduced in the fourth quarter 2023 to reflect the growing importance of the buy-side as a customer group for the Group. It includes the SimCorp business, as well as the activities of ISS, STOXX and Axioma that were previously pooled in the Data & Analytics segment.

For further details we refer to the segment reporting in the section "Results of operations".

Deutsche Börse Group's full group of consolidated entities is set out in note 34 to the consolidated financial statements. You can find a complete list of our trademark rights on our homepage.

Management

The governing bodies of Deutsche Börse AG, which is a German stock corporation, are the Annual General Meeting, the Supervisory Board and the Executive Board, each of which has its own areas of responsibility.

The Annual General Meeting rules on the appropriation of distributable profit, appoints the shareholder representatives on the Supervisory Board and discharges the Executive Board and the Supervisory Board of liability. In addition, it rules on equity issuance and other matters governed by the Aktiengesetz (AktG, German Stock Corporation Act).

The Supervisory Board appoints, supervises, and advises the members of the Executive Board, and is involved directly in decisions of fundamental importance to the Group. Additionally, it approves the annual financial statements as well as the consolidated financial statements prepared by the Executive Board. Members of the Supervisory Board are appointed for a period of three years, although the Annual General Meeting may determine a shorter term of office when electing members. The composition of the Supervisory Board is governed by the provisions of the German Co-determination Act (Mitbestimmungsgesetz). It is made up of eight shareholder representatives and eight employee representatives. Further details are provided in the "Corporate governance statement".

The Executive Board is responsible for the management of the company, whereby the Chief Executive Officer (CEO) coordinates the activities of the Executive Board members. In the 2023 financial year, the Executive Board of Deutsche Börse AG comprised six members. The remuneration system and the remuneration paid to individual members are explained in more detail in the "Remuneration report".

Organisational structure

Our organisation is divided into six Executive Board areas as follows:

Leadership structure

Executive Board

CEO
Dr T. Weimer

- Group Strategy/Mergers & Acquisitions/Chief of Staff
- Group Communications & Marketing
- Group Regulatory Strategy
- Group Audit
- Group Legal

CFO
G. Pottmeyer

- Financial Accounting & Controlling
- Investor Relations
- Treasury
- Chief Risk Officer
- Purchasing & Facility Management
- Group Tax

Trading & Clearing
Dr T. Book

- Derivatives Markets Trading
- Clearing
- Business Analytics & Strategy
- FX/360T
- European Energy Exchange (EEX)
- Market Data + Services
- Cash Market

Pre- & Post-Trading
Dr S. Leithner

- Clearstream Securities Services
- Clearstream Fund Services
- Investment Management Solutions
  - SimCorp Axioma
  - ISS STOXX

Governance, People & Culture
H. Eckert

- Chief Compliance Officer
- HR Global Business Partner
- People Strategy & Initiatives
- HR Global Services
- Governance & Organizational Services

CIO/COO
Dr C. Böhm

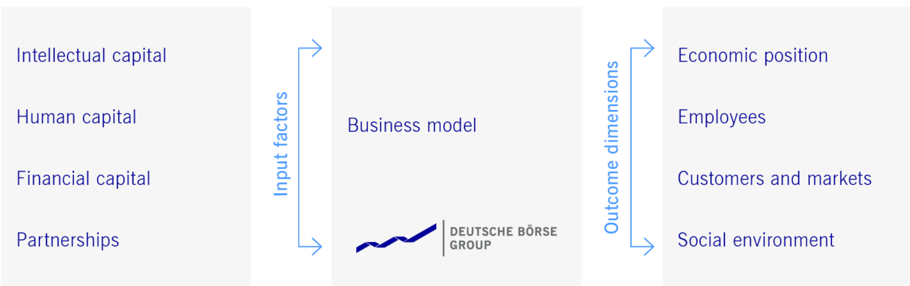
- Derivatives & Cash Trading IT
- Clearing and Risk IT
- Group Security
- Corporate IT
- Chief Technology Officer
- Post Trade IT
- IT Strategy/Chief of Staff
- IT Governance, Risk and Transformation

Corporate purpose and value creation process

Our purpose is “We at Deutsche Börse create trust in the markets of today and tomorrow”. Trust is essential for functioning markets and sustainable economies. We provide fair and transparent, reliable and stable infrastructures that ensure safe and efficient capital markets around the globe.

Our value creation process

External requirements (regulations, rating agencies, etc.)



According to the terminology used by the International Integrated Reporting Council (IIRC), we essentially need four capitals (input factors) to implement our business model. We deploy these capitals within a binding regulatory framework: intellectual capital, human capital, financial capital and partnerships. They enable us to create value with our business model. The impact that we have with our business model can be thought of in the following four outcome dimensions:

Economic situation: As a fast-growing company we create financial value, substance and returns on which our investors, employees, customers and society can build.

Employees: As an employer, we take wide-ranging measures to enable our employees to fully realize their development potential. We also work to boost the satisfaction of our employees and their loyalty to our Group. All this helps to build our employer brand, which is the main reason why talented people choose us.

Customers and markets: Our products and services contribute to increase transparency for market participants and to enable them to price in and integrate market developments, changes and transformations. In this way we enable our customers and market participants to make better-informed decisions.

Social environment: Our value creation also goes far beyond the areas of direct concern to us as a company. We thus focus on the environment and human rights aspects of our supply chain and are involved in initiatives to strengthen the local financial industry.

Strategy and steering parameters

Deutsche Börse Group has an excellent market position in Europe as an operator of market infrastructure. As a fully integrated end-to-end provider we offer our customers a broad value chain with innovative solutions.

The market environment in which we operate is very dynamic. This applies not only to the markets themselves, which we organise and operate via our platforms. Our competitive environment as a market infrastructure operator is also permanently in flux. The provider landscape has consolidated drastically in the past decades, which has strengthened the remaining operators of market infrastructure and enabled them to extend their business in various directions. New business activities and new customer groups beyond the core business have moved to the foreground. Today, market infrastructure providers not only service the sell-side, like banks and financial service providers, but rather have extended and diversified their customer target group.

We too have continued to expand our market leadership in the European Union as a fully integrated end-to-end provider in the financial markets. By this gradual expansion of our business model we are now also able to cater to the buy-side as a new customer group. Our broad value chain now includes solutions for investment management, trading and clearing through to securities services. We have achieved this by both organic growth and targeted acquisitions. We see ourselves as a hybrid of technology company and financial services provider, with a value chain that has a high degree of integration and diversification. As a result, our business model is characterised by great scalability, a low risk profile and low capital intensity, with a high affinity for technology at the same time. This is not only a unique sales proposition in international competition, but also forms the basis for attractive growth opportunities and also makes our business model more robust and resilient to market fluctuations or secular shifts.

All this has enabled us to exceed the financial targets we set ourselves as part of our Strategy Compass 2023. We achieved the original guidance for 2023 back in 2022. And we revised the 2023 targets upwards several times during the course of the year.

Target achievement Compass 2023

Key performance indicators	Target Compass 2023	Target achievement 2023
Net revenue	~€4.3 billion	€5,076.6 million
Earnings before interest, tax, depreciation and amortisation (EBITDA)	~€2.5 billion	€2,944.3 million

Building on our successful business performance in recent years, we developed a new strategy entitled Horizon 2026 which we published on 7 November 2023. It defines the strategic direction and financial targets for the years ahead through to 2026 and thus secures our outstanding market position and continued viability. The core of Horizon 2026 is the business strategy that we have mapped out comprehensively and in detail at a Group and segment level. The relevant strategic aspects of human resources, information technology, environment, social and governance, and particularly climate action, are integral parts of our business strategy. Further information on these topics can be found in the chapter "Non-financial declaration". The relevant financial strategy for our Group is reflected in the adjusted framework for capital allocation. It backs up our business strategy and forms the basis for our further corporate growth.

In our strategy we make a fundamental distinction between organic growth, generated from existing operations, and inorganic growth by means of focused acquisitions to expand or deepen our value chain. Organic growth consists mainly of secular initiatives such as product innovation, additional market share or new customer gains, as well as cyclical growth due to interest rate effects or higher trading volumes due to market fluctuations.

Our growth course as defined in Horizon 2026 is built on three strategic pillars.

- Strong **organic growth:** As in the past, organic growth forms the foundation for Horizon 2026. We benefit from long-term industry trends in attractive markets and strive for profitable organic growth of around 7 per cent per year on average. Secular growth is intended to account for by far the largest share of this.
- **Investment Management Solutions:** With the acquisition of SimCorp we complement our former activities in the area of data and analytics with a holistic offering for institutional investors by pooling end-to-end solutions for investment management and high-quality data in a new segment. In addition, we expect the acquisition of SimCorp completed in 2023 to deliver an average of around 3 per cent inorganic growth per year, and so increase the share of recurring revenue.
- **Digital leadership:** We intend to keep expanding our leading role in the digitalisation of assets. With D7 we already operate in the Securities Services segment one of the leading digital infrastructures globally in the post-trade area with more than 7,000 digital issuances. Cloud technologies and artificial intelligence also help us to increase our effectiveness and efficiency, and to open up new business areas at the same time.

Deutsche Börse is aiming for overall growth in net revenue of 10 per cent p.a. on average until 2026. The reference year for this is 2022. Earnings before interest, taxes, depreciation and amortisation (EBITDA) should increase to an average of 11 per cent p.a. Earnings per share before the effects of purchase price allocations (cash EPS) should increase over the same period by an average of 11 per cent a year.

Overwiew of targets „Horizon 2026“ targets

in €	Basis 2022	Targets of “Horizon 2026”
Net revenue	4.3 billion	~ 10 % CAGR
Earnings before interest, tax, depreciation and amortisation (EBITDA)	2.5 billion	~ 11 % CAGR
Cash EPS	8.61	~ 11 % CAGR

To achieve these targets, we are addressing the following market trends in our four operating segments.

- **Investment Management Solutions:** The increasing importance of the buy-side in financial markets and the outsourcing of investment operations to central service providers, as well as higher demand for index-driven investments, ESG services and reliable data
- **Trading & Clearing:** The shift from OTC to on-exchange trading, greater use of fixed income products in response to restrictive monetary policies, increasing demand for repo products and rising demand for digital assets
- **Fund Services:** The trend towards outsourcing of fund distribution operations to boost efficiency and the increasing demand for fund data services and analytics
- **Securities Services:** The strong increase in outstanding debt and rising demand for repo products and financing solutions via the capital markets as a result of the returning strong positive interest rates

Additional cyclical growth components may include higher market volatility in the Trading & Clearing segment, as well as higher long-term interest rates in Fund Services and Securities Services. In addition, targeted acquisitions may also contribute to future growth if they are strategically and financially attractive.

Growth drivers "Horizon 2026"

Segment	Growth drivers
Investment Management Solutions	**Software Solutions (SimCorp & Axioma):** • Rising demand for holistic Software as a Service (SaaS) and Business Process as a Service (BPaaS) investment management solutions, where customers can select the services they need along the investment management value chain and obtain them individually and efficiently • Increasing importance of the buy-side in the capital markets and general growth of this customer group • Customer desire for a neutral provider of integrated investment management software, including risk management and analytics solutions, which is also internationally competitive • Cost pressure from regulation and technological advances are leading to consolidation among providers of investment management software, and increasing demand from customers for an integrated offering **ESG & Index (ISS/STOXX):** • Increasing demand for an integrated offering of index and ESG products and services that is internationally competitive • Growing need for high-quality ESG data, research, ratings and benchmark indices due to the growing number of passively managed funds (ETFs) • Growing need for high-quality ESG data, ratings and research on the part of active asset managers and investors as a result of increasing competitive pressure to outperform lower-cost ETFs • Increasing regulation and reporting obligations for companies, investors and funds, such as CSRD and SFDR, which increase the need for market knowledge, ESG data, market analysis and research • Synergy effects from the merger with SimCorp & Axioma and ISS & STOXX by pooling competences and distribution activities across products, as well as greater business expansion in North America
Trading & Clearing	**Financial derivatives:** • Interest rate derivatives: Innovative products, such as derivatives based on European sovereign bonds, and additional market share in the segment of short-term interest rate derivatives (STIRs) • OTC clearing: Additional market share due to greater efficiency in offsetting OTC and exchange-traded business (cross-margining), and an improved risk model. The current obligation being discussed by the EU supervisory authorities to use an active cross-margining account within the EU could contribute to gaining additional market share • Repo: Higher demand for secured money market products as a result of central banks' withdrawal from the money market and higher financing costs • Equities and equity index derivatives: Innovative products, such as exchange-traded derivatives on products that were traded over the counter in the past (total return futures), ESG index derivatives • Digital assets: Rising demand for digital asset classes **Commodities:** • Electricity: Higher demand for electricity derivatives, driven by (1) higher price fluctuations due to the greater share of renewable energies in the energy mix, (2) uncertainty in global electricity supply chains and thus higher need for hedging by market participants, (3) increasing trading in electricity derivatives by quant/algo traders, who are now able to trade on electricity markets as a result of their greater liquidity **FX:** • New customer gains and additional market share compared with OTC trading
Fund Services	• New outsourcing customers and service extensions (e.g. distribution and data) • Expansion of the proposition for asset managers, with regulatory, data-based and digital services from a "one-stop shop" • Exploit cross-selling potential in the areas of execution, distribution, data and innovation

Growth drivers "Horizon 2026"

Segment	Growth drivers
Securities Services	• Expand global presence in fixed-income securities services • Net interest income • Expand scope and range of securities lending services (e.g. AI-enabled "marriage broking") • Scaling opportunities by expanding "platforms as a service" proposition • D7 as the first completely digital securities infrastructure – further momentum thanks to partnership with Google • Ongoing strong growth in secular fee income

We review our organic growth initiatives continuously. We capitalize particularly on the expansion in secular growth markets and asset classes. At the same time we always focus on the needs of our customers and technological advances. Key initiatives and growth drivers are also described in more detail in the "Report on opportunities" section.

The "Report on expected developments" section describes expected developments in the 2024 financial year.

Additionally, the remuneration system for the Executive Board and executive staff has also created a number of incentives for growth in the individual business divisions. The "Remuneration report" provides a detailed description of all targets.

Financial steering parameters

The most important key performance indicators to manage of our economic situation are net revenue and EBITDA, since these are vital for the successful execution of our growth strategy and set incentives for profitable growth. The basis is net revenue as reported in the consolidated financial statements. This consists of sales revenue, plus net treasury income from banking business and similar business, plus other operating income, less volume-related costs. One of the most important pillars of the corporate strategy, in addition to absolute growth, is the profitability of this growth. EBITDA stands for earnings before interest, tax, depreciation and amortisation and as such is a gauge of our operative earning power. It is a common indicator for measuring profitability. Another key financial control criterion is earnings per share before purchase price allocations (Cash EPS), since all profit and loss effects are reflected in this indicator, and it can therefore be used to measure the successful implementation of the growth strategy.

Economic situation

Deutsche Börse Group remains on a growth path. We increased our net revenue significantly again in 2023. We benefited from both organic growth and the acquisition of SimCorp.

In the following section we look at the macroeconomic and sector-specific environment, the course of business, our earnings, the development of profitability and other financial performance indicators.

Macroeconomic and sector-specific environment

Secular growth factors and M&A are a core element of our strategy. We can plan them, manage them and adjust them to external circumstances. Our business performance is also influenced by macroeconomic and sector-specific factors that are beyond our direct control, however.

In 2023 these included:

- Persistently high inflation, which did fall over the course of the year, but remained significantly above the central banks' target rates
- The resulting ongoing restrictive monetary policy of central banks in the USA and Europe, and their insistence that this policy will be pursued until inflation rates approach the desired level
- The insolvency of some US banks in mid-March and the consolidation on the Swiss banking market
- Russia's ongoing war of aggression against Ukraine and the related sanctions and effects on global supply chains and energy supply
- The Hamas attack on Israel in October 2023 and the resulting new escalation in the Israeli-Palestinian conflict in the Middle East since then

In its January 2024 estimate, the International Monetary Fund (IMF) predicted slower global economic growth of 3.1 per cent for 2023 (2022: +3.5 per cent). It expects the euro area to grow by 0.5 per cent (2022: +3.5 per cent) and for the economy in Germany to even contract by 0.3 per cent (2022: +1.8 per cent).

Business developments

The 2023 financial year was dominated by the activities of central banks to combat high inflation rates. Inflation declined over the course of the year in both the USA and Europe, but rates were still too high, making a looser monetary policy impossible.

The ECB raised its deposit rate in several stages, most recently to 4.00 per cent in September, while the Federal Reserve increased its target range for the federal funds rate to 5.25-5.50 per cent in July and has left it at this level since. Both central banks said that any change in their restrictive monetary policies depended on the future development of key economic indicators. Higher interest rates mean on the one hand that we profit from higher net interest income in the Securities Services and Fund Services segments. At the same time there were phases in which higher interest rates increased market participants' hedging requirements and led to greater trading activity in fixed income products in the Trading & Clearing business. Central banks' withdrawal from the money market also caused higher demand for repo products. In the commodities business, trading activity returned to the power markets, with new highs towards the end of the year. This was the result of lower and more stable power prices, which reduced the margin requirements.

Volatility on stock markets, as measured by the VSTOXX, was significantly lower than the previous year. Higher trading volumes were only seen briefly in March following the insolvency of several US banks and the consolidation on the Swiss banking market. The VSTOXX stood at an average of 18 points, which was 35 per cent lower than the average for the previous year. Trading activity in securities and equity index derivatives in the Trading & Clearing unit was correspondingly lower.

Results of operations

Against this backdrop, the results of operations in financial year 2023 were affected significantly by both secular and cyclical growth factors. The biggest driver of year-on-year net revenue growth in the Group was a sharp rise in interest rates on both sides of the Atlantic, combined with only a moderate decline in cash deposits from our customers in the Securities Services and Fund Services segments, resulting in very strong growth in net interest income. Higher interest rates and a downwards trend in the money supply had a positive impact on the use of interest rate derivatives and repo products in the financial derivatives business within the Trading & Clearing segment. In this context the rise in the outstanding notional volume of centrally cleared over-the-counter (OTC) traded and euro-denominated interest rate derivatives had a positive influence on net revenue. In addition, lower margin requirements as a result of reduced volatility on power and gas markets, and new customer gains, increased trading volumes for power derivatives in the commodities business in the Trading & Clearing segment, which was in turn reflected in higher net revenue. The Investment Management Solutions segment profited from both continuous product demand in Governance Solutions, Corporate Solutions and ESG, and from contract renewals with customers in the Analytics business. The acquisition of SimCorp, which was fully consolidated into the Group in the fourth quarter, also made a decisive contribution to M&A growth in this segment. In contrast to the previous year, which saw a positive one-off effect of €63 million in total in net revenue, there were no significant non-recurring effects on the revenue side in the reporting year.

Our net revenue therefore increased to €5,076.6 million in the financial year 2023 (2022: €4,337.6 million). The net revenue increase of 17 per cent consisted partly of 5 per cent secular growth, which came largely from new customer gains and gains in market share, the expansion of customer relationships and product innovations. Cyclical growth effects accounted for a further 7 per cent. The global increase in interest rates deserves particular mention. Another 5 per cent comes from M&A growth in connection with the acquisition of SimCorp.

Operating costs rose by 16 per cent to €–2,118.3 million in financial year 2023 (2022: €–1,822.2 million). Around 5 per cent resulted from organic cost growth, which also includes an increase in the headcount compared with the previous year, inflation effects and investments in secular growth measures. 10 per cent of the increase is due to the SimCorp acquisition effect, related transaction costs of €22 million and the costs of realising potential synergies in the new Investment Management Solutions segment of €56 million.

This boosted our earnings before interest, tax, depreciation and amortisation (EBITDA) by 17 per cent to €2,944.3 million (2022: €2,525.6 million). The result from financial investments, which is included in EBITDA, came to €–14.0 million (2022: €10.2 million). In the course of the purchase of minority interests in ISS and the bundling of expertise in our Investment Management Solutions segment, one-off adjustments to the valuation of a contingent purchase price component resulted in losses of €9 million. The decline was also due to valuation effects from minority interests.

Amortisation, depreciation and impairment losses came to €418.4 million (2022: €355.6 million). The change stems mainly from purchase price allocations for the acquisition of SimCorp in the Investment Management Solutions segment, as well as a €25 million write-down on intangible assets at Crypto Finance AG in the Trading & Clearing segment.

Our Group’s financial result of €–74.1 million (2022: €–63.5 million) was mainly determined by the issue of new corporate bonds with medium and long maturities, and short-term debt instruments for a total volume of €4 billion to finance the acquisition of SimCorp. The Group’s tax ratio of around 27 per cent was slightly higher than the previous year.

Overall, the net profit for financial year 2023 attributable to Deutsche Börse Group shareholders was €1,724.0 million (2022: €1,494.4 million), which represents a year-on-year increase of 15 per cent. Undiluted earnings per share were €9.35 (2022: €8.14) for an average of 185.1 million shares. Earnings per share before purchase price allocations (cash EPS) stood at €9.98 (2022: €8.61).

Net profit for the period attributable to non-controlling interests amounted to €72.8 million (2022: €68.8 million) and comprised mainly earnings attributable to non-controlling shareholders of EEX and ISS STOXX.

Comparison of results of operations with the forecast for 2023

For financial year 2023 we originally forecast an increase in net revenue to within a range of €4.5-4.7 billion. We increased this forecast several times over the course of the financial year, and at the time the results of the third quarter were published we were predicting net revenue, now including SimCorp, of around €5.0 billion. In line with our strategy we also anticipated an increase in secular net revenue growth of at least 5 per cent. Given the very good cyclical performance in financial year 2022, which was characterised by much higher market volatility and a global rise in interest rates, we assumed that the cyclical net revenue contribution in 2023 would be lower, or even negative. However, as inflation rates increased significantly in both the USA and Europe, the central banks moved to intervene quickly, resulting in another significant interest rate hike. Net interest income from the banking business rose accordingly in the Securities Services and Fund Services segments to a total of €702.4 million (2022: €260.0 million). In addition, the acquisition of SimCorp, which was not included in the original forecast for 2023, contributed another €198.0 million to the Group’s net revenue. With net revenue of €5,076.6 million we therefore significantly exceeded our original forecast. Net revenue growth of 17 per cent includes 5 per cent secular growth. This means we also delivered on our forecast for secular net revenue growth.

Furthermore, at the start of the year we predicted an increase in earnings before interest, tax, depreciation and amortisation (EBITDA) to €2.6-2.8 billion. Over the course of the financial year this forecast was also raised, to around €2.9 billion. Our operating costs were mainly affected by the acquisition of SimCorp and went up by 16 per cent. They include both transaction expenses and the costs to achieve potential synergies in the new Investment Management Solutions segment totalling €79 million. Despite this, EBITDA rose by 17 per cent to €2,944.3 million and so was at the upper end of our forecast.

Comparison forecast 2023 with financial year 2023

	Forecast 2023 €bn	Actual 2023 €m
Net revenue	~5.0[1]	5,076.6
Earnings before interest, tax, depreciation and amortisation	~2.9[2]	2,944.3

1) Originally €4.5–4.7 billion (guidance raised over the course of the financial year)
2) Originally ~€2.6–2.8 billion (guidance raised over the course of the financial year)

Comparison of financial position with the forecast for 2023

As part of the ongoing development of our capital management we adjusted the relevant rating ratios in 2023 (see “Capital management” section). As expected, our ratio of net debt to EBITDA of 2.19 at year-end was just below the new maximum figure of 2.25 for rating purposes, due to the acquisition of SimCorp. The ratio of free funds from operations to net debt of 36 per cent was slightly below the now minimum target of 40 per cent, as expected, which was also due to temporarily higher borrowing for the SimCorp transaction. The cash flow from operating activities was again significantly positive. Based on a dividend proposal to the Annual General Meeting of €3.80 per share, the distribution quota of 40 per cent is within the range of 30 to 40 per cent communicated as part of our redeveloped capital management. The dividend of €3.60 proposed the previous year was paid as planned in May. The cash flow from operating activities was significantly positive. Investment in intangible assets and property, plant and equipment of €264.0 million was not completely in line with the budget of €300 million.

Development of profitability

Deutsche Börse Group’s return on shareholders’ equity expresses the ratio of net income after taxes to average equity available to the Group during the course of 2023. In the reporting year, it was at 19.5 per cent (2022: 18.8 per cent).

Investment Management Solutions segment

Key indicators Investment Management Solutions segment

in €m	2023	2022	Change
Net revenue	863.2	651.7	32 %
Software Solutions	296.9	75.4	294 %
On-premises	126.6	0	n.a.
SaaS (incl. Analytics)	124.2	75.4	65 %
Other	46.1	0	n.a.
ESG & Index	566.3	576.3	–2 %
ESG	242.1	238.6	1 %
Index	205.6	215.6	–5 %
Other	118.6	122.1	–3 %
Operating costs	– 581.1	– 383.2	52 %
EBITDA	276.0	261.5	6 %

Since the fourth quarter of 2023 the Investment Management Solutions segment has consisted of the previous Data & Analytics segment and the business operations of the newly acquired SimCorp. It is divided into the Software Solutions and the ESG & Index units.

In the Software Solutions unit we report on the activities of SimCorp, which now also includes the analytics business of Axioma. SimCorp is a renowned provider of investment management software and offers a market-leading front-to-back investment management platform. As a Software-as-a-Service-(SaaS) and Business-Process-as-a-Service-(BPaaS) player for global asset owners, asset managers and asset servicers, our open platform provides both flexibility and operating efficiency for our customers in all asset classes. In today's fast-moving markets the top priority is also a comprehensive and agile approach to portfolio and risk management. For this reason we have bundled the portfolio construction and risk management solutions from Axioma (Analytics) with our investment management platform. By combining our strengths we can make more effective use of our respective assets and resources and offer our customers even more added value. Net revenue in this unit is made up of licensing, update and service revenue for on-premise and SaaS solutions, as well as revenue from the analytics business. Revenue from professional services activities is recognised under Other.

In the ESG & Index unit we report on both the ESG and Index business generated by our ISS STOXX subsidiary. Under the umbrella of ISS STOXX are the STOXX Index business (also comprising STOXX® and DAX® indices) as well as the four existing business units of ISS: ISS Governance, ISS ESG, ISS Corporate Solutions and ISS Market Intelligence. The combination of robust and diverse ESG and governance datasets from ISS with the all-round expertise of STOXX in producing benchmarks and customer-specific indices, as well as in index production and settlement, enables ISS STOXX to operate effectively on a global basis. Net revenue in this business is made up of ETF, exchange and other licence revenue. While ETF licence revenue depends on the volume invested in exchange-traded index funds (ETFs) based on STOXX® and DAX®, exchange licence revenue are derived mainly from the volume traded in index derivatives on STOXX and DAX indices on Eurex. By licensing sustainable index solutions that mirror the entire index product portfolio, we contribute to the ESG trend. Net revenue at ISS is made up of ESG revenue, which comprises corporate and governance solutions, ESG data, research and ESG ratings. Market intelligence activities are presented under Other.

In the financial year the Software Solutions unit of the segment profited particularly from higher net revenue thanks to new customer gains and contract renewals by existing customers, which are mainly linked to the timing of transactions. This relates both to the performance in the existing analytics business and to that of SimCorp. Net revenue from SimCorp was consolidated for the first time in the fourth quarter of 2023 and was somewhat above our original expectations due to a higher number of new contracts for software solutions. As a result of the acquisition, the segment costs were driven largely by the related transaction costs of €22 million and the costs of €56 million for realising potential synergies (costs to achieve) in the new Investment Management Solutions segment.

The ESG & Index unit saw sustained a stable for ESG products, which institutional investors and banks use to develop sustainable investment strategies and for ESG reporting. The corporate solutions offered by ISS for companies also continued to experience interest. Compared with the previous year, the exchange rate effects of a weaker US dollar on average had a slightly negative impact on net revenue.

In the Index business, lower trading activity in equity index derivatives on our derivatives exchange Eurex had an impact on Index net revenue. It declined year on year by 10 per cent. By contrast, the trend towards exchange-traded index funds and correspondingly higher investment volumes support business with ETF licences. It increased by 5 per cent compared with the previous year. Net revenue in the Index unit was therefore slightly up on the previous year. However, Index net revenue the previous year included a one-off, volume-based licence fee reimbursement of €19 million from the Trading & Clearing segment.

Trading & Clearing segment

Key indicators Trading & Clearing segment

in €m	2023	2022	Change
Net revenue	2,262.8	2,187.1	3 %
Financial derivatives	1,264.3	1,234.4	2 %
Equities	471.0	509.0	– 7 %
Interest rates	397.1	367.9	8 %
Margin fees	91.0	117.6	– 23 %
Other	305.2	239.9	27 %
Commodities	565.0	475.5	19 %
Power	241.5	183.3	32 %
Gas	101.7	89.2	14 %
Other	221.8	203.0	9 %
Cash equities	293.9	344.4	– 15 %
Trading	126.5	176.2	– 28 %
Other	167.4	168.2	– 0 %
Foreign exchange	139.6	132.8	5 %
Operating costs	– 914.6	– 876.3	4 %
EBITDA	1,349.4	1,330.8	1 %

The Trading & Clearing segment comprises four asset classes: financial derivatives, commodities, cash equities and foreign exchange. In the financial derivatives asset class, we report on the performance in the financial derivatives trading and clearing business at Eurex exchange. Performance is driven mainly by the trading activities of institutional investors and other professional market participants and depends, to a large extent, on our clients' hedging needs and market volatility. Revenue is also generated from marketing data and managing collateral.

In the commodities asset class, we report on trading activities on the EEX Group's platforms in Europe, Asia and North America. The EEX Group operates marketplaces and clearing houses for energy and commodity products, connecting more than 800 participants around the world. The product portfolio comprises contracts on power, environmental, freight and agricultural products. The EEX Group's most important revenue drivers are the power spot and derivatives markets, and the gas markets. These include products such as green power derivatives, emissions trading and certificates of origin.

The cash equities asset class shows the development of our trading venues in the cash market (Xetra® and the Frankfurt Stock Exchange). Besides trading and clearing services income, revenue stems from the ongoing listing of companies' securities and exchange admissions, the marketing of trading data, infrastructure services and from services provided to partner exchanges.

The segment also includes the foreign exchange asset class, which reports on business performance on the trading platforms operated by our subsidiary 360T. Net revenue is generated mainly by the trading activities of institutional investors, banks and internationally active companies.

Uncertainty among market participants declined noticeably year on year in 2023, which was reflected in lower volatility on equities and commodities markets. Market volatility on stock markets, as measured by the VSTOXX, fell by 35 per cent. Hedging requirements fell as a result, and so trading activities in equity index derivatives were down by 9 per cent in the **Financial derivatives** unit. It was offset by an increase of 6 per cent in trading with interest rate derivatives due to higher interest rates. Changes in the interest rate environment also had a positive impact on the outstanding notional volume of over-the-counter (OTC) and euro-denominated interest rate derivatives in central clearing, which were up year on year by 19 per cent. Combined with the central banks' more restrictive monetary policy, repo transactions in the Financial derivatives, Other unit in particular saw strong demand from market participants and contributed €86 million to net revenue (2022: €51 million).

The Russian invasion of Ukraine and the resulting uncertainty concerning the security of European gas and broader energy supplies dominated the financial year 2022, but the gas and power markets were calmer in the reporting period. Prices of the respective reference products for power and gas in the **Commodities** unit therefore fell significantly from their record highs in 2022. This reduced the margin required for trading in derivatives substantially, which had a distinctly positive effect on the futures markets. The trading volume in power derivatives climbed year on year by 38 per cent and in gas derivatives by 18 per cent. The unit also profited from new customer gains, which stemmed partly from the fact that centrally cleared offerings are highly competitive compared with the OTC market. Commodities, Other, reported a higher net revenue contribution from collateral management fees resulting from the significant increase in interest rates in both Europe and the USA.

As with our European competitors, in addition to a decline in market volatility, the high interest rate environment also weighed on equity trading in **Cash equities**. It was only towards the end of the year that key indices like the DAX picked up sharply, reaching all-time highs in some cases. This was only partly able to offset a general decline in the order book volume of 31 per cent, however. Xetra's market share as the reference market for trading in DAX shares was again over 60 per cent, as in the previous year.

In **Foreign exchange** we increased the average daily trading volume on our platform by 6 per cent in the reporting year, despite lower volatility in the EUR/USD exchange rate. Net revenue in this unit performed correspondingly well.

Fund Services segment

Key indicators Fund Services segment

in €m	2023	2022	Change
Net revenue	439.9	375.9	17 %
Fund settlement	213.9	211.5	1 %
Fund distribution	85.3	89.7	– 5 %
Other	140.7	74.7	88 %
Operating costs	– 209.8	– 171.5	22 %
EBITDA	226.7	203.8	11 %

The Fund Services segment pools order routing and settlement activity and custody volumes of mutual, exchange-traded, and alternative funds processed by Clearstream in the fund processing unit. Clients can settle and manage their entire fund portfolio across all asset classes on the Vestima® fund processing platform. The fund distribution business consists of the distribution platform at Clearstream Fund Centre. Fund Services therefore offers one of the leading fund services platforms in the European market for distribution partners, banks, asset managers and fund providers. Net revenue in this segment is largely a function of the volume and value of assets under custody and the number of orders and settlements processed. In addition, Other net revenue in the Fund Services segment includes the net interest income from the fund settlement business and net revenue from fund data management, which largely stems from the acquisition of Kneip S.A.

The financial year 2023 was challenging for the European fund industry. On the one hand, fund prices profited from higher European equities indices than in the previous year. On the other hand, higher interest rates resulted in outflows from actively managed funds. On balance, the value of assets under custody was roughly the same as the previous year. The market environment also had a slightly negative impact on the number of securities settled. Net revenue from fund settlement was therefore only slightly up on the previous year.

The fund distribution business was also faced with the same market trends described above in the financial year. New customer wins and the transfer of new customer portfolios could not fully make up for a slight decline in average fund distribution assets. Net revenue in this unit fell slightly year on year as a result.

In April 2023 we announced that Clearstream Fund Centre S.A. had received its own banking licence in Luxembourg and so was independent in the market, but will remain closely linked with Clearstream's national and international central depositories (CSD, ICSD) in order to exploit synergies between the units for the benefit of our customers. Due to the increased independence of our fund services business from the securities business, the relevant portion of the net interest income from banking business of €57 million was reclassified from Securities Services to Fund Services (Other). At the same time, the separation resulted in a transfer of net revenue of €16 million from Fund Services to Securities Services (Custody, Settlement and Other).

Other net revenue also includes the fund data business of Kneip, which was consolidated in the second quarter 2022.

Securities Services segment

Key indicators Securities Services segment

in €m	2023	2022	Change
Net revenue	1,510.7	1,122.9	35 %
Custody	615.1	585.0	5 %
Settlement	114.4	104.8	9 %
Net interest income from banking business	645.5	260.0	148 %
Other	135.7	173.1[1]	– 22 %
Operating costs	– 412.8	– 391.2	6 %
EBITDA	1,092.2	729.5	50 %

1) The deconsolidation of REGIS-TR was completed on 31 March 2022 and includes a disposal gain of €50 million.

Our settlement and custody activities are reported under the Securities Services segment. In providing the post-trade infrastructure for Eurobonds and other securities markets, our subsidiary Clearstream is responsible for the issuance, settlement, management, and custody of securities from 60 domestic markets worldwide, plus the international market. Net revenue in this segment is driven mainly by the volume and value of assets under custody, which determine the custody fees. The settlement business depends primarily on the number of settlement transactions processed by Clearstream via stock exchanges as well as over-the-counter (OTC). The segment also includes net interest income from banking business, which represents a significant portion of the segment's net revenue due to the steep rise in global interest rates.

Net revenue in the Securities Services segment was affected most in 2023 by the monetary policy measures taken by central banks around the world in response to higher inflation. Net interest income from banking business, which in the Securities Services segment stems from cash deposits by our clients, profited significantly from higher base rates in both the USA and Europe. The volume of cash balances fell by 6 per cent, by contrast, which indicates more active liquidity management by our customers. Since the first quarter of 2023 around €90 million of the net interest income from banking business has been segregated as assets under sanctions held by us, of which €14 million relates to prior periods. This is therefore not shown in net revenue. When the fund business was spun out of Clearstream, the relevant portion of net interest income from banking business and other effects were reclassified from Securities Services to Fund Services (Other), as described in the Fund Services segment.

Ongoing high issuance by companies and the public sector, as well as the general increase in share prices as a result of buoyant markets, led to growth of 6 per cent in assets under custody in 2023. The principal contribution came from the year-on-year change in the volumes of debt instruments held by our national and international central securities depositories (CSD, ICSD). These also rose by 6 per cent on average. The custody unit also reports on collateral management and the securities lending business. A more restrictive monetary policy and higher interest rates caused a significant increase of 14 per cent in outstanding volume compared with the previous year. The securities settlement business also saw solid growth of 6 per cent in the financial year. The key driver in this area was an increase in the settlement of OTC securities.

Net revenue the previous year included a disposal gain of some €50 million from the sale of our stake in the European transaction register REGIS-TR. This was recognised in Other net revenue.

Financial position

Cash flow

Consolidated cash flow statement (condensed)

in €m	2023	2022
Cash flows from operating activities (excluding CCP positions)	2,482.5	2,141.6
Cash flows from operating activities	2,549.0	2,483.6
Cash flows from investing activities	– 3,997.2	– 1,406.5
Cash flows from financing activities	2,293.4	– 951.1
Cash and cash equivalents at 31 December	2,955.2	2,128.2
Other cash and bank balances as at 31 December	1,655.1	1,275.6

Cash and cash equivalents at Deutsche Börse Group, i.e. its liquidity, comprise cash and bank balances – to the extent that these do not result from reinvesting current liabilities from cash deposits by market participants – as well as receivables and liabilities from banking business with an original maturity of three months or less. Change in other cash and bank balances was affected by cash used for acquisitions, as well as cash outflows from operating activities.

Cash flow from operating activities was €2,482.5 million (2022: €2,141.6 million) before changes in CCP positions on the reporting date and was made up primarily of net income for the period of €1,796.8 million (2022: €1,563.2 million) and from changes in working capital.

Cash outflows for investing activities amounted to €3,997.2 million in 2023 (2022: €1,406.5 million) and were largely driven by the acquisition of SimCorp and fluctuations between short and long-term investments of customer funds. The acquisition of SimCorp led to a cash outflow of €3,887.3 million. Capital expenditure on intangible assets and property, plant and equipment of €264.0 million (2022: €323.5 million) was slightly below the planning framework of around €300 million and related primarily to IT and growth investments.

Cash inflow from financing activities was €2,206.9 million (2022: cash outflow of €951.1 million) and in addition to the dividend payment for the 2022 financial year of €661.5 million (2022: dividend for the 2021 financial year of €587.6 million), included three bonds with a nominal volume of €3,000.0 million to finance the SimCorp acquisition.

Cash flow for 2023, which is the sum of all inflows and outflows of cash from operating, investing and financing activities, came to €845.2 million (2022: €126.0 million) and was dominated by cash flow from operating activities.

The positive cash flow from operating activities, sufficient credit lines and our flexible management and planning system meant that we were again adequately supplied with liquidity in 2023.

For further details of cash flow, see the consolidated cash flow statement and note 21 to the consolidated financial statements.

Liquidity management

We mainly cover our operational liquidity needs by means of internal financing, i.e. by retaining earnings. Our aim is to hold sufficient liquidity to be able to meet all our payment obligations as they fall due. We have an intra-Group cash pool to aggregate our surplus cash as far as regulatory and legal provisions allow. Generally speaking, we invest cash on a short-term basis, in order to ensure rapid availability, and it is largely secured by liquid bonds from prime-rated issuers. Moreover, we have access to external sources of financing, such as bilateral and syndicated credit lines, as well as a commercial paper programme (see note 24 to the consolidated financial statements for details of financial risk management). In recent years, we have leveraged our access to the capital markets to issue corporate bonds in order to meet our structural financing needs.

Debt instruments issued by Deutsche Börse AG (outstanding as at 31 December 2023)

Type	Issue volume	ISIN	Term to	Maturity	Coupon (p.a.)	Listing
Fixed-rate bearer bond	€500 m	DE000A1684V3	10 years	October 2025	1.625%	Luxembourg/ Frankfurt
Fixed-rate bearer bond	€500 m	DE000A3H2457	5 years	February 2026	0.000%	Luxembourg/ Frankfurt
Fixed-rate bearer bond	€600 m	DE000A2LQJ75	10 years	March 2028	1.125%	Luxembourg/ Frankfurt
Fixed-rate bearer bond	€600 m	DE000A3MQXZ2	10 years	April 2032	1.500%	Luxembourg/ Frankfurt
Fixed-rate bearer bond	€500 m	DE000A3H2465	10 years	February 2031	0.125%	Luxembourg/ Frankfurt
Fixed-rate bearer bond (hybrid bond)	€600 m	DE000A289N78	Call date 7 years/ final maturity in 27 years	June 2027/ June 2047	1.250 % (until call date)	Luxembourg/ Frankfurt
Fixed-rate bearer bond (hybrid bond)	€500 m	DE000A3MQQV5	Call date 6.25 years/ final maturity in 26.25 years	June 2028/ June 2048	2.000 % (until call date)	Luxembourg/ Frankfurt
Fixed-rate bearer bond	€1,000 m	DE000A351ZR8	3 years	September 2026	3.875%	Luxemburg/Frankfurt
Fixed-rate bearer bond	€750 m	DE000A351ZS6	6 years	September 2029	3.750%	Luxemburg/Frankfurt
Fixed-rate bearer bond	€1,250 m	DE000A351ZT4	10 years	September 2033	3.875%	Luxemburg/Frankfurt

Capital management

We further developed our capital management strategy in 2023. We are aiming to maintain our strong rating at Group level, which was changed to AA- after the SimCorp takeover. Furthermore, we endeavour to maintain the strong AA credit ratings of our subsidiaries Clearstream Banking S.A. and Clearstream Banking AG, in order to ensure their long-term success in securities settlement and custody. The activities of our Eurex Clearing AG subsidiary also require strong credit quality.

To keep these good credit ratings we aim for the following relevant key performance indicators going forward:

- Net debt to EBITDA ratio: no more than 2.25
- Free funds from operations (FFO) to net debt: at least 40 per cent
- Interest cover ratio: at least 14
- Tangible equity (for Clearstream Banking S.A.): at least €1,100 m

We follow the methodology of S&P Global Ratings closely when calculating these ratios.

- To determine EBITDA for rating purposes, reported EBITDA is adjusted by the result from financial investments, as well as by unfunded pension obligations. EBITDA for rating purposes in 2023 was €2,970 million.
- FFO for rating purposes is calculated by deducting interest and tax payments from EBITDA for rating purposes. FFO for rating purposes in 2023 was €2,307 million.
- The Group's net debt for rating purposes is reconciled by first deducting 50 per cent of the hybrid bond, as well as the surplus cash as at the reporting date, from gross debt (i.e. from interest-bearing liabilities). Liabilities from operating leases and unfunded pension obligations are then added. Net debt for rating purposes in 2023 was €6,493 million.
- Interest expenses for rating purposes are calculated on the basis of interest expenses for financing, less interest expenses of Group entities which are also financial institutions. These include Clearstream Banking S.A., Clearstream Banking AG and Eurex Clearing AG. Interest expenses which are not related to our financing are not included in the calculation of interest expenses. Only 50 per cent of the hybrid bonds are counted towards interest expenses. Interest expenses for rating purposes in 2023 came to €86 million.

The following table "Relevant parameters" illustrates our calculation methodology and shows the values for the reporting year.

Relevant parameters

		Target figures	2023
Net debt / EBITDA		≤ 2.25	2.19
Free funds from operations (FFO) / net debt	%	≥ 40	36
Interest coverage ratio		≥ 14	35
Tangible equity of Clearstream Banking S.A. (as at the reporting date)	€m	≥ 1,100	1.648

As expected, the acquisition of SimCorp in September 2023 meant that the target for FFO in relation to net debt was undershot slightly. Since we generate significant cash flow from our operating business, we expect to reduce debt quickly and achieve the ratings targets in 2024.

We intend not to allow tangible equity (equity less intangible assets) of Clearstream Banking S.A. to fall below €1,100 million. Clearstream Banking S.A. achieved this during the year under review, with a figure of €1,648 million.

S&P Global Ratings bases the calculation of key performance indicators on the corresponding weighted average of the reported or expected results of the previous, the current and the following reporting period. To ensure the transparency of the key performance indicators, we report them based on the current reporting period.

Dividends and share buy-backs

We aim to distribute dividends equivalent to between 30 and 40 per cent of net profit for the period attributable to Deutsche Börse AG shareholders. Within this range, we manage the actual payout ratio mainly in relation to our business performance and based on continuity considerations. In addition, we plan to invest the remaining available funds primarily in our external development. Should the Group not be able to invest these funds, additional distributions, particularly in the form of share buy-backs, would be another possible use for them.

At the Annual General Meeting we will be proposing to pay a dividend of €3.80 per no-par value share for the financial year 2023 (2022: €3.60). This dividend is equivalent to a distribution ratio of 40 per cent of net profit for the period attributable our shareholders. Given 185.1 million no-par shares bearing dividend rights, this would result in a total dividend payment of €703.4 million (2022: €661.6 million). The number of shares with dividend rights is produced by deducting 4.9 million treasury shares from our ordinary share capital of 190.0 million shares.

In November 2023 we announced a share buy-back programme for 2024 on the basis of the authorisation granted by the Annual General Meeting on 8 May 2019. Company shares are to be bought back for a total cost of up to €300.0 million (without incidental expenses) in the period to 3 May 2024.

Credit ratings

Credit ratings

	Long-term	Short-term
Deutsche Börse AG		
S&P Global Ratings	AA–	A–1+
Clearstream Banking S.A.		
Fitch Ratings	AA	F1+
S&P Global Ratings	AA	A–1+
Clearstream Banking AG		
S&P Global Ratings	AA	A–1+

Our credit quality is reviewed regularly by S&P Global Ratings, while Clearstream Banking S.A. is rated by Fitch Ratings and S&P Global Ratings, and Clearstream Banking AG by S&P Global Ratings.

On 21 December 2023, Fitch Ratings affirmed the AA credit rating of Clearstream Banking S.A. with a stable outlook. The rating reflects Clearstream Banking's leading position in the post-trade business, its diligent liquidity management as well as its impeccable capitalisation.

As expected, S&P Global Ratings put its credit rating for Deutsche Börse AG on "Creditwatch Negative" on 28 April 2023 following the announcement of the SimCorp transaction. After the transaction and the related additional borrowing were completed on 20 September 2023 it then downgraded the credit rating from AA to AA-, also as expected. This did not affect the credit ratings for Clearstream Banking AG and Clearstream Banking S.A. S&P Global Ratings confirmed its AA- credit rating for Deutsche Börse AG and its AA credit rating for Clearstream Banking AG and Clearstream Banking S.A. on 29 January 2024. Deutsche Börse AG's rating reflects the assumption that the Group will continue its growth strategy. Clearstream Banking S.A.'s rating reflects its strong risk management, minimal debt levels and strong position on the international capital markets – especially through its international custody and transaction business.

Net assets

Significant changes to net assets are described below. The full consolidated statement of financial position can be found in the consolidated financial statements.

Consolidated balance sheet (extract)

in €m	31 Dec 2023	31 Dec 2022[1]
ASSETS	**237,726.9**	**268,903.5**
Non-current assets	23,416.7	20,758.4
thereof intangible assets	12,478.6	8,610.0
thereof goodwill	8,213.3	5,913.7
thereof other intangible assets	3,035.3	1,942.6
thereof financial assets	9,870.4	11,322.8
thereof financial assets measured at amortised cos	1,801.9	1,894.7
thereof financial assets measured at FVOCI	222.7	182.8
thereof financial instruments held by central counterparties	7,667.6	9,078.4
Current assets	214,310.2	248,145.2
thereof financial instruments held by central counterparties	137,904.9	129,932.8
thereof restricted bank balances	53,669.4	93,538.3
thereof other cash and bank balances	1,655.1	1,275.6
EQUITY AND LIABILITIES	**237,726.9**	**268,903.5**
Equity	10,100.2	9,060.9
Liabilities	227,626.7	259,842.6
thereof non-current liabilities	16,206.7	14,183.8
thereof financial instruments held by central counterparties	7,667.6	9,078.4
thereof financial liabilities measured at amortised cost	7,484.0	4,535.0
thereof deferred tax liabilities	789.2	388.2
thereof current liabilities	211,420.0	245,658.8
thereof financial instruments held by central counterparties	137,341.9	129,568.8
thereof financial liabilities measured at amortised cost	18,691.7	19,522.6
thereof cash deposits by market participants	53,401.3	93,283.1

1) Previous year adjusted, see note 3.

Deutsche Börse Group's total assets fell year-on-year by 12 per cent. The increase in non-current assets resulted mainly from the SimCorp acquisition, which is reflected in higher intangible assets, and from exchange rate-related fluctuations in goodwill. The decline in current assets was particularly due to the volatility of restricted bank balances and financial instruments of the central counterparties at the reporting date.

Group equity rose by 11 per cent compared with the previous year. This was due mainly to the net profit for the reporting year 2023, less the dividend payment for the previous financial year 2022.

Deutsche Börse Group invested a total of €264.0 million in the reporting year (2022: €323.5 million) in intangible assets and property plant and equipment (capital expenditure, CapEx), mainly in connection with IT and growth investments.

Working capital

Working capital comprises current assets less current liabilities, excluding technical closing-date items. Current assets, excluding technical closing-date items, amounted to €2,298.9 million (2022: €2,588.6 million). As Deutsche Börse Group collects fees for most of its services on a monthly basis, the trade receivables of €1,832.2 million included in current assets as at 31 December 2023 were relatively low compared with net revenue (31 December 2022: €2,289.2 million). The decline in trade receivables was particularly due to open items as at the reporting date from the market volatility of the sports markets within EEX Group, which were offset by a decline in trade payables at the same time. The current liabilities of the Group, excluding technical closing-date items, amounted to €2,312.6 million (2022: €2,763.3 million, excluding technical closing-date items). For this reason the Group had slightly negative working capital of €13.8 million at year-end (2022: negative working capital of €174.7 million).

Technical closing-date items

The "financial instruments of the central counterparties" item relates to the function performed by Eurex Clearing AG, European Commodity Clearing AG as well as Nodal Clear, LLC. Since they act as the central counterparties for Deutsche Börse Group's various markets, their financial instruments are carried in the balance sheet at their fair value. The financial instruments of the central counterparties are described in detail in the section "Risk report" of the combined management report and in notes 12 and 24 to the consolidated financial statements.

Market participants linked to the Group's clearing houses partly provide collateral in the form of cash deposits, which are subject to daily adjustments. The cash deposits are generally invested on a secured basis overnight by the central counterparties and reported in the balance sheet under "restricted bank balances". The total value of cash deposits at the reporting dates relevant for the reporting period (31 March, 30 June, 30 September and 31 December) varied between €46.8 billion and €58.9 billion (2022: €53.4 billion and €119.5 billion).

Overall assessment of the economic position by the Executive Board

The persistently high inflation rates in both the USA and Europe meant that there was a focus on intervention by central banks in the financial year 2023. The resulting rapid interest rate rises boosted market participants' need for hedging with interest rate derivatives, but also had a significantly positive effect on growth in net interest income from banking business in the Securities Services and Fund Services segments. Fears of recession and uncertainty concerning the future direction of interest rates subdued share trading and also led to outflows from fund assets under management. It was only as inflation rates began to recede sustainably and with the prospect of an end to further interest rate increases that equity indices picked up again strongly in the fourth quarter of 2023. Compared with the record highs in 2022, price volatility and the related volumes of capital committed to power and gas markets declined significantly. Trading activity rose accordingly, particularly in power derivatives. With net revenue of €5,076.6 million, we achieved year-on-year growth of 17 per cent for the Group, which was above our expectations. Of the total, 5 per cent is due to secular growth and 7 per cent to cyclical growth effects. The acquisition of SimCorp, which was consolidated in the Group for the first time in the fourth quarter of the financial year, contributed another 5 per cent from M&A growth. The increase in costs was also mostly related to the acquisition of SimCorp, and included extraordinary transaction expenses and the costs of realising potential synergies (costs to achieve) in the new Investment Management Solutions segment totalling €79 million. Earnings before interest, taxes, depreciation and amortisation (EBITDA) increased year on year by 17 per cent to €2,944.3 million, which was slightly higher than our expectations in view of the effects mentioned above. Additional borrowing to finance the acquisition also affected the financial result, which changed accordingly to €74.0 million.

On this basis we consider that Deutsche Börse Group's financial position remained very solid during the reporting period. As in prior years we reported strong cash flow from operating activities. The ratio of net debt to EBITDA, which is important for the credit rating, came to 2.19 and was thus below the now applicable limit of 2.25.

As in recent years, we are again offering shareholders a higher dividend for the 2023 financial year. The proposed dividend is €3.80 (2022: €3.60), representing a year-on-year increase of 6 per cent. We also decided in 2023 to carry out a share buyback programme with a volume of €300 million, which began on 2 January 2024 and should be completed by 3 May 2024 at the latest. The proposal on the appropriation of distributable profit reflects treasury shares held directly or indirectly by the company that do not carry dividend rights under section 71b Aktiengesetz (AktG, the German Stock Corporation Act). The number of shares carrying dividend rights can change until the Annual General Meeting through the repurchase or sale of further treasury shares. In this case, with a dividend of €3.80 per eligible share, an amended resolution for the appropriation of distributable profit will be proposed to the Annual General Meeting.

Deutsche Börse Group: five-year overview

		2019	2020	2021	2022	2023
Consolidated income statement						
Net revenue	€m	2,936.0	3,213.8	3,509.5	4,337.6	5,076.6
thereof treasury result from banking and similar business	€m	247.7	196.6	142.7	532.2	961.5
Operating costs (excluding depreciation, amortisation and impairment losses)	€m	– 1,264.5	– 1,368.7	– 1,551.6	– 1,822.2	– 2,118.3
Earnings before interest, tax, depreciation and amortisation (EBITDA)	€m	1,678.2	1,869.4	2,043.7	2,525.6	2,944.3
Depreciation, amortisation and impairment losses	€m	– 226.2	– 264.3	– 293.7	– 355.6	– 418.4
Net profit for the period attributable to Deutsche Börse AG shareholders	€m	1,003.9	1,079.9	1,209.7	1,494.4	1,724.0
Earnings per share (basic)	€	5.47	5.89	6.59	8.14	9.35
Consolidated cash flow statement						
Cash flows from operating activities	€m	926.1	1,412.0	908.9	2,483.6	2,549.
Consolidated balance sheet						
Non-current assets	€m	11,706.9	14,570.5	20,462.4	20,758.4	23,409.4
Equity	€m	6,110.6	6,556.1	7,742.4	9,060.9	10,100.2
Non-current interest-bearing liabilities[1]	€m	2,286.2	2,637.1	3,037.3	4,123.4	7,096.2
Performance indicators						
Dividend per share	€	2.90	3.00	3.20	3.60	3.80[2]
Dividend payout ratio[3]	%	53	51	49	44	40[4]
Employees (average annual FTEs)		5,835	6,528	8,855	10,143	11,656
Deutsche Börse shares						
Year-end closing price	€	140.15	139.25	147.1	161.40	186.50
Average market capitalisation	€bn	24.0	27.7	27	30.9	32.0
Rating key figures						
Net debt / EBITDA		1.0	1.0	2.0	1.2	2.2
Free Funds from Operations (FFO) / net debt	%	79	76	38	68	36

1) Bonds that will mature in the following year are reported under “other current liabilities”
2) Proposal to the Annual General Meeting 2024.
3) The ratios for the years 2019–2020 have been adjusted. The dividend payout ratio is determined using reported net profit.
4) Amount based on the proposal to the Annual General Meeting 2024.

Non-financial declaration

We refine the ESG activities for Deutsche Börse Group in a process of continuous dialogue with our stakeholders. We report on the core aspects of our value creation process on the basis of our comprehensive materiality analysis.

The combined non-financial declaration for Deutsche Börse Group and the parent Deutsche Börse AG meets the requirements of sections 289b–e and 315b–c HGB and Regulation (EU) 2020/852 of the European Parliament and the European Council of 18 June 2020 on the establishment of a framework to facilitate sustainable investment and amending Regulation (EU) 2019/2088 (in the following EU Taxonomy). For the mandatory disclosure on our business model and the involvement of company management we refer to the chapters "Deutsche Börse: Fundamental information about the Group" and "Strategy and steering parameters".

In terms of the materiality analysis, description of management approaches and selected KPI the combined non-financial declaration follows the GRI (2021) standards. A detailed overview of all GRI indicators (GRI index) is available on our homepage. Further detailed information that is referenced in this report does not form part of the combined management report itself unless explicitly stated. To the extent that no explicit statements are made for the parent company, qualitative information within the meaning of the combined management report applies equally to Deutsche Börse Group and the parent company Deutsche Börse AG. In some cases, quantitative details concerning the parent entity and subsidiaries consolidated for the first time are disclosed separately.

In the course of our materiality analysis we continuously determine and evaluate the expectations and requirements of relevant internal and external stakeholders. In the year 2023 we surveyed several internal stakeholders in order to validate the results from 2021. This did not give rise to any changes.

ESG governance

Sustainability is of significant importance for the corporate strategy of Deutsche Börse Group. It is therefore an essential element of corporate governance at the level of both the Executive Board and the Supervisory Board. The Executive Board of Deutsche Börse AG takes all strategic decisions concerning sustainability matters at Deutsche Börse Group. It was supported in the reporting year by the interdisciplinary Group Sustainability Board, which is chaired by the CFO. The Group Sustainability Board is the central management board for sustainability topics in Deutsche Börse Group. It deals with company initiatives relating to environmental, social and governance topics (ESG). This includes advising on and monitoring the integration of sustainability into corporate planning and controlling. The Group Sustainability Board has been replaced by the Group Sustainability Committee as of 1 January 2024. The Group Sustainability Committee is the new central management unit for sustainability topics in Deutsche Börse Group. It is chaired by the Chief Sustainability Officer and supports and advises the Executive Board on all aspects of sustainability. The Group Sustainability Committee is intended to ensure the implementation of effective ESG practices in accordance with applicable policies and guidelines.

The Group ESG Strategy department, which reports to the CEO, primarily provides support by continuously monitoring the ESG profile and climate strategy of Deutsche Börse Group. Responsibility for ESG reporting was transferred from Group ESG Strategy to the section Sustainability Reporting, which is part of the CFO function, on 1 October 2023.

At the Supervisory Board level, the Strategy and Sustainability Committee has dealt, in particular, with sustainable corporate governance and activities in the field of ESG at Deutsche Börse Group since 2021. In addition to embedding ESG in the work of the Supervisory Board in this way, it is particularly important for the board as a whole and in the other Supervisory Board committees, especially the Audit Committee, the Risk Committee and the Nomination Committee. Current, relevant sustainability aspects also form part of the training programme for the Executive Board and Supervisory Board and are dealt with in workshops and seminars.

ESG targets

The following non-financial performance indicators have been identified as relevant for management and are divided according to the outcome dimensions of our value creation process, **employees, customers and markets and social environment** (see Corporate purpose and value creation process):

Non-financial key performance indicators

Key performance indicators	Targets	Actuals 2023
Employees		
Employee satisfaction[1]	>71.5%	73%
Share of women in leadership positions[2]	>23%	23%
Customer and markets		
System availability (customer-facing IT)	>99.5%	>99.9%
Social environment		
ESG ratings	>90th percentile	98th percentile

1) Result without SimCorp
2) Group target for senior management

Employees: We use two key performance indicators for measuring employee-related factors: The first indicator is used to measure employee satisfaction on an annual basis and to take action based on the results. The second indicator is used to calculate the percentage of women in leadership positions on an annual basis.

In terms of employee satisfaction, we have defined a result of more than 71.5 per cent approval in the annual People Survey as the target. With regard to the proportion of women in management positions, the Executive Board has set itself the target of achieving a proportion of over 23 per cent in upper management at global Group level by the end of 2023 as part of a voluntary commitment (see “Employees”).

Customers and markets: As a provider of market infrastructure we maintain impartial, transparent and secure marketplaces. In this context we use our systems availability as a key performance indicator. A value of more than 99.5 per cent is the target for our systems availability (see section “System stability and availability”).

Social environment: In terms of ESG ratings, our aim is to achieve a place in the 90th percentile in three leading independent ESG ratings (S&P, Sustainalytics, MSCI). (see section "ESG ratings").

Deutsche Börse Group updated its climate strategy and the relevant ESG targets in the financial year 2023 as part of the further development of its strategy "Horizon 2026" (see "Social environment"). For this reason, the non-financial performance indicators described the previous year, ESG net revenue growth and CO_2 emissions per workspace, are no longer considered by the Executive Board as relevant for management as of financial year 2023.

For other sustainability indicators that are not explicit ESG targets as defined in our Horizon 2026 growth strategy, such as our emissions of greenhouse gases and ESG products, we also refer to our GRI Index on our homepage.

The ESG risks are integrated into our Group-wide risk management approach. (see chapter "Risk report").

Employees

The commitment and skills of our employees are a vital cornerstone for Deutsche Börse Group. Together with our core corporate values of performance, reliability, integrity, openness and responsibility they define our corporate culture. At the same time they form the basis of our commercial success. For this reason we have an active People strategy, promote diversity, equity and inclusion, and systematically measure how attractive we are as an employer.

People strategy

Working in its four strategic dimensions (Attract, Develop, Engage, Lead), our People strategy aims to attract the best talents, to develop them, to enable them to engage effectively and to continue their personal and professional development. These four dimensions form the foundation for four multi-year initiatives. With these initiatives we want to create a flexible, sustainable working environment that offers our employees excellent working conditions.

We successfully put our hybrid working model into practice in the framework of Trust@Work. With this hybrid working model that spans teams and projects we create the conditions for effective cooperation and focus particularly on important moments at work, mental health and well-being. This process is backed up by DigitizeHR, an initiative to fully digitise our operating HR processes and provide actionable analytics. MissionGrow! is our initiative for improving development opportunities for our employees. We have revised our career model to increase transparency, offer equality of opportunity and create a culture of continuous feedback. Based on the results of our People Survey 2021 and 2022, the first improvements have been implemented and additional focus areas for the WorkFlows initiative defined, in order to make Group-wide corporate processes more efficient and user-friendly as well as to implement dedicated measures based on notable results. The initiatives were launched in 2020 for a period of three years. Most of the milestones have been reached, and the remaining topics were transferred to the line organisation as part of continuous improvement.

Employer attractiveness

We can only achieve lasting success if we attract and retain both new talents as well as specialized, experienced and engaged employees to Deutsche Börse Group and ensure they are enthusiastic about working for us as their employer of choice. In this spirit, we are continuously working on the implementation of our talent attraction strategy by considering the market situation and adjust it accordingly. Our strategy conveys the message that with us new talents become part of an international team that drives positive change and is characterised by curiosity and an open mind. We welcome people from all different origins, age groups and personal backgrounds, and want to give them the opportunity to grow with us. We achieve this via a number of employee development programmes. Internal training courses – on cloud technology, digital infrastructure and agile development methods, for example – are the logical continuation of these programmes and form the basis for structured retraining and further training. They are supplemented by mentoring programmes and personality-related training courses; on communication, taking responsibility or becoming a team player, for instance.

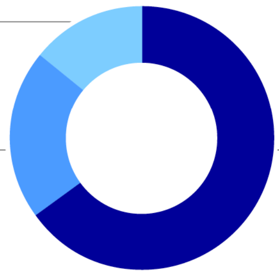
We expanded our existing range of development programmes in 2023. In particular we introduced activities for a structured programme intended to increase mobility between countries, locations and legal entities. In addition, we continued the LightUp! events for managers that were launched the previous year, which focus on refreshing competences and on expectations of modern managers. Taken as a whole, these formats strengthen our people development offering.

Further information about participation by employees and managers in training and development measures can be found in the table "Key data on Deutsche Börse Group's workforce as of 31 December 2023".

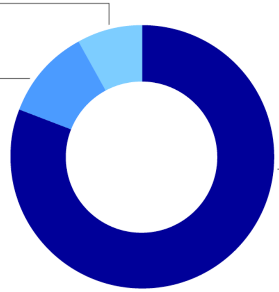
In our annual staff survey, the People Survey, which also deals with subjects such as pervading strategy and teamwork, we got very satisfying marks for our attractiveness as an employer (82 per cent approval). The largely positive feedback underlines how Deutsche Börse Group stands for a working environment which makes it easy for staff to reconcile their career and their private life, with flexible models for working hours, allowances for childcare, part-time degree courses and part-time work. We also measure the average value of the two topics Strategic Alignment & Organisational Framework and Team Effectiveness & Collaboration annually. Our goal is to achieve an average value of more than 71.5 per cent in both topics. In 2023 we achieved a value of 73.0 per cent (without SimCorp). The following graph "Results of our annual People Survey 2023" shows what employees think about the subjects of understanding strategy and teamwork.

Results of our annual "People Survey 2023"
in %

Strategic Alignment & Organisational Framework



Team Effectiveness & Collaboration



Promotion of diversity and inclusion

Deutsche Börse Group operates around the world. At our 56 locations around the world we have over 14,000 employees from the most diverse cultural backgrounds. Our diversity is not only apparent in the origins of our employees, however, but also in the breadth of professional expertise and the many other differences that make up each individual personality in our team.

We are convinced that this diversity is decisive for our global success. We see the wealth of individual characteristics and strengths as the key to fulfilling our corporate purpose. For this reason, we strive to create an inclusive working environment in which everyone feels welcome and where they feel comfortable about contributing their ideas.

We are a signatory of the "Diversity Charter" and "Women's Empowerment Principles (WEPs)" and acknowledge our corporate social responsibility as expressed in the Code of Conduct that applies throughout the Group. A public Diversity, Equity & Inclusion statement, in which we express our appreciation of all present and future employees and a Diversity, Equity & Inclusion policy constitute further elements of our diverse and inclusive working environment. We were also certified as a Fair Pay Analyst in 2023 for our successful endeavours to pay our staff regardless of their gender.

We do not tolerate any discrimination, whether on the grounds of age, gender, physical or health disability, sexual orientation and identity, ethnic origin or belief and irrespective of whether behaviour among employees or the placing of orders with third parties is concerned. We have therefore implemented processes designed to take equal treatment into consideration in the selection of staff and enable the Group to take prompt action whenever discrimination is suspected. Relevant cases were reported in 2023 either by our whistleblower system, to the respective Line Management or directly to the local Human Resources Department. All relevant cases requiring further remedial actions have been dealt in a fully compliant manner ensuring a high level of dignity, and closed.

Furthermore, we deliberately decided against the centralised management of our diversity, equity and inclusion programmes. The members of our Diversity, Equity & Inclusion council represent our global workforce and our different minorities; they inform and advise the Executive Board on initiatives and act as trusted third parties and personal contacts for the employees. The council strives to ensure that our everyday workspace continues to be a place where everyone feels appreciated and gets the opportunities they deserve. We also introduced the function of Chief Sustainability and Chief Diversity Officer in our Group in 2023, who is responsible for our diversity, equity and inclusion endeavours. The responsibilities of this dual role complement one another and underline the priority that we at Deutsche Börse Group give to all dimensions of environmental, social and governance policy. It remains a particular aspiration for us to increase the proportion of women at the management level. Our various programmes for promoting talent, and so also for qualifying women for management positions, contribute to the long-term advancement of women. In addition to our programmes, other measures include focused succession planning, as well as internal and external mentoring and training programmes. Exchanges among female colleagues are encouraged by an internal women's network. We provided special support for applicants and our employees directly and indirectly affected by the military conflict in Ukraine. We are also committed to providing better opportunities for underprivileged people through dedicated programmes. For details regarding targets for female quotas, please refer to the section entitled "Corporate governance statement – target figures for the proportion of female executives beneath the Executive Board" and the "Comparison with the forecast for 2023".

The results of our staff survey on diversity, equity and inclusion confirm that our employees feel that they are welcome here with us (90 per cent positive) and that they are treated fairly and respectfully by their managers (94 per cent positive), regardless of their ethnic origins, their gender or their cultural background. This positive feedback reaffirms our intention to keep expanding our programme for diversity, equity and inclusion, in the spirit of creating a fully inclusive working environment.

Staff developments

As at 31 December 2023, Deutsche Börse Group employed a total of 14,502 staff (women: 5,836; men: 8,643; other: 23; 31 December 2022: 11,078), drawn from 131 nationalities at 56 locations worldwide. The average number of employees in the reporting period was 12,187 (2022: 10,675). At Group level, this corresponds to an increase of around 14.2 per cent compared with the previous year.

Our fluctuation rate was 10.9 per cent (31 December 2022: 14.8 per cent). At the end of the year under review, the average length of service for the company was 6.7 years (2022: 6.8 years).

The number of Deutsche Börse AG's employees rose by 885 during the year under review to 2,657 as at 31 December 2023 (comprising 980 women and 1,677 men; 31 December 2022: 1,772). The average number of employees at Deutsche Börse AG in the 2023 financial year was 2,219 (2022: 1,752). On 31 December 2023, employees of Deutsche Börse AG worked at 8 locations.

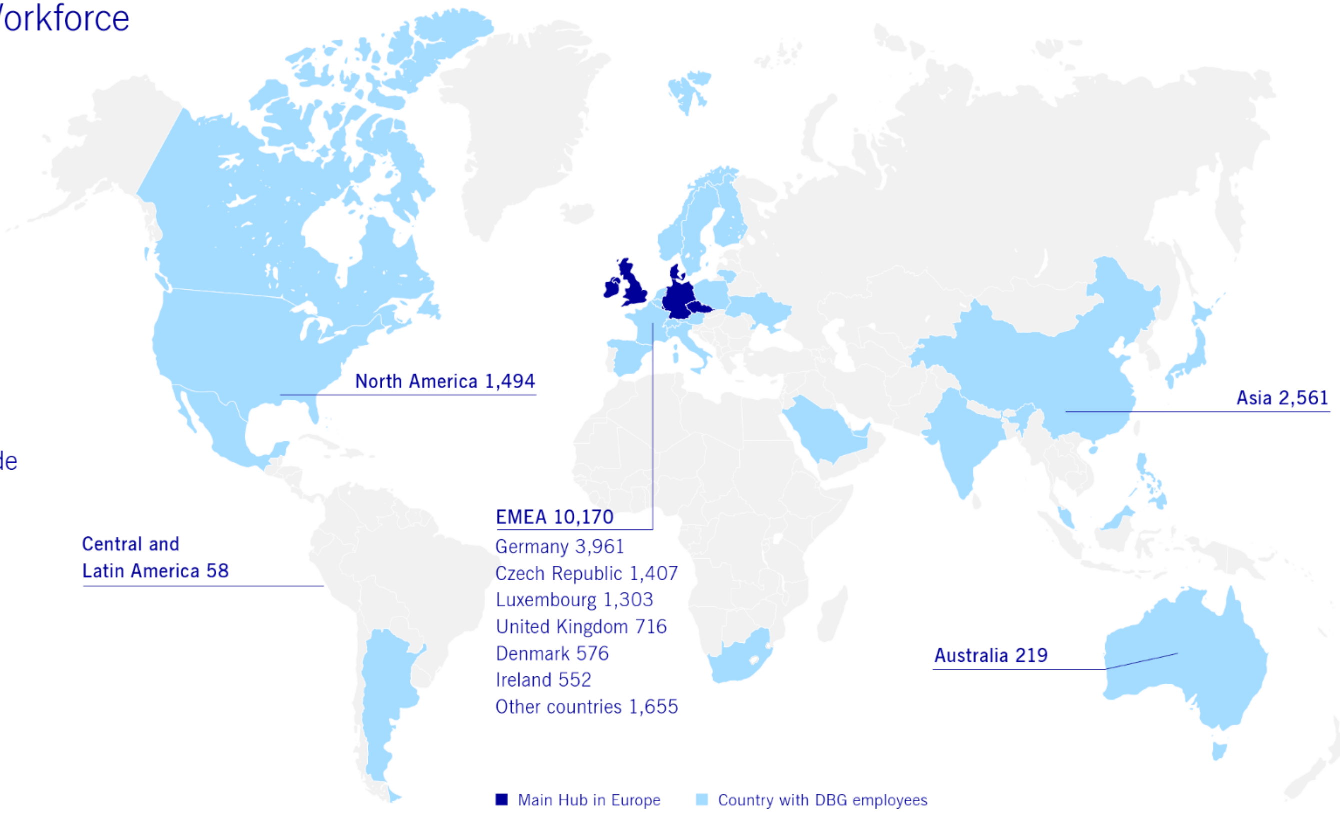
For more details, please refer to the table entitled "Key data on Deutsche Börse Group's workforce as at 31 December 2023".

Deutsche Börse Group: Our Workforce

14,502
Employees

56
Locations worldwide

131
Nationalities



Key data on Deutsche Börse Group's workforce as of 31 December 2023 (part 1)

	Deutsche Börse AG		Deutsche Börse Group					
	All locations		Germany		Czech Republic		Luxembourg	
	Male	Female	Male	Female	Male	Female	Male	Female
Employees (Headcount)[1]	**1,677**	**980**	**2,350**	**1,608**	**847**	**559**	**794**	**509**
50 years and older	454	171	696	330	55	18	285	133
40–49 years	471	223	628	401	281	140	232	148
30–39 years	554	410	779	645	354	241	190	159
Under 30 years	198	176	247	232	157	160	87	69
Average age	42	39	43	40	37	35	44	41
Employee classification								
Full-time employees	1,632	792	2,237	1,180	834	498	759	386
Part-time employees	45	188	113	428	13	61	35	123
Length of service								
Under 5 years (%)	45	49	42	46	53	58	38	39
5–15 years (%)	35	34	34	33	43	41	26	26
Over 15 years (%)	20	17	24	21	4	1	36	35
Staff turnover								
Joiners	199	137	274	219	210	155	81	70
Leavers	91	50	164	109	81	38	52	42
Training								
Training days per employee (FTEs)	6.2	6.5	4.8	5.5	5.4	5.9	5.7	4.4

1) Due to missing information (e.g. gender), headcounts of subcategories do not always add up to the total.

Key data on Deutsche Börse Group's workforce as of 31 December 2023 (part 2)

	Deutsche Börse Group								
	United Kingdom		Ireland		USA		Other locations		
	Male	Female	Male	Female	Male	Female	Male	Female	Total (part 1 and 2)
Employees (Headcount)[1]	**496**	**220**	**266**	**286**	**878**	**442**	**3,012**	**2,212**	**14,502**
50 years and older	140	27	24	18	207	118	360	164	2,580
40–49 years	149	62	75	107	231	100	669	374	3,599
30–39 years	140	88	79	98	260	114	1,061	772	4,989
Under 30 years	67	43	88	63	180	110	922	902	3,334
Average age	42	38	36	37	40	40	36	34	39
Employee classification									
Full-time employees	487	209	265	252	875	433	2,964	2,120	13,522
Part-time employees	9	11	1	34	3	9	48	92	980
Length of service									
Under 5 years (%)	55	53	61	42	54	56	69	71	55
5–15 years (%)	37	38	19	27	36	30	23	22	30
Over 15 years (%)	8	9	20	31	10	14	8	7	15
Staff turnover									
Joiners	72	38	42	47	119	53	473	371	2,225
Leavers	49	27	53	18	108	49	295	241	1,330
Training									
Training days per employee (FTEs)	1.4	1.4	3.0	4.3	0.7	1.0	1.5	1.2	3.3

1) Due to missing information (e.g. gender), headcounts of subcategories do not always add up to the total.

Customers and markets

Regarding the value creation for our customers and our market, we have identified, in addition to the measurable performance indicator of system availability (see section "Strategy and steering parameters"), two other important qualitative parameters as part of our materiality analysis: information security and corporate responsibility. Our products and services contribute to increase transparency for market participants and to enable them to price in and integrate market developments, changes and transformations. In this way, we enable our customers and market participants to make better-informed decisions.

System stability and availability

The availability of our customer-facing trading systems is an important indicator of the overall quality that we achieve when developing and operating our systems. Deutsche Börse AG operates its trading systems for the cash and derivatives markets as redundant server installations, distributed across two geographically separated, secure data centres. Should a trading system fail, it would be operated from the second data centre. Together with clients, Deutsche Börse successfully simulated this scenario again in 2023 – as well as the impact of local disruptions – within the scope of the FIA Test (the annual disaster recovery exercise conducted by the Futures Industry Association). This kind of disaster recovery test was also carried out after every larger software release. Other disruptions, such as technology malfunctions at individual workstations or personnel failures, were also tested.

Our multiple testing of software, its verified roll-out and the seamless monitoring of servers, networks and applications has brought availability up to over 99.9 per cent in the reporting year. The plan is to introduce further technical measures to gain greater independence from providers of critical infrastructure technologies.

Information security

Security in all its facets has a high priority and is a strong focus of our Group. This does not just involve ensuring the availability of all services, but also the confidentiality of all information and the integrity of data. The range of threats increased again in 2023, not least due to geopolitical challenges and additional conflicts. Deutsche Börse Group is faced with the reality that cyber threats continuously adopt the latest technologies and so develop at high speed, and we adapt our systems and processes accordingly. Global regulation also continues to develop in order to meet the challenges. Deutsche Börse Group uses an extensive framework of policies and processes, supplemented by specific controls and technical abilities based on the international security standard ISO/IEC 27001.

Deutsche Börse Group invests continuously in new security solutions, processes and projects, in order to address effectively the growing number of threats with state-of-the-art security technologies. Security measures are implemented at several levels (defence-in-depth), to reduce the risk of security incidents from individual error sources. To strengthen abilities to defend and protect against cyber-attacks, regular improvements are made to cyber-analysis, cyber-security automation, identification and prevention of attacks, vulnerability management, penetration testing and professional "white hat" attacks on the Group's own IT.

In addition, the overarching security governance processes are optimised continuously in order to identify risks to IT systems and applications at an early stage and mitigate them. A key building block is the networking and reconnaissance of attack vectors in order to counter them without delay. This takes place via both digital interfaces and intensive exchanges as a member of national associations (Cyber Security Sharing and Analytics, CSSA), trade associations (World Federation of Exchanges, GLEX) and international networks (Financial Services Information Sharing and Analysis Center, FS-ISAC and the Cyber Information and Intelligence Sharing Initiative, CIISI-EU) which contribute significantly towards a forward-looking stance vis-à-vis cyber threats, and the development of strategies to fend off such threats. Furthermore, we are a member of the ECB's Euro Cyber Resilience Board for pan-European financial infrastructures (ECRB) and are in close contact with the DAX40 CERT/CISO working group and the Federal Office for Information Security (BSI).

The information security function checks that the information security and information security risk management requirements are adhered to; it also monitors the systemic integration of, and compliance with, security policies in the context of product and application development. We operate a situation centre (Cyber Emergency Response Team, CERT) to detect and assess threats from cybercrime at an early stage, and coordinate risk mitigation measures in cooperation with the business units. The security of Deutsche Börse Group is also defined via its ecosystem of suppliers and outsourcing partners, which are integrated into the security concept. These partners are also benchmarked against Group requirements and integrated into the risk assessment.

The effectiveness of physical security is also permanently reviewed, with similar assessments and measures. A new security system was implemented in the offices at the individual locations around the world in 2023.

For a description of the risks in connection with information security we refer to the section in the chapter "Risk report".

ESG products

The Deutsche Börse Group can increase its information transparency for investors, founders, asset managers and market participants, but also for external observers, by including ESG aspects in its product portfolio – be it by integrating ESG ratings, data and/or analysis, or by reporting data on trading volumes for securities, derivatives, renewable energies and/or commodities. For an overview of our ESG products, we refer to the GRI index.

Compliance

Responsible business operations imply adherence to laws and regulations; they are also based on the principle of integrity and ethically irreproachable conduct at all times. We have implemented a compliance management system (CMS), which aims to prevent misconduct and avoid liability and reputational risks for the Deutsche Börse Group, its legal representatives, executives and staff. Beyond business-related and regulatory compliance requirements, the focus is on continuously strengthening compliance awareness throughout the Group.

Code of business conduct

Our Group's code of business conduct summarises the most important aspects with regard to corporate ethics and compliance as well as appropriate conduct. It is communicated to all employees in the Group and is available on the internet and intranet sites. Our code of business conduct summarises our core values and principles, which are intended to act as support for decision-making and enforce market integrity, transparency, efficiency and security. As a member of the AG Global Compact, Deutsche Börse AG is also committed to its principles, notably to support human and labour rights, to protect the environment and to work against corruption in all its forms, which includes extortion and bribery.

Objectivity and integrity are the guiding principles for employees of Deutsche Börse Group. Our management is fully aware of their function as role models and the importance of the "tone from the top", which makes it possible to draw the attention of every individual employee towards managing compliance risks, both within the Group and among market participants. In order to sustainably anchor these guiding principles, and to prevent the Group and its staff from legal sanctions and reputational damage, Group Compliance has implemented risk-based compliance and preventive measures.

Compliance management system

An effective compliance management system (CMS) constitutes an indispensable element of good corporate governance. The Group Compliance function manages the CMS as a second line of defence function and ensures compliance with legislation, regulations and internal rules, and promotes best practice within the Group. In addition, the Group Compliance function monitors, controls and implements risk-based measures to mitigate risks with negative impacts (e.g. direct or indirect financial losses, regulatory penalties or reputational damage). On this basis the CMS provides the foundation for sustainable risk transparency; specifically, it facilitates the reduction of compliance risks in the areas of money laundering/terrorism financing, criminal offences, data protection, corruption, market manipulation, conflicts of interest and insider trading, as well as monitoring of requirements concerning financial sanctions and embargoes.

The appropriateness and effectiveness of the CMS are evaluated at least once a year on the basis of the individual CMS elements. The results are then presented to the Audit Committee of the Supervisory Board of Deutsche Börse AG. The CMS elements particularly comprise:

- **Compliance risk analyses** – Identified and assessed risks provide the basis for determining the scope and focus of compliance activities and the management of the compliance risk profile.
- **Policies** – Compliance requirements that are regularly updated in accordance with applicable legislation, regulations and defined compliance targets.
- **Controls** – Regular and ad hoc controls are carried out to detect any compliance deficits.
- **Training** – Creation of a compliance mindset and appreciation by means of compliance training.
- **Reporting –** Regular and ad hoc reporting to the relevant stakeholders.
- **Internal & external audits** – Independent and objective review of the CMS in terms of its suitability and effectiveness, and identification of improvement potential.
- **Ongoing development of the CMS** – Projects and internal initiatives for the continuous development of the CMS.

To ensure that the CMS is suitable and effective, and to reflect increasing complexity and growing regulatory demands, the CMS is regularly enhanced and improved. When determining the focus and improvements of the CMS, we are guided by applicable prudential legislation and regulatory requirements, as well as by the recommendations of internationally accepted standards. Based on these standards, Group Compliance identifies fields of action and measures to continuously adapt the CMS to changing requirements.

Compliance organisational structure

The Group Chief Compliance Officer reports directly to the Executive Board of Deutsche Börse AG. Compliance reporting comprises the relevant compliance risks in the context of the compliance mandate, as well as other compliance-relevant information and activities.

The Group Compliance Committee is an interdisciplinary committee at management level that aims to support and advise the respective Executive Boards and Compliance functions within Deutsche Börse Group on compliance topics. Committee members are the senior managers of the business units, the Chief Compliance Officers and representatives of the relevant control functions for the Group as a whole.

In the context of the current geopolitical events and the resulting potential economic and political consequences, Deutsche Börse continues to analyse which risks could have an impact in the individual business areas and which measures need to be taken and implemented.

Data protection/protection of personal data

Data protection serves to protect the personal data of individuals. It aims to protect the privacy of employees and customers, but also of third parties, such as service providers. To guarantee data protection, personal data may only be processed on the basis of a corresponding justification and in compliance with the principles of data protection.

We again took steps to comply with data protection legislation in 2023, particularly in terms of appropriate and transparent processing of personal data, and continuously developed our processes. The Executive Board appointed a data protection officer years ago and established the Group data protection function, which helps to ensure compliance with the data protection framework, itself based on the EU General Data Protection Regulation. It also drives the sustained development of a data protection culture in Deutsche Börse Group, which takes current commercial requirements and legislative changes into account by means of training courses and awareness activities.

The Group data protection function assumes the role of data protection officer for Group companies, insofar as this is required by law and it has been given the mandate as a central function. In this regard, the data protection function in-forms and advises the individual legal entities on data protection requirements. The data protection function also serves as a contact for data protection authorities, and supports the business units in their assessments of the data protection risks.

The data protection function’s framework, as a second line of defence, is incorporated into the structure of our compliance safeguards. The data protection officers inform the respective Executive Boards annually and in an event-related manner on the status of data protection within the company and the measures to expand the data protection framework.

Key figures: corruption and data protection

		2023	2022
Corruption			
Prosecuted corruption cases		0	0
Percentage of business units for which measures have been taken to address corruption risks	%	100	100
Number of employees who were trained in ABC measures (anti-bribery and corruption)[1,2]		8,181	1,563
Data protection			
Number of justified customer complaints relating to data protection		0	0

1) Employees of Deutsche Börse Group must repeat the web-based ABC training every two years. The training was revised in 2023, which is why the number of participants is significantly higher than in 2022.
2) The information is based on the employees that are connected to the central HR system. Group companies that are not connected to the HR system carry out compliance training on their own responsibility and not via the Group function.

Social environment

Our value creation also goes far beyond the areas of direct concern to us as a company. Accordingly, for example, the environment, human rights issues in the supply chain or participation in financial centre initiatives fall within our focus.

Environment

We endeavour to contribute to the Paris Climate Agreement with our business activities. In 2023, we have adapted our climate targets in line with current market standards towards a long-term climate strategy. This comprises near-term targets by 2030 and a net-zero target by 2045:

Near-term targets:

- Scope 1 & 2: Deutsche Börse aims to reduce absolute scope 1 and 2 emissions by 42% by 2030 from a 2022 base year
- Scope 3: Deutsche Börse targets to reduce absolute scope 3 emissions from fuel and energy-related activities, business travel and employee commuting by 42% by 2030 from a 2022 base year
- Scope 3 Supplier Engagement: Deutsche Börse aims that 87% of its suppliers, as measured by its emissions of purchased goods and services and capital goods, will have science-based targets by 2028

Net-zero target:

- Scope 1, 2 & 3: Deutsche Börse strives to reduce its absolute Scope 1, 2 and 3 emissions by 90% by 2045, from a 2022 base year

These targets are to be validated by the Science-Based Targets Initiative in the first quarter of 2024. To achieve our targets, we will develop a transition plan in 2024, which will contain dedicated emission reduction measures.

We provide our stakeholders with transparent information about our environmental performance in our annual GRI Index. Last year we also published a progress report on the basis of the TCFD recommendations. This report summarises the information about how we deal with climate risks and opportunities and our science-based targets. Further information can be found on our homepage.

Stakeholder engagement

We continuously review the regulatory requirements and the demands made of us by rating agencies and (voluntary) market standards and initiatives. At the same time, we permanently and systematically seek dialogue with our internal and external stakeholders and thus determine the focus topics of our work. To do so we use investor days, employee and customer surveys, discussions with rating agencies and society at large, involvement in various initiatives and our regular materiality analysis, in which we ask our stakeholders about our company and our impact on society and the economy. Regarding the initiatives that we support, we refer to our homepage.

ESG ratings

We use this external validation of our own ESG efforts through ESG ratings to continuously improve and sharpen our ESG profile. Insights from the ESG rating processes were also factored into our materiality analysis. The following rating agencies measure the sustainability performance of Deutsche Börse AG every year and play a particularly important role for us:

ESG Ratings

	Rating	
Rating agency	2023	2022
S&P	70	79
Sustainalytics	83	82
MSCI	AAA	AAA

Human rights

Our management approach for a Group-wide commitment to sustainability includes respect for human rights both in the supply chain and within the company. We have therefore published a Deutsche Börse Group Statement on Human Rights. It relates to Deutsche Börse AG and its subsidiaries and covers our relationships with employees, suppliers and customers. For this purpose, Deutsche Börse AG and centrally-serviced Group companies require their suppliers to comply with ethical standards of conduct in their dealings with employees, suppliers, customer and other third parties. This takes place in accordance with our Code of conduct for suppliers, the Code of business conduct and the policy statement on the human rights strategy of Deutsche Börse AG in accordance with section 6 (2) Supply Chain Due Diligence Act (LkSG).

EU Taxonomy

The EU Taxonomy is a key EU measure to implement the European Green Deal and the Sustainable Finance action plan which are intended to achieve climate-neutrality by 2050. The EU Taxonomy is a classification system that categorises economic activities as environmentally sustainable in terms of the following six environmental objectives:

- Climate change mitigation
- Climate change adaptation
- Sustainable use and protection of water and marine resources
- Transition to a circular economy
- Pollution prevention and control
- Protection and restoration of biodiversity and ecosystems

Article 8 of the EU Taxonomy defines the disclosure requirements for the proportion of turnover, capital and operating expenditure derived from and related to environmentally sustainable economic activities as well as energy production from nuclear energy and fossil gas.

Principles for determining the proportion of Taxonomy-eligible environmentally sustainable economic activities

Turnover

The Taxonomy-eligible turnover is divided by the Group's total turnover to determine the proportion of Taxonomy-eligible turnover. The denominator is based on sales in accordance with IAS 1.82(a) as presented in the consolidated statement of comprehensive income. For further details, please refer to note 4, table "Composition of our net revenues" (Part 1-2)"), column "Net revenues 2023").

For financial year 2023 we have not identified any Taxonomy-eligible turnover within the scope of application of the delegated acts.

Capital and operating expenditure

The proportion of Taxonomy-eligible capital expenditure (CapEx) is determined by dividing the Taxonomy-eligible capital expenditure by total additions to intangible and tangible assets. For further details, see note 10, table "Intangible assets" and note 11, table "Property, plant and equipment (incl. right-of-use assets)", lines "Additions".

Likewise, to determine the proportion of Taxonomy-eligible operating expenditure (OpEx), the Taxonomy-eligible operating expenditure is divided by the Group's total operating expenditure. For further details, see note 6, table "Composition of other operating expenses".

For financial year 2023 we have not identified any Taxonomy-eligible capital or operating expenditure within the scope of application of the delegated acts.

Energy production from nuclear energy and fossil gas

For financial year 2023 we have not identified any economic activities at Deutsche Börse Group involving energy production from nuclear energy and fossil gas.

The following tables provide an overview of the proportion of Taxonomy-eligible environmentally sustainable economic activities for the 2023 financial year:

Turnover

Economic Activities	Code	Turnover	Proportion of Turnover, year 2023	Substantial contribution criteria: Climate Change Mitigation	Climate Change Adaptation	Water	Pollution	Circular Economy	Biodiversity	DNSH criteria ("Does Not Significantly Harm"): Climate Change Mitigation	Climate Change Adaptation	Water	Pollution	Circular Economy	Biodiversity	Minimum Safeguards	Proportion of Taxonomy aligned (A.1.) or -eligible (A.2.) turnover, year 2022	Category enabling activity	Category transitional activity
		in €m	%	Y; N; N/EL	Y; N; N/EL	Y; N; N/EL	Y; N; N/EL	Y; N; N/EL	Y; N; N/EL	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	%	E	T
A. TAXONOMY-ELIGIBLE ACTIVITIES																			
A.1. Environmentally sustainable activities (Taxonomy-aligned)																			
Turnover of environmentally sustainable activities (Taxonomy-aligned) (A.1)			0%	0%	0%	0%	0%	0%	0%								0%		
Of which enabling			0%	0%	0%	0%	0%	0%	0%								0%		
Of which transitional			0%	0%													0%		
A.2 Taxonomy-eligible but not environmentally sustainable activities (not Taxonomy-aligned activities)																			
				EL; N/EL	EL; N/EL	EL; N/EL	EL; N/EL	EL; N/EL	EL; N/EL										
Turnover of Taxonomy-eligible but not environmentally sustainable activities (not Taxonomy-aligned activities) (A.2)			0%	0%	0%	0%	0%	0%	0%								0%		
A. Turnover of Taxonomy-eligible activities (A.1+A.2)			0%	0%	0%	0%	0%	0%	0%								0%		
B. TAXONOMY-NON-ELIGIBLE ACTIVITIES																			
Turnover of Taxonomy-non-eligible activities		5,133.2	100%																
TOTAL		5,133.2	100%																

Capital expenditures (CapEx)

Economic Activities	Code	CapEx	Proportion of CapEx, year 2023	Substantial contribution criteria: Climate Change Mitigation	Climate Change Adaptation	Water	Pollution	Circular Economy	Biodiversity	DNSH criteria ("Does Not Significantly Harm"): Climate Change Mitigation	Climate Change Adaptation	Water	Pollution	Circular Economy	Biodiversity	Minimum Safeguards	Proportion of Taxonomy aligned (A.1.) or -eligible (A.2.) CapEx, year 2022	Category enabling activity	Category transitional activity
		in €m	%	Y; N; N/EL	Y; N; N/EL	Y; N; N/EL	Y; N; N/EL	Y; N; N/EL	Y; N; N/EL	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	%	E	T
A. TAXONOMY-ELIGIBLE ACTIVITIES																			
A.1. Environmentally sustainable activities (Taxonomy-aligned)																			
CapEx of environmentally sustainable activities (Taxonomy-aligned) (A.1)			0%	0%	0%	0%	0%	0%	0%								0%		
Of which enabling			0%	0%	0%	0%	0%	0%	0%								0%		
Of which transitional			0%	0%													0%		
A.2 Taxonomy-eligible but not environmentally sustainable activities (not Taxonomy-aligned activities)																			
				EL; N/EL	EL; N/EL	EL; N/EL	EL; N/EL	EL; N/EL	EL; N/EL										
CapEx of Taxonomy-eligible but not environmentally sustainable activities (not Taxonomy-aligned activities) (A.2)			0%	0%	0%	0%	0%	0%	0%								0%		
A. CapEx of Taxonomy-eligible activities (A.1+A.2)			0%	0%	0%	0%	0%	0%	0%								0%		
B. TAXONOMY-NON-ELIGIBLE ACTIVITIES																			
CapEx of Taxonomy-non-eligible activities		301.2	100%																
TOTAL		301.2	100%																

Operating expenditures (OpEx)

Economic Activities	Code	OpEx	Proportion of OpEx, year 2023	Substantial contribution criteria						DNSH criteria (“Does Not Significantly Harm”)									
				Climate Change Mitigation	Climate Change Adaptation	Water	Pollution	Circular Economy	Biodiversity	Climate Change Mitigation	Climate Change Adaptation	Water	Pollution	Circular Economy	Biodiversity	Minimum Safeguards	Proportion of Taxonomy aligned (A.1.) or -eligible (A.2.) OpEx, year 2022	Category enabling activity	Category transitional activity
		in €m	%	Y; N; N/EL	Y; N; N/EL	Y; N; N/EL	Y; N; N/EL	Y; N; N/EL	Y; N; N/EL	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	%	E	T
A. TAXONOMY-ELIGIBLE ACTIVITIES																			
A.1. Environmentally sustainable activities (Taxonomy-aligned)																			
OpEx of environmentally sustainable activities (Taxonomy-aligned) (A.1)			0%	0%	0%	0%	0%	0%	0%								0%		
Of which enabling			0%	0%	0%	0%	0%	0%	0%								0%		
Of which transitional			0%	0%													0%		
A.2 Taxonomy-eligible but not environmentally sustainable activities (not Taxonomy-aligned activities)																			
				EL; N/EL	EL; N/EL	EL; N/EL	EL; N/EL	EL; N/EL	EL; N/EL										
OpEx of Taxonomy-eligible but not environmentally sustainable activities (not Taxonomy-aligned activities) (A.2)			0%	0%	0%	0%	0%	0%	0%								0%		
A. OpEx of Taxonomy-eligible activities (A.1+A.2)			0%	0%	0%	0%	0%	0%	0%								0%		
B. TAXONOMY-NON-ELIGIBLE ACTIVITIES																			
OpEx of Taxonomy-non-eligible activities		695.8	100%																
TOTAL		695.8	100%																

Nuclear and fossil gas related activities

Row	Nuclear energy-related activities	
1.	The undertaking carries out, funds or has exposures to research, development, demonstration and deployment of innovative electricity generation facilities that produce energy from nuclear processes with minimal waste from the fuel cycle.	No
2.	The undertaking carries out, funds or has exposures to construction and safe operation of new nuclear installations to produce electricity or process heat, including for the purposes of district heating or industrial processes such as hydrogen production, as well as their safety upgrades, using best available technologies.	No
3.	The undertaking carries out, funds or has exposures to safe operation of existing nuclear installations that produce electricity or process heat, including for the purposes of district heating or industrial processes such as hydrogen production from nuclear energy, as well as their safety upgrades.	No
	Fossil-gas-related activities	
4.	The undertaking carries out, funds or has exposures to construction or operation of electricity generation facilities that produce electricity using fossil gaseous fuels.	No
5.	The undertaking carries out, funds or has exposures to construction, refurbishment, and operation of combined heat/cool and power generation facilities using fossil gaseous fuels.	No
6.	The undertaking carries out, funds or has exposures to construction, refurbishment and operation of heat generation facilities that produce heat/cool using fossil gaseous fuels.	No

Risk report

We provide the infrastructure for dependable and secure capital markets and contribute constructively to its regulation. A responsible approach to risk management forms an integral part of our business model and our corporate strategy.

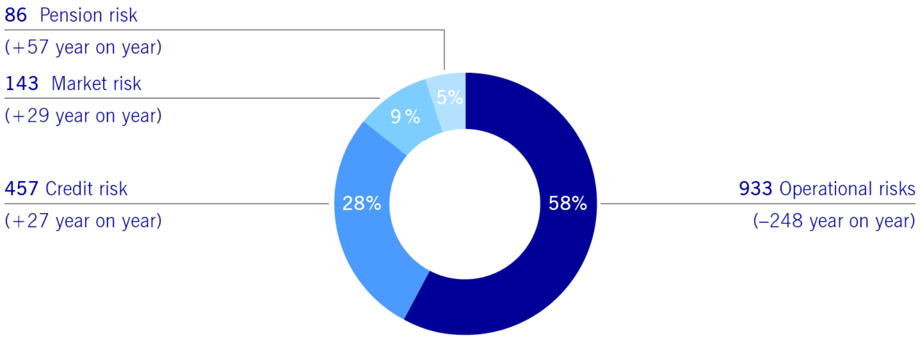
Risk profile Deutsche Börse Group

Overview of the risk profile and material changes compared with the previous year

DBAG is the Group parent company and thus the parent of all the companies that form part of Deutsche Börse Group. In key aspects its risk profile therefore represents risks at the level of its subsidiaries, which include providers of strictly regulated financial market infrastructure. Risk at Deutsche Börse Group is expressed in terms of required economic capital (REC), which is calculated on the basis of assumptions. Required economic capital as at 31 December 2023 amounted to €1,619 million (2022: €1,754 million). It is covered by a risk-bearing capacity, derived from shareholders' equity, of €8,898 million (2022: €7,742 million). The risks of Deutsche Börse Group are therefore covered by its risk-bearing capacity. Looking at the Group companies it can be said that DBG has a conservative risk profile and that it monitors and limits risks closely.

The required economic capital is made up of operational risks, financial risks (including credit and market risks), business risks and pension risks. The following chart shows the specific breakdown of risks as at 31 December 2023:

Deutsche Börse Group's risk profile
based on required economic capital in €m



There have been no material changes in the DBG risk profile compared to the previous year. The reduction of the required economic capital is partly due to a revision of scenarios at Clearstream Securities Services (€-81 million) and for non-banks. Including Crypto Finance in full caused credit risk to increase by €27 million and market price risk by €10 million. Methodological changes resulted in an increase of €57 million in the pension risk.

In addition to the economic capital, which is measured by means of internal risk models, the normative perspective (regulatory capital requirements) is determined for the regulated companies.

Regulatory classification

Within Deutsche Börse Group it is mainly the subsidiaries of Deutsche Börse AG (DBAG) that are subject to strict regulatory requirements. DBAG itself is not a bank and has not been classified as a financial holding company by the Bundesanstalt für Finanzdienstleistungsaufsicht, so it is not itself subject to supervision as a bank. DBAG aligns its risk management with the standards for companies, and parts of the standards for banks are applied if they are appropriate. In view of their economic importance we particularly discuss the banks in our Group, namely Clearstream Banking S.A., Clearstream Banking AG, Clearstream Fund Centre S.A. and Eurex Clearing AG. Further details are also provided for European Commodity Clearing AG as a central counterparty (CCP) according to the European Market Infrastructure Regulation (EMIR).

Material developments compared with the previous year

Clearstream Fund Centre S.A., a separate legal entity, was established at the beginning of 2023 for the fund business of Clearstream Banking S.A. and Clearstream Banking AG. This is a subsidiary of DBAG. Business activities in the fund business are reported in the Fund Services segment. Clearstream Fund Centre S.A. is a bank and must meet CRR requirements in this respect. It is also regulated under MiFID, and one of its main purposes is to support customers to meet their regulatory fund requirements in accordance with MiFID.

DBAG acquired 100 per cent of the shares in SimCorp A/S in late October after a public takeover offer. The risks related to the acquisition of SimCorp have been examined and as at 31 December 2023 it was found that it does not materially change the overall risk profile of Deutsche Börse Group. The current integration of Axioma with SimCorp entails an increased operational risk in connection with the successful completion of the integration project.

Clearstream Banking AG and Clearstream Banking S.A. have to meet combined capital requirements (Complementary Approach Ratio) as from April 2023. These result from the capital requirements of the Central Securities Depositories Regulation (CSDR) and the Capital Requirements Regulation (CRR, for details see “Regulatory capital requirements and regulatory capital ratios”).

Clearstream Banking S.A. remained affected in 2023 by Russia’s large-scale invasion of Ukraine, which required a considerable amount of management attention. Developments continue to be monitored closely in order to analyse the various impacts of the Russia-Ukraine war. The main focus was on adapting processes and controls to the countermeasures that Russia has taken in response to western sanctions. Clearstream Banking S.A. started to reduce its customer relations to Russian state actors massively following the first invasion of Ukraine in 2014.

In terms of the Middle East conflict that broke out in October 2023, an analysis carried out across the Group did not determine any material impact on the overall risk profile.

Notes on material changes in substantial litigations as well as tax risks are described in more detail in note 25 "Financial liabilities and other risks" in the consolidated financial statements and are an integral part of this combined management report.

Relevant regulations

Our banks follow international standards and comply with the minimum capital requirements set by the CRR. In addition, they rely on the banking processes to ensure the adequacy of capital and liquidity (Internal Capital Adequacy Assessment Process, ICAAP, and Internal Liquidity Adequacy Assessment Process, ILAAP), which comprise internal stress tests and constitute a core component of the risk management approach.

Our banks Clearstream Banking AG, Clearstream Banking S.A., Clearstream Fund Centre S.A. and Eurex Clearing AG calculate their regulatory capital requirements in line with the applicable CRR, which conforms to the first pillar of the Basel Standard for Bank Supervision. Eurex Clearing AG and European Commodity Clearing AG meet the CRR requirements and also the capital requirements of European Market Infrastructure Regulation (EMIR). Clearstream companies must also comply with the Minimum Requirements for Own Funds and Eligible Liabilities (MREL). The central securities depositories Clearstream Banking AG and Clearstream Banking S.A. are also subject to the Central Securities Depository Regulation (CSDR). For details see the section "Regulatory capital requirements and regulatory capital ratios".

Eurex Clearing AG and European Commodity Clearing AG are authorised as central coun-terparties (CCPs) and are subject to the requirements of EMIR and the Recovery and Resolution of Central Counterparties (CCP RR) regime. By contrast, recovery and resolution plans for the Clearstream companies and Clearstream Fund Centre S.A. are ensured by their compliance with the EU Banking Recovery and Resolution Directive (BRRD).

In addition to the European requirements, there are national requirements of the Minimum Requirements for Risk Management (MaRisk) issued by the Federal Financial Supervisory Authority (Bundesanstalt für Finanzdienstleistungsaufsicht, BaFin), requirements of the German Banking Act as well as the circular 12/552 issued by the Financial Supervisory Authority of Luxembourg (Commission de Surveillance du Secteur Financier, CSSF) to be mentioned.

Other subsidiaries have different licences to provide services in the financial industry, which means they too are governed by extensive statutory requirements, including for risk management. Clearstream Banking AG maintains a central register within the meaning of the Electronic Securities Act (eWPG), for example. Eurex Repo GmbH and 360 Treasury Systems AG are also subject to specific provisions applicable to investment firms. Nodal Clear, LLC is a Derivatives Clearing Organisation (DCO) subject to regulation by the US Commodity Futures Trading Commission (CFTC). Crypto Finance AG is authorised to operate a securities business under Article 41 of the Swiss Financial Institution Act (FINIG), whereas Crypto Finance (Asset Management) AG is authorised as an asset manager for collective investment schemes under the Swiss Collective Investment Scheme Act (KAG). Both are subject to supervision by the Swiss Financial Market Supervisory Authority (FINMA). Our recently acquired subsidiary SimCorp is basically a non-regulated company. It was subject to the Danish Financial Supervisory Authority (DFSA) only because it was listed on the stock exchange. It was delisted from Nasdaq Copenhagen on 30 October 2023 following the takeover by Deutsche Börse AG. With the delisting SimCorp is no longer subject to the Danish Financial Supervisory Authority

(DFSA) and Nasdaq Copenhagen. For further details, see the section "Regulatory capital requirements and regulatory capital ratios".

The Bundesanstalt für Finanzdienstleistungsaufsicht (BaFin) and Bundesbank supervise our banks, Clearstream Banking AG, Eurex Clearing AG and Clearstream Holding AG. The CSSF and Banque Centrale du Luxembourg (BCL) supervise Clearstream Banking S.A. and Clearstream Fund Centre S.A. The public exchanges are the Frankfurter Wertpapierbörse (FWB) and Eurex Deutschland (futures exchange) (ED). Deutsche Börse AG is responsible for the operation of the Frankfurter Wertpapierbörse (Frankfurt Stock Exchange). Eurex Deutschland is operated by Eurex Frankfurt AG. The exchanges are supervised by the Hesse Exchange Supervisory Authority. The Hesse Exchange Supervisory Authority is responsible for operating and legal supervision. It is part of the Hesse Ministry for the Economy, Energy, Transport and Housing.

Goals and principles of risk management

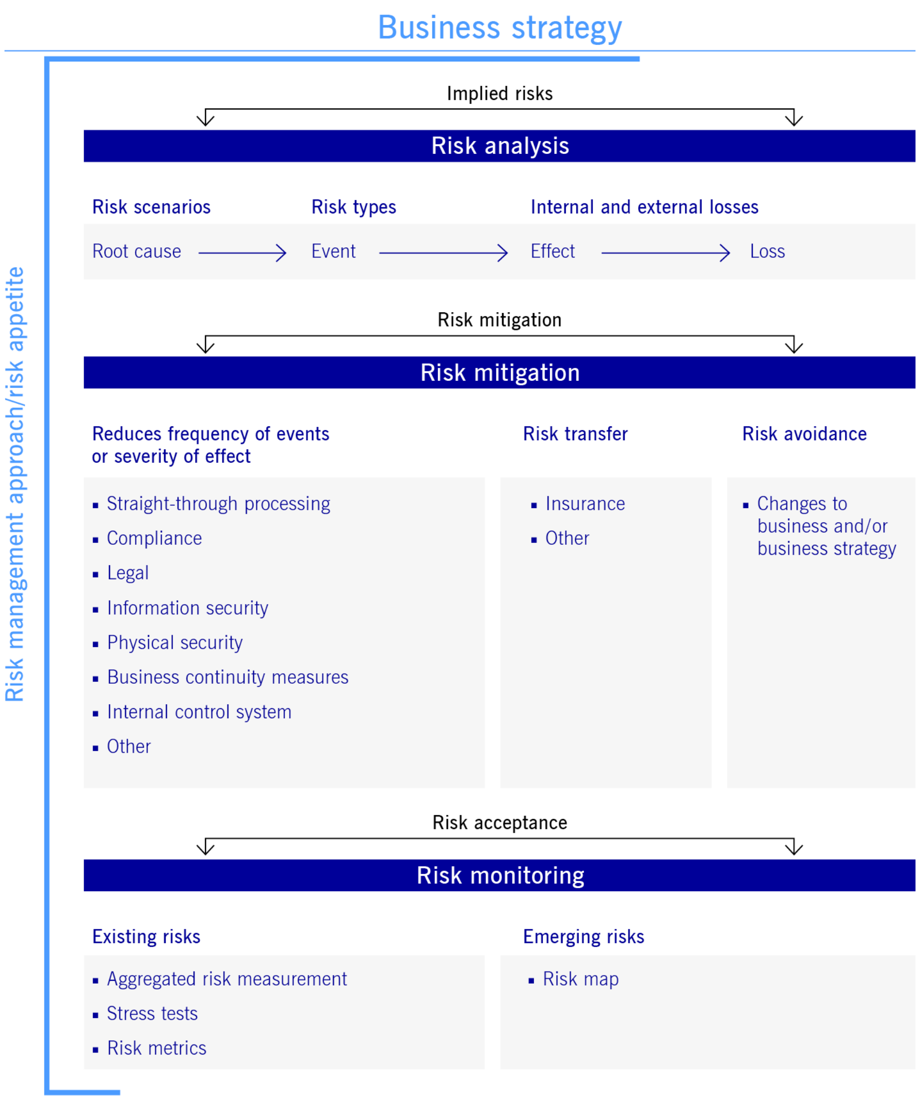
Deutsche Börse Group strives for a leading role in all our business areas. We provide the infrastructure for dependable and secure capital markets and are involved constructively in its regulation. We align our risk management approach with our business model and our corporate strategy.

Our risk management approach is based on the following principles: risk limitation, implementation of the business strategy in line with the risk appetite, and a reasonable relationship between risk and return.

In the course of growth by the business segments (e.g. organic growth, M&A activities, extension of the leading position in digital platforms for existing and new asset classes), risk management supports implementation of the strategy in line with the risk appetite by identifying risks, communicating clearly, limiting risks and monitoring. The aim is make well-founded strategic decisions within the boundaries of the defined risk appetite. Embedded cross-cutting risks such as ESG risks are also considered.

We aim to achieve an appropriate balance between risk and return. Internal risk management is based on the Group-wide detection and management of risk, see the chart "Interlocking business strategy and risk management strategy".

Interlocking business strategy and risk management approach



Risk management approach

Risk analysis

We primarily adopt an economic perspective to quantify and aggregate risks. For the banks that are the focus of the following comments – particularly including Clearstream Holding AG, Clearstream Banking S.A. Clearstream Banking AG, Clearstream Fund Centre S.A. and Eurex Clearing AG – and the securities firms - in the Group, this is supplemented by the normative perspective, which is discussed in more detail in the section “Regulatory capital requirements and regulatory capital ratios (normative perspective)”. The value at risk (VaR) model is the main tool for quantifying risks. The purpose of the VaR model is to determine the amount of economic capital – given a confidence interval of 99.9 per cent defined ex ante – required to cover very unlikely but possible losses incurred within twelve months. Moreover, we carry out stress tests in order to simulate extreme, yet plausible, events and their impact upon the Group’s risk-bearing capacity. Complementary risk metrics have been established as an additional approach to risk monitoring, which serve as an early warning system for in-house risks. These risk metrics are based on operational risks (including IT and security risks, potential losses), credit, liquidity and business risks, as well as the indicators defined for recovery plans.

Stress tests are carried out in order to simulate separately and in aggregate extreme but plausible events for all material types of risk. They simulate the occurrence of extreme losses or the accumulation of large losses within a single year. Both hypothetical and historical scenarios are used and calculated for the banks and securities firms in the Group. Reverse stress tests are also carried out. They calculate which loss scenarios or liquidity squeezes would have to materialise for the risk-bearing capacity to be exceeded from a capital or liquidity perspective. Additional adverse scenarios are simulated for the relevant supervisory perspective (normative perspective) by the banks and securities firms. The recovery plans for the banks include additional recovery stress tests.

Risk mitigation

The steps to mitigate material risks are described in detail in the sections "Operational risks", "Credit risk" and "Structure of the internal control system".

Risk monitoring

We use quantitative and qualitative approaches and methods for risk monitoring, with the objective of providing as complete a picture as possible of our risk situation. To this end, the Group continuously reviews internal events with regard to their risk properties, whilst also considering regional as well as global developments. We are thus able to recognise and analyse existing risks; at the same time, it is able to swiftly and adequately respond to emerging risks, as well as to changes in the market or in the business environment.

Risk metrics are used to quantify the most important internal risks against set limits. These supplement the risk quantification from the economic perspective and serve to monitor management indicators other than the capital requirement, and non-quantifiable risks. Any under- or overshoot of the defined limits serves as an early warning signal, which is reported to the Executive Board on a monthly basis. Furthermore, any such breach immediately triggers the necessary analysis and risk mitigation processes.

Our risk management approach also includes a sustainable, long-term component. In addition to the current existing risks, additional risks are also considered over a horizon of twelve months. For this purpose, we have developed so-called risk maps tailored specifically for expected or upcoming regulatory requirements and IT and information security risks. In addition, other operational, business and financial risks are also assessed beyond a twelve-month period. The risk maps categorise risks according to their probability of occurrence, and their potential financial impact, and show how the results relate to environmental, social and governance (ESG) aspects.

Economic and normative perspective

The economic perspective assesses risk positions arising from business operations. The normative perspective includes inputs from regulatory models. The economic perspective is used to derive the minimum required economic capital (REC), so that our risk-bearing capacity based on the statistical model applied is not exhausted more than once in 1,000 years.

From a normative perspective, regulatory capital requirements are the relevant management metrics. This means that risk management aims to meet the regulatory capital requirements for the banks and regulated securities companies in the Group. The economic and normative perspectives are used for risk management. The aim is therefore not only to meet the regulatory capital requirements, but also to ensure financial stability by means of the additional economic approach.

Risk-bearing capacity from an economic perspective

At Group level we determine our risk-bearing capacity on the basis of reported equity in accordance with International Financial Reporting Standards (IFRSs). By contrast, Clearstream Holding AG, Clearstream Banking S.A., Clearstream Banking AG, Clearstream Fund Centre S.A., Eurex Clearing AG and European Commodity Clearing AG determine their economic risk-bearing capacity on the basis of their regulatory capital (for details, see the section "Regulatory capital requirements and regulatory capital ratios").

The risk management function measures the amount of economic capital regularly and compares this with the risk-bearing capacity to produce a management indicator. The regulated entities also use the normative perspective. The economic capital for the banks includes Clearstream Banking S.A., Clearstream Banking AG, Clearstream Fund Centre S.A. and Eurex Clearing AG. The following entities in particular are not banks: Deutsche Börse AG, Eurex Frankfurt AG (including Eurex Repo GmbH), European Energy Exchange AG (including ECC and Nodal), 360T Group, the entities in the Investment Management segment (Qontigo, Institutional Shareholder Services (ISS), Axioma) and Crypto Finance AG. The intention is to include SimCorp completely in 2024.

Composition of required economic capital

	Deutsche Börse Group		Credit institutions		Non-credit institutions	
€m	31 Dec 2023	31 Dec 2022	31 Dec 2023	31 Dec 2022	31 Dec 2023	31 Dec 2022
Operational risks	933	1,181	529	551	404	630
Credit risk[1]	457	430	326	369	100	50
Market risk	143	114	99	109	44	5
Pension risk	86	29	17	29	69	0
Business risk	0	0	0	0	0	0
Economic capital	1,619	1,754	971	1,058	617	685
Risk-bearing capacity	8,898	7,742	2,463	2,502	6,426	5,224

1) Consolidation effect at Group level due to intercompany exposures versus DBAG.

The ratio of required risk capital to risk-bearing capacity remained below the defined maximum throughout the reporting period.

Operational risks

Most of the risks in the Deutsche Börse Group are operational in nature. Operational risks comprise the unavailability of systems, service deficiency, damage to physical assets as well as legal offences and business practices (see the chart below: "Operational risk at Deutsche Börse Group"). Operational risks are measured using scenarios.

Operational risk at Deutsche Börse Group

Operational risk

Events

Unavailability of systems	Service deficiency	Damage to physical assets	Legal disputes and business practice
▪ Trading ▪ Clearing ▪ Settlement	▪ Deficiency of trading-related services ▪ Loss of customer cash	▪ Damages to or destruction of buildings ▪ Damages to or destruction of data centres	▪ Losses from ongoing legal conflicts ▪ Tax risks ▪ Theft of customer cash ▪ Employment practices ▪ Contract risks ▪ Breach of sanctions provisionsn

Possible root causes

▪ Software flaws ▪ IT hardware flaws ▪ Inadequate information security ▪ Cyber crime	▪ Human errors ▪ Flawed internal processes ▪ Flawed data supply	▪ Force majeure ▪ Weather catastrophes ▪ Terror	▪ Legal violations ▪ Internal fraud ▪ External fraud

In the context of implementing ESG rules into non-financial risk management, the relevant scenarios required to show the operational risk of subsidiaries are marked ESG. Existing risks have been classified. ESG risks have been analysed and quantified in this context as far as possible. In the course of this analysis the effects of ES-G risks were classified as immaterial and no new risks were identified.

We measure the availability of the systems as an important risk indicator. As an international exchange operator and innovative provider of market infrastructure, state-of-the-art IT is of the utmost importance for the Group to ensure that it can deliver its services smoothly and continuously. Special IT risk indicators for system availability have been defined in accordance with a defined risk appetite, to monitor the uptime and performance of the main IT systems in all units and business segments and to ensure that they remain within the defined parameters. Yellow and red limits are defined for this purpose, to enable the timely and transparent escalation and reporting of breaches to senior management. Since availability risk is the biggest operational risk for the Group, it is the subject of regular testing. This simulates the impact of a failure of our own systems or those of suppliers.

Risks can also arise if a service provided to a customer is inadequate and leads to complaints or legal disputes. For example, errors in the settlement of securities transactions due to product or process deficiencies or faulty manual input. The related processes are tested at least annually. Other sources of errors may lie with suppliers or defective products. We register complaints and formal objections as a key indicator of deficient processing risk.

Natural disasters, accidents, terrorism or sabotage are other operational risks that could, for example, cause damage or destruction of a data centre. Business continuity processes are intended to avert significant financial losses.

Losses can also result from ongoing legal proceedings. These can occur if Deutsche Börse Group breaches laws or other stipulations, enters into inadequate contractual agreements or fails to monitor and observe the case law to a sufficient degree. Legal risks also include losses due to fraud and labour law issues.

Furthermore, losses resulting from insufficient anti-money-laundering controls, violations of competition law or of banking secrecy are included. Such risks can also arise if government sanctions are not observed, e.g. in case of conflicting requirements of different states, or in the event of breaches of other national or international regulations.

We take specific organisational measures to mitigate operational risks. Among them are emergency plans, measures to ensure information security and the physical safety of employees and buildings, insurance coverage, as well as compliance regulations and procedures. Comments on compliance requirements can be found in the section “Compliance”.

Contingency plans

It is vital for our Group to be able to provide our products and services with the greatest possible reliability, in order to retain the trust of customers and markets, and to meet our contractual obligations. We have to maintain our business operations and take precautions against failures. If our core processes and resources are not available, this represents not only a substantial risk for the entire Group but also even a potential systemic risk for the financial markets in general. A system of contingency plans has therefore been established throughout the Group (Business Continuity Management System, BCMS). This covers all processes designed to ensure continuity of operations in the event of an emergency and reduces unavailability risk. Measures include precautions relating to all material resources (staff, systems, workspace, suppliers), including the redundant design of essential IT systems and the technical infrastructure, as well as emergency measures designed to mitigate the unavailability of staff or workspaces in core functions.

Our Group has introduced and tested a management process for emergencies that enables us to respond quickly and in a coordinated manner. This is intended to minimise the effects on business processes and on the market and to enable a quick return to regular operations. All business units have appointed emergency managers to act as central contacts and take responsibility during emergencies. The emergency managers inform the Executive Board or raise the alarm with them in the case of severe incidents. If the incident escalates, the Executive Board member responsible acts as the crisis manager or delegates this role. Our emergency plans are tested regularly by rehearsing critical situations as realistically as possible. Such tests are generally carried out unannounced.

Information security

As digitalisation advances, the financial sector as a whole continues its technological development, which increases the risks of cyber-attacks. Attacks on company IT systems and on financial infrastructure are increasing worldwide and the Federal Office for IT Security (BSI) estimates the threat is greater than ever. Attacks with malware or distributed denial of service (DDoS) attacks represent major dangers, for instance.

Information security has a very high priority for Deutsche Börse Group. As already described in the section on information security in the chapter "Customers and markets", an extensive framework of policies and processes is used, in line with the international security standard ISO/IEC 27001, and is supplemented by specific inspections and technical abilities. Security solutions are continuously refined and monitored by an independent control function with a link to operational risk management.

Physical security

Physical security is a high priority for us due to continuously changing global security risks and threats. Deutsche Börse AG has developed an integral risk management process to protect the company, its employees and values from internal and external attacks and threats – in a proactive as well as reactive manner. Analysts continuously assess the security situation at our locations and on business trips, and are in close contact with national and international authorities (Federal Criminal Police Office – BKA, Federal Office for the Protection of the Constitution – BfV, etc.), security service providers, and security departments of other companies. Multi-level security processes and controls ensure physical security at our locations. Physical access to buildings and values is monitored permanently; it is based on the access principle of "least privilege" (need-to-have basis).

Insurance contracts

Operational risks that we do not wish to bear ourselves are transferred to insurance companies, if this is possible at a reasonable price. All insurance contracts are reviewed individually and regularly to identify potential for optimisation.

Financial risk

We divide financial risk into credit, market price and liquidity risks.

Financial risk at Deutsche Börse Group

Financial risk

Credit risk	Market risk	Liquidity risk
▪ For collateralised and uncollateralised customer credits ▪ For collateralised and uncollateralised cash investments ▪ In securities lending ▪ Participation in default fund ▪ Outstanding liabilities	▪ For securities ▪ For pension provisions ▪ In case of balance-sheet currency mismatches	▪ For collateralised and uncollatoralised customer credits ▪ For collateralised and uncollatoralised cash investments ▪ For exposures towards other market infrastructures ▪ In securities lending ▪ For repayments of customer deposits

Credit risk

Credit risk and counterparty default risk describe the danger that one of our counterparties might not settle its liabilities, or not settle them in full. The Group's credit risks result from the specific business models of our subsidiaries and DBAG's treasury investments.

Various risk metrics are used to measure and manage the credit risk of our subsidiaries. To derive the credit risk, the required economic risk capital is measured using Monte Carlo simulations and regulatory capital requirements as well as stress tests are used. Among other things the indicators include the extent to which individual clients make use of their credit facility and the concentration of credit. The measurement criteria also include the credit rating of the counterparties and the collateral provided. Reverse stress tests for banks show how many clients would have to default for the losses to exceed the risk-bearing capacity.

Both Clearstream Banking S.A. and Clearstream Banking AG extend credit to their customers to make securities settlement more efficient. This lending business may give rise to short-term receivables from counterparties of several billion euros, but differs fundamentally from the traditional bank lending business and the associated risk profile. Credit risk can also arise from cash investments, which are the responsibility of the Treasury function. Treasury invests both the company's own funds and those that our customers deposit with Clearstream Banking S.A. and Clearstream Banking AG; the funds are mostly invested on a secured basis.

Finally, there may be short-term unsecured credit balances at correspondence banks in the course of securities settlement. To manage and monitor the counterparty risk in the Group, the credit score of potential customers and counterparties to an investment is assessed before our subsidiaries enter into business relations.

Our subsidiaries define safety margins for the collateral depending on the risk involved and review them continuously. We reduce our risk when investing funds belonging to Group companies and client deposits by distributing investments across multiple counterparties, all with a high credit quality, and by investing funds primarily in the short term and in secured form if possible. Investment limits are established for each counterparty on the basis of at least annual credit checks and using ad hoc analyses, as necessary.

In accordance with their terms and conditions, Eurex Clearing AG and European Commodity Clearing AG only enter into transactions with their clearing members. Clearing mainly relates to defined securities, rights and derivatives that are traded on specific stock exchanges. Eurex Clearing AG also offers this service for over-the-counter (OTC) products such as interest rate swaps and forward rate agreements. It acts as a central counterparty between the business parties. It reduces the resulting credit risk by offsetting receivables and by requiring clearing members to post collateral. These processes are part of an EMIR-compliant security system, which the central counterparties in the Group have implemented.

This backup system consists of different levels that prevent one or even several customer defaults from affecting the functioning of the central counterparties. As a first step, each clearing member must demonstrate a minimum amount of liable capital or, in the case of funds, assets under management. The second stage requires the daily provision of collateral in the form of money or creditworthy and liquid securities (margins), which, at the request of the central counterparties, must be supplemented or even replaced by customers during the day if securities no longer meet the high quality requirements. It should be noted that the underlying risk measurement already factors in changes in prices and positions over the course of the day. In the third stage, all clearing participants are obliged to pay additional collateral into a default fund on a pro rata basis according to their individual risk profile.

In addition to its own funds, Eurex Clearing AG has the option of drawing on a letter of comfort issued by Deutsche Börse AG. A maximum of €600 million is available, from which own equity payments can already be used on a pro rata basis in the security scheme described above. Third parties have no rights under this comfort letter. The contribution from Eurex Clearing AG to the overall payment waterfall in the event of a liquidation is €200 million. Before the collateral in the default fund is used, European Commodity Clearing AG provides prefinanced allocated own funds of €35 million. If all these funds are not sufficient, European Community Clearing AG can call up additional contributions to the default fund from non-defaulting clearing participants up to three times within 90 days. Before doing so, European Commodity Clearing AG must provide additional prefinanced allocated own funds of €15 million.

In addition, Eurex Clearing AG and European Commodity Clearing AG can use the facilities of the Deutsche Bundesbank and so hold most of the customer funds without any default risk. Investment losses on currencies for which Eurex Clearing AG or European Commodity Clearing AG have no access to the respective central banks, and therefore invest with commercial banks, will be borne, on a pro rata basis, by Eurex Clearing AG and European Commodity Clearing AG and by those clearing members active in the currency where losses were incurred. The maximum amount payable by Eurex Clearing AG and European Commodity Clearing AG is capped at €50 million for Eurex Clearing AG and €15 million for European Commodity Clearing AG.

As with Clearstream Banking S.A. and Clearstream Banking AG, Treasury also invests its own funds and client deposits for Eurex Clearing AG; here too, most of the investments are secured. To date, no default by one of our customers with a secured credit line has resulted in a financial loss for us.

Market risk

Market risk include risks of an adverse development of interest rates, exchange rates or other market prices, which may occur when investing own or customer funds, on open risk positions in foreign currencies or on pension liabilities. We measure these risks using Monte Carlo simulations based on historical price data, as well as corresponding stress tests. Clearstream Fund Centre S.A. measures market risks based on historical developments in interest rates, exchange rates and other market prices, and with additional stress tests. To minimise foreign currency risks, we avoid open currency positions whenever possible. Market risk exposure only results from relatively small open foreign currency positions.

Derivative financial instruments are used across the Group solely for hedging purposes. This relates to interest rate or currency swaps, for instance, which are used as part of a conservative investment policy for Clearstream Banking S.A., Clearstream Banking AG and Eurex Clearing AG, or futures to reduce the market risk of existing positions at Crypto Finance AG.

Furthermore, market risk could result from ring-fenced pension plan assets for our employees (Contractual Trust Arrangement (CTA), Clearstream's pension fund in Luxembourg). They are actively managed in line with a defined investment policy and so have a limited exposure to market risk. We also reduced the risk of extreme losses by deciding to invest the bulk of the CTA on the basis of a value preservation mechanism.

We did not sustain any significant losses from market price risks in 2023.

Liquidity risk

Liquidity risk arises if a Group company is unable to meet its upcoming payment obligations in time and in full or if it can only do so at a higher refinancing cost.

Liquidity risks arise primarily at our subsidiaries Eurex Clearing AG, Clearstream Banking S.A., Clearstream Banking AG and Clearstream Fund Centre S.A., since these are credit institutions. Furthermore, liquidity risks arise at European Commodity Clearing AG as it is classified as a credit institution under the German Banking Act.

Short-term operating liquidity is mainly covered internally, by retaining earnings. The aim is to hold sufficient liquidity to be able to meet all our obligations as they fall due. An intra-group cash pool is used to pool surplus cash from our subsidiaries with Deutsche Börse AG, as far as regulatory and legal provisions allow. Liquid funds are invested on a short-term basis to ensure that they are available. Short-term investments are also largely secured by liquid bonds from first-class issuers. In addition, we have access to short-term external sources of financing, such as agreed credit lines with individual commercial banks or consortia, and a commercial paper programme.

In recent years, we have used our access to the capital markets to issue corporate bonds in order to meet our structural financing needs.

Deutsche Börse Group's liquidity risk management objective is two-fold: we aim to cover short-term liquidity needs while safeguarding the long-term financing of our Group and thereby reducing liquidity risks.

For the early identification of risk, Clearstream Banking S.A., Clearstream Banking AG, Clearstream Fund Centre S.A., Eurex Clearing AG and European Commodity Clearing AG calculate daily the liquidity requirement using various stress tests that would occur in the event of client defaults. The companies hold sufficient liquidity to cover the requirement as determined by these calculations. Furthermore, potential risks that are identified in the course of stress tests are analysed, and corresponding risk-reduction measures initiated.

Aggregated across all currencies, the companies always had sufficient liquidity to cover their actual liquidity needs in 2023.

Liquidity risks are not quantified in the REC (see note 24 to the consolidated financial statements).

Pension risk

Pensions for past and present employees are managed in a variety of pension funds. Pension risk is the risk of rising costs from the current measurement of pension provisions due to higher life expectancies, salary increases and higher inflation rates. It is calculated with the support of actuaries during the first quarter of the financial year. The methods used to measure pension risk were modified in 2023 which led to an increase of €57 million in the pension risk.

Business risk

Business risk is the unexpected residual loss which arises when the Earnings at Risk exceed the anticipated net income after tax, which can be due to the competitive environment (e.g. customer behaviour, investment failure, industry trend), macro-economic and geopolitical developments or erroneous strategic management decisions. Factors influencing this residual loss could be lower revenues or higher costs than planned. Business risk is reported when the calculated value at risk is higher than the budgeted net income for the next four quarters. This approach is based on the use of historic actuals as well as anticipated data and the expenses and income actually reported. Since historic actuals are not yet available for Clearstream Fund Centre S.A., an approach based on business risk scenarios is used there. Business risks are continuously monitored by the business units. There was no disclosable business risk for the Group on the basis of the simulation model as at 31 December 2023.

The Federal Financial Supervisory Authority (BaFin) regularly considers whether to classify Deutsche Börse AG as a financial holding company. It has currently come to the conclusion that Deutsche Börse AG is not a financial holding company. Classification as a financial holding company could have an impact on our capital requirements.

Regulatory capital requirements and regulatory capital ratios (normative perspective)

Operational risk, credit risk and market risk are used to determine the capital requirements from a normative perspective. Regulatory capital requirements are not determined for Deutsche Börse Group, but separately for each regulated entity. However, the risk profile from a normative perspective is comparable to the risk profile derived from economic capital. Clearstream Banking S.A. and Clearstream Banking AG, Clearstream Fund Centre S.A., Eurex Clearing AG and European Commodity Clearing AG used the standard approach for analysing and evaluating credit and market risk. The institutions have adopted different approaches regarding operational risk: Clearstream uses the considerably more complex Advanced Measurement Approach (AMA) in all business units, which has been approved and is regularly audited by BaFin. In contrast, Eurex Clearing AG, European Commodity Clearing AG and Clearstream Fund Centre S.A. employ the basic indicator approach in order to calculate regulatory capital requirements.

Overview of regulatory capital ratios

Regulatory capital ratios according to CRR

	Own funds requirements		Own funds		Total capital ratio %	
in €m	31 Dec 2023	31 Dec 2022	31 Dec 2023	31 Dec 2022	31 Dec 2023	31 Dec 2022
Clearstream Holding Group[1]	340.9	444.2	1,477.4	1,777.3	34.7	32.0
Clearstream Banking S.A.	199.6	279.9	1,011.7	1,008.3	40.6	28.8
Clearstream Banking AG[1]	119.1	138.5	528.3	421.6	35.5	24.4
Clearstream Fund Centre S.A.	44.7	46.2	178.8	189.8	32.0	32.9
Eurex Clearing AG[2]	122.7	143.4	799.6	724.8	52.1	40.5

1) Because the separate and consolidated financial statements of Deutsche Börse AG were prepared earlier in 2023, there were slight changes in the figures compared with those in the annual report for 2022.
2) As at 31 December 2022, the profit and loss transfer agreement between Eurex Clearing AG and Eurex Frankfurt AG did not comply with the discretion under Art. 28 (3) (d) CRR. For this reason, the regulatory capital equivalent to the subscribed capital of €25.0 million was not taken into account for regulatory purposes as at 31 December 2022. Eurex Frankfurt AG also contributed capital of €50 million to Eurex Clearing AG as at 25 September 2023.

In February and March 2023, Clearstream Banking AG carried out two capital increases for a total of €110.0 million. The reason for strengthening its capital base was primarily a change in the interpretation of the CRR and CSDR capital requirements by the supervisory authority, resulting in both requirements being applied cumulatively. The reduction in equity at Clearstream Holding AG is due to the new legal entity Clearstream Fund Centre S.A. Own funds decreased mainly due to the carve-out of Clear-stream Fund Centre Holding and its subgroup.

Clearstream Holding AG, Clearstream Banking S.A., Clearstream Banking AG and Clearstream Fund Centre S.A. have Minimum Requirements for Own Funds and Eligible Liabilities, MREL, which were met at all times. The Minimum Requirements for Own Funds and Eligible Liabilities (MREL) result from the recovery and resolution planning for the Clearstream entities as well as Clearstream Fund Centre S.A. on compliance with the Banking Recovery and Resolution Directive (BRRD). Clearstream Banking S.A. and Clearstream Banking AG as central depositories are subject to the capital requirements of CSDR, whereas Eurex Clearing AG and European Commodity Clearing AG as central counterparties are subject to the specific capital requirements of EMIR, which were met at all times in the reporting year. As of April 2023, Clearstream Banking AG and Clearstream Banking S.A. must meet the combined capital requirements (complementary approach ratio) defined in CRR and CSDR. They have satisfied the complementary approach ratio since it came into effect.

Organisational structure and reporting lines for risk management

Organisational structure and reporting lines

Our risk management approach applies to the entire Deutsche Börse Group. Risk management functions, processes and responsibilities are binding for all our employees and organisational units. To ensure that all employees are risk-aware, risk management is firmly anchored in the Group's organisational structure and workflows, see chart, "Risk management - organisational structure and reporting lines". In addition, regular training sessions are held that were developed to strengthen the risk culture of all employees. The Executive Board is responsible for overall risk management, whereas within the subsidiaries it is the responsibility of the management. The boards and committees listed below receive regular information on the risk situation.

The Supervisory Board of Deutsche Börse AG assesses and monitors the effectiveness of the risk management system and its continuous development. The Supervisory Board has delegated the evaluation to its Audit Committee. Additionally, the Risk Committee is notified annually of the risk appetite framework.

Deutsche Börse AG's Executive Board determines the Group-wide risk management approach as well as the risk appetite and allocates the latter to the company's individual business segments and business units, respectively. It ensures that the Group's risk appetite is and remains compatible with its short and long-term strategy, business and capital planning, risk-bearing capacity and remuneration systems.

Risk management – organisational structure and reporting lines

Group-wide

Supervisory Board of Deutsche Börse AG

- Monitors the effectiveness of the risk management system
- Evaluates the risk management approach and system

Audit Committee of the Supervisory Board

- Evaluates the effectiveness of the risk management system

Risk Committee of the Supervisory Board

- Monitors the risk management system and its continuing improvement in light of the risk management approach

Executive Board of Deutsche Börse AG

- Decides on risk management approach and appetite

Chief Risk Officer/ Group Risk Management

- Continuously monitors and assesses the overall risk profile
- Reports to Executive Board and Supervisory Board

Business segments non-financial institutions

- Identify, notify and control

Financial institutions

e.g. Clearstream, Clearstream Fund Centre S.A. and Eurex Clearing AG

Supervisory boards

- Monitor the effectiveness of the risk management systems and evaluate the risk management approach

Executive boards

- Responsible for the risk management of their institution

Chief Risk Officers/ Risk management functions

- Manage risks in day-to-day operations and report to their own committees and the Group

Business segments

- Identify, notify and control

The Executive Board of Deutsche Börse AG also determines which parameters are used to assess risks and how risk capital is allocated. It ensures that the requirements for the risk management approach and risk appetite are met.

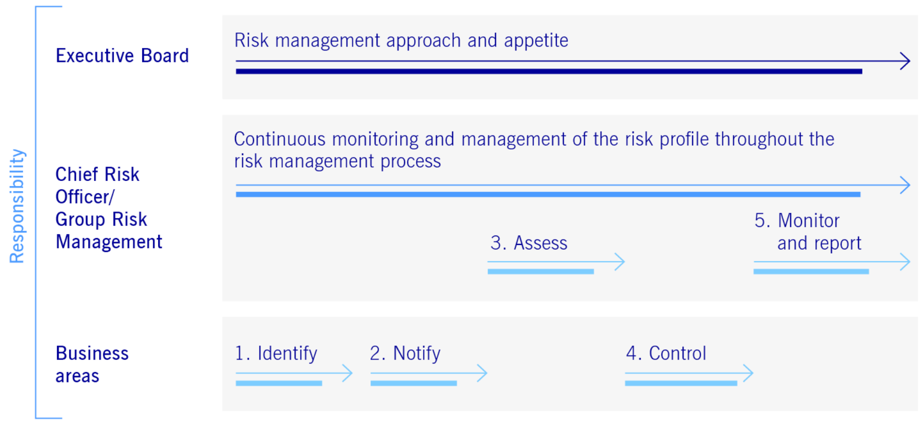
The Chief Risk Officer leads the development of proposals for the risk management framework, risk appetite, approaches and methods for risk monitoring and control, capital allocation and the necessary processes. Risks are continuously analysed, evaluated and reported: once a month or as needed to the Executive Board, four times a year to the Risk Committee of the Supervisory Board and once a year to the Supervisory Board. Likewise, the CRO reports to the Audit Committee on the effectiveness of the risk management system on an annual basis. This system ensures that the responsible bodies can check whether the defined risk limits are complied with.

Our subsidiaries act in the same way, always ensuring that they meet the requirements of the Group. In particular, they adhere to the risk appetite framework allocated to them by Deutsche Börse Group. The banks and European Commodity Clearing AG have independent executive boards and supervisory boards. The relevant supervisory boards and their committees are involved in the process. The same applies to the executive boards and the corresponding risk management functions. Clearstream Holding AG, Clearstream Banking S.A., Clearstream Banking AG, Clearstream Fund Centre S.A., European Commodity Clearing AG and Eurex Clearing AG implement the risk management approach with specific features derived for their own businesses. They equally use metrics and reporting formats adjusted to the overarching Group structure. As a rule, the management of the respective subsidiary is responsible for structuring the risk management approach and for compliance with the relevant legal requirements.

Centrally coordinated risk management process

Our risk management is implemented in a five-stage, centrally coordinated process. All potential losses should be identified in a timely manner, centrally recorded and, whenever possible quantitatively measured. Measures for managing them are to be recommended as necessary and their implementation ensured (see chart "Five-stage risk management process"). A further component of our risk management approach is the three lines of defence (3LoD) model, which is established at Deutsche Börse AG and at the banks and securities companies in our Group. This model defines a clear segregation of functions and responsibilities between the operating business units (first line of defence), risk management (second line of defence) and internal audit (third line of defence).

The five-stage risk management system



The **first stage** identifies the risks and the possible causes of losses or operational malfunctions. In the **second stage**, the business areas (first line of defence) regularly – or immediately, in urgent cases – report the risks that they have identified and quantified. The report goes to the risk management function (part of the second line of defence), which evaluates the potential threat in a **third stage**. In **the fourth stage** the business units manage the risks by avoiding, mitigating or transferring them, or by actively accepting them. The fifth and final **stage** involves monitoring different risk metrics and, where necessary, informing the responsible Executive Board members and committees of significant risks, their assessment and possible emergency measures. In addition to its regular reports, the CRO division compiles ad hoc reports for the Executive and Supervisory Boards. The risk management functions at Clearstream Holding AG, Clearstream Banking S.A., Clearstream Banking AG, Clearstream Funds Centre S.A., Eurex Clearing AG and European Commodity Clearing AG submit reports to the respective executive boards and supervisory boards. The internal audit function (third line of defence) is an independent function and monitors both the business units and the risk management functions.

Structure of the internal control system

Deutsche Börse has a Group-wide internal control system (ICS) that defines a framework with minimum requirements for all entities in the Group. The framework provides the basis for the risk-based implementation of the ICS. It supports the effective and efficient implementation and operation of the ICS regardless of the degree of regulation, or the size of the entity, for example.

The ICS helps to manage risks and particularly covers risks at the process level. This entails defining rules for the uniform recording and assessment of process risks, in aggregate and at the individual risk level. It should be emphasised that both financial and non-financial effects are taken into account when assessing the materiality of risks. A control cycle carried out at least once a year defines minimum requirements for continuous improvements and ICS reporting. This also includes an assessment of the appropriateness and effectiveness of the measures taken by the business units as the first line of defence.

A particular emphasis in the ICS implementation is on steps to manage material risks in connection with financial and non-financial reporting.

The central unit Financial Accounting and Controlling (FA&C), which reports directly to the CFO, and decentralised units working to standards defined by FA&C are responsible for preparing the financial statements in accordance with the statutory requirements. Group Tax is responsible for determining tax items. The relevant department heads are responsible for the related processes, including effective security and control measures. The aim is to ensure that risks relating to the accounting process are identified early on, so that remedial action can be taken in good time.

FA&C provides the subsidiaries included in the consolidated financial statements with accounting guidelines that are intended to support consistent and correct accounting across the Group. Moreover, we continuously monitor and analyse changes in the accounting environment and adjust our processes accordingly.

Another essential component of our ICS is the principle of functional segregation: tasks and competences are clearly assigned and separated from each other in organisational terms. Incompatible tasks – such as modifying master data on the one hand and issuing payment instructions on the other – are strictly segregated at a functional level. An independent control unit grants individual employees access rights to the accounting system and continuously monitors these permissions using a so-called incompatibility matrix.

Subsidiaries of Deutsche Börse Group maintain and consolidate their general ledgers in the same system. Accounting data from other companies is uploaded for inclusion in the consolidated financial statements.

The processes, systems and controls described above aim to provide reasonable assurance that our accounting system complies with the applicable principles and laws. In addition, Compliance and Internal Audit act as a further line of defence, performing risk-based, process-independent controls on whether the ICS is appropriate and effective.

The accounting-based internal control system (ICS) was strengthened and expanded in 2023. A Control Over Financial Reporting (COFR) policy was introduced and adopted by all the subsidiaries included in the consolidated financial statements. The COFR policy is intended to manage the risks associated with financial reporting across the Group, deliver end-to-end transparency in the financial processes and ensure the reliability of financial reporting. FA&C has provided a standardised process catalogue for accounting processes, including standardised risk-control matrices and documentation requirements. Compliance is regularly monitored by FA&C. These measures are to be strengthened and expanded again in 2024.

The Executive Board and the Audit Committee established by the Supervisory Board receive regular reports on the effectiveness of the ICS with respect to the financial reporting process.

Overall assessment of the risk situation by the Executive Board

Summary

The risk profile of Deutsche Börse Group did not change significantly in the 2023 financial year. All known impacts of the geopolitical and macroeconomic developments were actively managed within the Group and potential new risks were analysed on an ongoing basis. The aggregate total risk of Deutsche Börse Group comprising all risk types (operational, financial, pension and business risk) was always matched by sufficient covered funds. Group risk management and the internal control system (ICS) were further strengthened and expanded in 2023, as described above. No significant change in the risk situation of the Group has been identified by the Executive Board at the present time.

Outlook

Deutsche Börse Group continually assesses its risk situation. From stress tests, the economic capital requirements as calculated and based on the risk management system, Deutsche Börse AG's Executive Board concludes that the available risk coverage amount and liquidity are sufficient. There is currently no indication that the risk coverage amount has to be adjusted for 2024. Furthermore, it cannot identify any risk that would endanger the Group's existence as a going concern. Group risk management and the internal control system (ICS) are to be strengthened and expanded further in 2024. SimCorp will also be fully included in the measurement of economic capital. In addition, the implementation of the Corporate Sustainability Reporting Directive (CSRD) across the Group for aspects relevant to risk management will be driven forward.

Report on opportunities

With its broad product and services portfolio, Deutsche Börse Group has an excellent market position from which to profit from a wide range of opportunities. We pursue both organic growth and focused M&A activities.

Organisation of opportunities management

We evaluate the organic and inorganic growth opportunities in the individual business areas continuously, i.e. over the course of the year. With our opportunity management, we can identify, evaluate and seize opportunities for the Group as early as possible – and turn them into business successes. At Group level these opportunities are systematically assessed as part of the annual budgeting process and strategic reviews. The process begins with a careful analysis of the market environment, which considers both what the customer wants, as well as market developments, competitors and regulatory changes. Ideas for growth initiatives are developed further using uniform, Group-wide templates and subjected to a profitability analysis. On this basis, our Executive Board decides which initiatives are to be implemented.

In the course of preparing our Horizon 2026 strategy we validated our opportunities again and adjusted them accordingly.

Organic growth opportunities

We have a very broad portfolio of products and services with which we cover all areas of a market infrastructure provider's value chain. In order to maintain and expand this position we are pursuing a growth strategy called Horizon 2026 (see section "Strategy and steering parameters"). We are focusing primarily on organic growth opportunities. These consist largely of secular opportunities that we can influence ourselves. Secular opportunities arise for example as a result of regulatory changes, new client requirements such as the growing demand for exchange-traded solutions to previously over-the-counter (OTC) transactions or from the trend to allocate an increasing portion of assets to passive investment strategies (e.g. ETFs). There are also cyclical opportunities that are beyond our direct control and result from changes in the macroeconomic environment. Apart from that, we see long-term growth opportunities resulting from the technological transformation. With the help of distributed ledger technology, public cloud solutions for operating IT infrastructure and artificial intelligence, we not only want to become efficient in our existing business, but also see opportunities for new products and services related to digital assets, for example.

These are the main growth opportunities in our four segments:

Investment Management Solutions

Software as a Service for institutional investors (combination of SimCorp and Axioma): We expect increasing demand from institutional investors for investment management software solutions in the years ahead. With the merger of SimCorp and Axioma we have created an end-to-end offering along the entire process chain for institutional investors. This also enables us to realise revenue and cost synergies. It opens up significant, sustainable and long-term growth opportunities and enables us to diversify our business and further increase the proportion of our recurring revenue.

One-stop shop for global indices and data (combination of ISS and STOXX): Our objective in the index business is to give the already established European index provider STOXX an even more global profile, in order to develop and market other indices worldwide. By combining our index provider STOXX with the ESG and data business of ISS we have created the foundation for offering our customers an integrated range of indices and ESG data. This gives us an advantage over our global competitors and helps us to give new and existing customers the best possible service. In addition, Deutsche Börse's index business will continue to take advantage of the structural trend towards passive investment products (ETFs). An increasing number of private clients and asset managers now follow this trend; not only are the costs lower, but many active investment strategies have been returning under-average performance. We are also realising revenue and cost synergies by merging ISS and STOXX under joint management.

Trading & Clearing

New interest rate derivatives: Higher interest rates and wider fluctuations in expectations on future rates increase demand for interest rate products as investments and speculative opportunities, and to hedge interest rate risks. To support this, we use our leading position in long-term interest rate derivatives in order to win short-term business in interest rate derivatives for our platforms too. Customers profit from efficiencies in margin requirements if they pool their short-term interest rate business as well as their long-term interest rate business on our platforms. We offer an additional incentive by expanding our partnership programme, which enables market participants to share in our economic success.

Clearing of OTC derivatives: We have used political and regulatory developments, along with our expertise in building liquid markets, and expanded our market share in the clearing of OTC derivatives to around 20 per cent in recent years. In the years ahead we want to profit from overall market growth and increase our market share at the same time. To achieve these goals we use our improved risk model and efficiencies in cross-margining, i.e. offsetting margins for OTC trades with those for exchange-traded business. The current obligation being discussed by the EU supervisory authorities to use an active cross-margining account within the EU could also contribute to gaining additional market share.

Rising demand for repo products: The retreat by central banks from the money market and higher interest rates have caused demand for secured money market products to rise. We anticipate that we will profit from overall market growth and win new customers for our products at the same time.

New equities and equity index derivatives: In addition to a broad range of established international benchmark products, we have introduced a large number of new products in recent years, such as MSCI, total return, dividend and ESG derivatives. These new products reflect changes in customer preferences and regulatory requirements, and we therefore expect to see further significant growth here in the years ahead.

Rising demand for power derivatives: The increasing share of renewable energies in the energy mix causes wider price fluctuations on European power markets. At the same time, industries with high energy requirements are obliged to include future energy costs in their calculations well in advance when pricing their final products. Their hedging requirement and demand for power derivatives is correspondingly high. Liquidity in the European power markets operated by us is now high, which has attracted new market participants, such as algorithmic and quant traders. They have no physical need, but use power as an asset class for trading. We want to use this momentum to increase liquidity on our platforms even further and open up new customer groups.

Tokenisation: We are at the beginning of a new technology and digital assets will increase the range of investable and tradable instruments significantly. With the Digital Asset Business Platform we want to make tokenised assets fungible for institutional customers and profit from this trend over the long term.

Fund Services

Cross-border settlement and distribution of investment funds:
Our clients can use Clearstream's settlement, custody and distribution services for their entire fund portfolio – covering traditional investment funds, exchange-traded funds (ETFs) as well as hedge funds. Given that supervisory authorities are also calling for more efficient settlement and custody solutions in order to guarantee maximum security for client assets under custody, we expect to acquire additional client portfolios in the future by means of outsourcing agreements. We are also continuously expanding our range of products and services. So, for example, we have significantly expanded our range of fund services to include the management of distribution agreements, as well as data compilation through acquisitions.

Securities Services

Expand fixed-income securities services: With new offerings for our customers in the Securities Services segment we intend to use our presence and range in fixed-income securities services in a more normal interest rate environment. This includes expanding the repo and securities lending business. Both products are currently seeing stronger demand due to central banks' withdrawal from the money market and increased demand for high-quality collateral.

Digital value chain in custody: Clearstream customers can already issue assets the same-day in a digital value chain via our D7 platform. We want to build on this success and enable our customers to manage and settle positions and accounts digitally in future – and to do so for all their asset classes. In addition to economies of scale and cost savings, we anticipate further long-term growth from a larger number of transactions.

Cyclical opportunities

In addition to secular growth opportunities, we have cyclical opportunities, for instance as a result of macroeconomic developments or unexpected market events. We do not have any direct control over these cyclical opportunities, but they do have the potential to increase our net revenue significantly. They include high trading volumes on our markets, on the one hand, which could be caused by a change in interest rate expectations or global events. On the other we benefit from rising interest rates, because they increase the net interest income we receive on cash balances.

Technological opportunities

In addition to secular and cyclical growth opportunities, there are new technologies fundamentally driving change in the financial industry. They include cloud services, artificial intelligence (AI) and distributed ledger technology (DLT). These technologies can help to harmonise markets, open up new business potential, boost efficiency and reduce risks. We continuously and systematically observe and evaluate new technological developments and trends in terms of their impact and importance for our business model and our processes. Together with external partners we deliberately build and extend our expertise in selected technological areas.

Cloud

We work continuously to migrate our services and processes to the cloud and to optimise them. In addition to the flexible use of computing capacities, this has other advantages for us. For instance, the introduction of new functionalities and updating of existing software might be tested faster and better by clients in the cloud. This makes our processes significantly more agile, as new releases can be introduced at more frequent intervals, allowing us to respond better to clients' requirements.

We have been following a hybrid multi-cloud strategy with great success for years. Via agreements with leading international cloud providers we have already positioned ourselves at the summit of cloud use in the European financial services sector. In addition, on 9 February 2023, we announced a new strategic partnership with Google Cloud. It is intended to cover 10 years and allows us to profit from the technical performance and robust security mechanisms of a respected cloud provider.

As part of our partnership with Google Cloud we are concentrating on four areas:

1. Increase cloud use: we are planning to move up to 70 per cent of the processes within our Group to the cloud. The migration is planned for completion by late 2026 and will comprise both cloud-to-cloud migrations and on-premise-to-cloud migrations. We are also working with other cloud providers in addition to Google.

2. Data mesh: We are developing a data mesh that enables the shared use of data across different data storage devices and companies within the Group. Building on this, the aim is to create a market place where we can make data and analytics products and services available to external customers.

3. Digital Assets Business Platform: We are planning to build an ecosystem for digital assets that is operated on the basis of an institutional value chain, using native digital infrastructure components in the cloud. The platform would conform to recognised standards in the finance industry and service a variety of asset classes and use cases on and off the blockchain.

4. Digital Securities Platform D7: D7 is our contribution to a European ecosystem for digital assets. With D7 we want to enable market participants the settlement of their digital assets on an institutionalised platform. This will drive digitisation and efficiency in post-trading and create a next-generation digital securities platform. The aim is to digitise the entire value chain from issuance to administration, repayment and archival. It will make it possible to create, record, settle and manage digital securities and digital assets in centralised and decentralised ledgers.

Distributed ledger technology (DLT)

The use of distributed ledger technology (DLT) represents another technological opportunity. It is sometimes considered a disruptive technology, and at present, the financial services sector is increasingly exploring its opportunities. Thanks to its decentralised nature, it facilitates direct interaction between participants, thus offering the potential for simplifying complex processes. The challenge in the financial industry is to make use of distributed ledger technology while meeting high security standards and taking risk limitation and cost efficiency aspects into account.

As an established provider of market infrastructure with an integrated value chain, we are in a good position to exploit the potential of distributed ledger technology. Our experience of applicable industry standards and legal and regulatory requirements is a decisive advantage here.

Artificial intelligence (AI)

Well-known use cases have increasingly brought artificial intelligence into the public eye. As a provider of market infrastructure in the financial industry we are particularly evaluating artificial intelligence from the perspective of efficiency gains and scalability across the Group. Artificial intelligence is already being used in initial applications – for our customers (OSCAR collateral management, settlement prediction tool) and for our employees (chatbots). We always keep an eye on technological and regulatory developments, in order to evaluate and implement the best new use cases for artificial intelligence. To do so we make use of both internal and external know-how, in the context of strategic partnerships for instance.

Report on expected developments

With our diversified business model and our new Horizon 2026 strategy we are in an excellent starting position to achieve further sustainable and profitable growth. In the long term we intend to continue consistently on our growth path, in order to make Deutsche Börse Group the preferred global market infrastructure provider.

The forecast describes Deutsche Börse Group's expected performance for the 2024 financial year. It contains statements and information on events in the future and is based on the company's expectations and assumptions at the time of publication of this corporate report. In turn, these are subject to known and unknown opportunities, risks and uncertainties. Numerous factors, many of which are outside the company's control, influence the Group's success, its business strategy and its financial results. Should opportunities, risks or uncertainties materialise, or should one of the assumptions made turn out to be incorrect, the Group's actual performance could deviate either positively or negatively from the expectations and assumptions contained in the forward-looking statements and information contained in this forecast.

Developments in the operating environment

Macroeconomic environment

Global economic growth slowed again over the course of 2023, as a result of much more restrictive monetary policies by central banks. The escalation of the conflict between Israel and Palestine in the Middle East in the second half-year also caused uncertainty among market participants. We expect the economic situation to remain tense in 2024 due to high interest rates. Interest rate cuts by central banks following further falls in inflation could have a positive impact on the economic environment, on the one hand. On the other, a sharper decline in economic growth than expected or a recession could lead to uncertainty among market participants.

Future development of results of operations

For the year 2024 we are expect revenue to increase again to more than €5.6 billion. In addition to organic growth on the basis of our secular growth opportunities, the consolidation of SimCorp will make a significant contribution. We are also currently anticipating slight secular headwinds if central banks should reduce their base rates. If market volatility goes up or interest rates stay at least at their current level, this would have a positive effect. In terms of operating costs we are planning an increase for investment in our organic growth opportunities, and the additional contribution from SimCorp. On this basis we anticipate earnings before interest, taxes, depreciation and amortisation (EBITDA) of more than €3.2 billion in 2024.

Forecast for results of operations 2024

	Basis 2023 €m	Forecast 2024 €bn
Net revenue	5,076.6	>5.6
Earnings before interest, tax, depreciation and amortisation (EBITDA)	2,944.3	>3.2

Development of non-financial performance indicators

Initiatives to promote the transparency and security of the markets will continue to be a key focus during the forecast period, ensuring that we add value for society. As far as the forecast development of non-financial performance indicators for 2024 is concerned, system availability was brought back into line with the high targets by means of additional back-up measures, which became part of everyday operations. We therefore expect that the system availability of customer facing IT will remain high in the forecast period.

Being an attractive employer is important for our sustained success. We want to attract top talents and retain them for the long term. The measures described in the chapter "Employees" have put us in a good position and we are confident that we can maintain or improve on our employee satisfaction of more than 71.5 per cent.

Deutsche Börse AG's Executive Board has defined target quotas for women on the two management levels beneath the Executive Board, in accordance with section 76 (4) of the AktG, in each case referring to Deutsche Börse AG. By 31 December 2024, the proportion of women holding positions in the first and second management levels beneath the Executive Board is planned to reach 15 per cent and 27 per cent, respectively. Moreover, on a global Group level the Executive Board has adopted a voluntary commitment to increase the share of women holding upper management positions to 24 per cent by the end of 2024, and of women holding lower management positions to 33 per cent during the same period. We have extended the scope of our voluntary commitment over and above the legal requirements.

The assessment of independent ESG rating agencies is an important benchmark for our ESG efforts. We continuously analyse our performance and take action accordingly. Over the forecast period we expect that we will be able to maintain our good position above the 90th percentile of the ESG ratings.

Targets of non-financial KPI for 2024

	Based on 2023	Target for 2024
System availability of customer-facing IT	>99.9 %	>99.5 %
Employee satisfaction	73 %	>71.5 %
Share of women in leadership positions[1]	23 %	>24 %
ESG ratings	98th percentile	>90th percentile

1) Group target for senior management.

Future development of the Group's financial position

We expect that cash flow from operating activities, which is our primary source of financing, will remain significantly positive in future. We expect that three significant factors will influence changes in liquidity in the forecast period: firstly, we plan to invest around €350 million in intangible assets and property, plant and equipment at Group level. These investments will serve primarily to develop new products and services in our growth areas and to enhance existing ones. We also launched a share buy-back programme with a volume of €300 million in January 2024. In May 2024 we will propose a dividend of €3.80 per share to the Annual General Meeting. This would represent a cash outflow of about €703.4 million. Apart from the above, we did not expect any other material factors to impact the Group's liquidity at the time the combined management report was prepared. As in previous years, we assume that we will have a sound liquidity base in the forecast period due to positive cash flow from operating activities, adequate credit lines (for details see note 24 to the consolidated financial statements), and our flexible management and planning systems.

Based on the successful implementation of our previous strategy and in expectation of further growth, we have refined our capital management. In future we will aim to distribute dividends equivalent to 30-40 per cent of the net profit for the period attributable to the shareholders of Deutsche Börse AG. The dividend per share is planned to increase going forward. In addition, available liquidity can be invested in the Group's further inorganic development, as in the past. In the event of any surplus liquidity, the company intends to supplement the dividend with share buy-backs.

To maintain its strong credit ratings at Group level, we aim for a ratio of net debt to EBITDA of no more than 2.25, and a ratio of free funds from operations to net debt of at least 40 per cent. Financing the takeover of SimCorp temporarily caused the ratio of free funds from operations to net debt to not fulfil the target at year-end 2023. We expect to be within the limit for this indicator again in 2024 thanks to positive cash flow from operating activities.

Overall assessment by the Executive Board

We believe the Group remains very well positioned in terms of international competition, thanks to its broadly diversified offering along the securities trading value chain and its innovative strength. This being the case, we expect to see a positive trend in the results of operations over the long term. Our new corporate strategy and the resulting measures should further accelerate this growth. In this context the Group aims to become more agile and effective and sharpen its client focus, in order to become the global market infrastructure provider of choice, with a top ranking in all its business areas. Taking the conditions for organic growth into account, the Executive Board is planning an increase in net revenue to more than €5.6 billion in the forecast period. The Executive Board expects EBITDA to go up to more than €3.2 billion in the forecast period. Overall, on this basis the Executive Board assumes that cash flow from operating activities will be clearly positive and that, as in previous years, the liquidity base will be sound. The overall assessment by the Executive Board is valid as at the publication date for this combined management report.

Report on post-balance sheet date events

There were no significant events after the end of the reporting period.

Corporate governance statement

Deutsche Börse Group attaches great importance to the principles of good corporate governance and control. In this statement, we report on corporate governance at Deutsche Börse AG in accordance with principle 23 of the Deutscher Corporate Governance Kodex (German Corporate Governance Code). The statement contains the corporate governance statement pursuant to section 315d in conjunction with section 289f Handelsgesetzbuch (HGB, German Commercial Code).

Declaration of Conformity pursuant to section 161 Aktiengesetz (AktG, German Stock Corporation Act)

On 7 December 2023, the Executive Board and Supervisory Board of Deutsche Börse AG issued the following Declaration of Conformity:

"Declaration of the Executive Board and the Supervisory Board of Deutsche Börse AG pursuant to section 161 Aktiengesetz (AktG - German Stock Corporation Act)

All recommendations of the German Corporate Governance Code (GCGC) in the current version dated 28 April 2022, which was published in the Federal Gazette on 27 June 2022 are currently complied with and will continue to be complied with in the future.

Further, since the last declaration of conformity was issued on 7 December 2022, all recommendations of the GCGC have also been complied with."

The annual declaration of conformity pursuant to section 161 Aktiengesetz (AktG, German Stock Corporation Act) can also be found online at www.deutsche-boerse.com > Investor Relations > Corporate Governance > Declaration of Conformity. The declarations of conformity for the past five years are also available there.

Disclosures on overriding statutory provisions

The Executive Board and Supervisory Board of Deutsche Börse AG declare, in accordance with recommendation F.4 GCGC, that recommendation D.4 GCGC was not applicable to the company in 2023 because of the overriding statutory requirement of section 4 b of the German Stock Exchange Act (Börsengesetz, BörsG). Recommendation D.4 GCGC states that the Supervisory Board shall form a Nomination Committee composed exclusively of shareholder representatives. In accordance with section 4 b of the German Stock Exchange Act, however, the Nomination Committee also assists the Supervisory Board of Deutsche Börse AG in selecting candidates for the Executive Board. As this task shall not be performed exclusively by shareholder representatives of the Supervisory Board, and in line with the practice to date, the Nomination Committee also includes employee representatives.

Disclosures on suggestions of the GCGC

The GCGC consists of both recommendations (denoted in the text by the use of the word "shall"), which are reported in the Declaration of Conformity in accordance with section 161 AktG, and suggestions (denoted in the text by the use of the word "should"). Deutsche Börse AG fully complies with them.

Publicly available information in accordance with section 289f (2) no. 1a HGB

The current remuneration report and the auditors' statement pursuant to section 162 AktG, the current remuneration system pursuant to section 87a (1) and (2) sentence 1 AktG and the latest resolution on remuneration pursuant to section 113 (3) AktG are available at www.deutsche-boerse.com > Investor Relations > Corporate Governance > Remuneration.

Information on corporate governance practices

Conduct policies

Deutsche Börse Group's global orientation means that binding policies and standards of conduct must apply at all of the Group's locations around the world. Specifically, the main objectives of these principles for collaboration are to ensure responsibility, respect and mutual esteem. The Group also adheres to these principles when implementing its business model. Communications with clients, investors, employees and the general public are based on timely information and transparency. In addition to focusing on generating profit, Deutsche Börse Group's business is managed sustainably in accordance with recognised legal, social and ethical standards.

Code of business conduct

Acting responsibly means having values that are shared by all employees throughout the Group. Deutsche Börse AG therefore has a code of business conduct that is reviewed every year. This document, which is adopted by the Executive Board and applies throughout the Group, defines the foundations of key ethical and legal standards, including – but not limited to – the following topics:

- Compliance with legislation and regulations; whistleblower system
- Confidentiality and the handling of sensitive information
- Conflicts of interest
- Prevention of insider trading and market manipulation; personal account dealings
- Prevention of corruption
- Risk management
- Environmental awareness
- Equal opportunities and protection against undesirable behaviour
- Corporate responsibility; human rights; ethical conduct

The code of business conduct applies to members of the Executive Board, all other executives and all employees of Deutsche Börse Group. In addition to specifying concrete rules, the code of business conduct provides general guidance as to how employees can contribute to implementing the defined values in their everyday working life. The goals of the code of business conduct are to provide guidance on working together in the company on a day-to-day basis, to help resolve any conflicts and to resolve ethical and legal challenges. All newly hired employees receive the code of business conduct as part of their employment contract documentation. The code of business conduct is an integral part of the relationship between employer and employees at Deutsche Börse Group. Breaches may lead to disciplinary action. The document is available at www.deutsche-boerse.com > Responsibility > Sustainability > Our policies and guidelines.

Code of conduct for suppliers

Deutsche Börse Group not only requires its management and staff to adhere to high standards – it demands the same from its suppliers and service providers. The code of conduct for suppliers as applicable to Deutsche Börse AG and the central purchasing department requires suppliers, among other things, to respect human rights and environmental regulations and to comply with minimum standards in these areas. The minimum standards also incorporate the requirements of the German Lieferkettensorgfaltspflichtengesetz (Supply Chain Due Diligence Act) and the UK Modern Slavery Act. Service providers and suppliers must sign this code of conduct or enter into an equivalent voluntary commitment before they can do business with Deutsche Börse AG and the Group companies represented by the central purchasing department. The code of conduct for suppliers is reviewed regularly in the light of current developments and amended if necessary. It can be found online at www.deutsche-boerse.com > Responsibility > Sustainability > Our policies and guidelines.

Sustainability and values

Deutsche Börse Group's business activities are based on the legal frameworks and ethical standards of the different countries in which the Group operates. A key way in which we underscore the values we consider important for the Deutsche Börse Group is by joining initiatives and organisations that advocate generally accepted ethical standards. Relevant memberships are as follows:

UN Global Compact www.unglobalcompact.org: this voluntary business initiative established by the United Nations aims to achieve a more sustainable and more equitable global economy. At the heart of the compact are ten principles covering the areas of human rights, labour, environment protection and anti-corruption. Deutsche Börse Group has submitted annual communications on progress (COPs) on its implementation of the UN Global Compact since 2009.

Charta der Vielfalt www.charta-der-vielfalt.de: as a signatory to the Diversity Charter, the company has committed to acknowledging, respecting and promoting the diversity of its workforce, customers and business associates – irrespective of their age, gender, disability, race, religion, nationality, ethnic background, sexual orientation or identity.

International Labour Organization www.ilo.org: this UN agency is the international organisation responsible for drawing up and overseeing international labour standards. It brings together representatives of governments, employees and employers to promote the joint development of policies and programmes. Deutsche Börse Group has signed up to the ILO's labour standards and hence has agreed to abide by them.

Sustainability in corporate governance

Sustainability is of significant importance for the corporate strategy of Deutsche Börse Group. It is therefore an essential element of corporate governance at the level of both the Executive Board and the Supervisory Board. The Executive Board of Deutsche Börse AG takes all strategic decisions concerning sustainability matters at Deutsche Börse Group. It was supported in the reporting year by the interdisciplinary Group Sustainability Board, which is chaired by the CFO. The Group Sustainability Board is the central management board for sustainability topics in Deutsche Börse Group. It deals with company initiatives relating to environmental, social and governance topics (ESG). This includes advising on and monitoring the integration of sustainability into corporate planning and controlling. The Group Sustainability Board has been replaced by the Group Sustainability Committee as of 1 January 2024. The Group Sustainability Committee is the new central management unit for sustainability topics in Deutsche Börse Group. It is chaired by the Chief Sustainability Officer and supports and advises the Executive Board on all aspects of sustainability. The Group Sustainability Committee is intended to ensure the implementation of effective ESG practices in accordance with applicable policies and guidelines.

The Group ESG Strategy department, which reports to the CEO, primarily provides support by continuously monitoring the ESG profile and climate strategy of Deutsche Börse Group. Responsibility for ESG reporting was transferred from Group ESG Strategy to the section Sustainability Reporting, which is part of the CFO function, on 1 October 2023.

At the Supervisory Board level, the Strategy and Sustainability Committee has dealt, in particular, with sustainable corporate governance and activities in the field of ESG at Deutsche Börse Group since 2021. In addition to embedding ESG in the work of the Supervisory Board in this way, it is particularly important for the board as a whole and in the other Supervisory Board committees, especially the Audit Committee, the Risk Committee and the Nomination Committee. Current, relevant sustainability aspects also form part of the training programme for the Executive Board and Supervisory Board and are dealt with in workshops and seminars.

To promote the sustainable development of the Deutsche Börse Group, ESG targets are an integral part of the remuneration system for the Executive Board. Details of the Executive Board remuneration system can be found in the "Remuneration report".

Further information on this subject can be found online at www.deutsche-boerse.com > Responsibility > Sustainability. More information about the Supervisory Board committee, Strategy and Sustainability, can be found in the chapter Supervisory Board committees. Details of the work carried out by the Strategy and Sustainability Committee are included in the "Supervisory Board Report".

Control and risk management systems

Deutsche Börse Group's pivotal role in the financial sector requires that it handles information and risks responsibly. The Group has a number of rules and processes for this purpose. They comprise both statutory and internal rules that can be adapted specifically to individual industry segments. They include policies on whistleblowing, risk management and the internal control system.

Whistleblower system

Deutsche Börse Group plays an active role in the fight against breaches of rules and regulations. One example is Deutsche Börse Group's whistleblowing system, which provides a channel to report non-compliant behaviour. Deutsche Börse Group uses the Business Keeper Monitoring System (BKMS®), an online application that enables employees, clients and third parties to report matters that could be criminal offences and incidents of non-compliance by employees or third parties concerning the business of Deutsche Börse Group. Reports can be made in their own name or anonymously and can be made around the clock.

Further information regarding the whistleblower system can be found at www.deutsche-boerse.com > Our Company > Contact > Whistleblower system.

Policies and guidelines on control and risk management system

Functioning control systems are important parts of stable and sustainable business processes. Deutsche Börse Group's enterprise-wide control systems are embedded in an overarching framework. This comprises, among other things, the legal requirements, the recommendations of the German Corporate Governance Code, international regulations and recommendations and other company-specific policies. The executives responsible for the different elements of the control system are in close contact with each other and with the Executive Board. Key aspects of its design and implementation are also reported regularly to the Supervisory Board or its committees. Equally, the Group has an enterprise-wide risk management system that covers and provides mandatory rules for functions, processes and responsibilities. The internal control system and risk management system also cover sustainability-related targets. Details of the internal control system and risk management at Deutsche Börse Group can be found in the "Risk report" section.

From its examination of the internal control and risk management system and the reports of the Internal Audit function regarding its risk-oriented and process-independent controls conducted, the Executive Board does not have any indications which would result in reservations regarding the appropriateness and efficacy of the systems.

Working practices of the Executive Board and the Supervisory Board

An important fundamental principle of the German Stock Corporation Act is the dual board system – which assigns separate, independent responsibilities to the Executive Board and the Supervisory Board. These responsibilities and their implementation at Deutsche Börse AG are set out in detail in the following paragraphs.

Both boards perform their duties in the interests of the company and with the aim of achieving a sustainable, long-term increase in value. Their actions are based on the principle of responsible corporate governance. The Executive Board and Supervisory Board of Deutsche Börse AG therefore work closely together in a spirit of mutual trust. The Executive Board provides the Supervisory Board with comprehensive information on the company's and the Group's position and the course of business in a regular and timely manner. In addition, the Executive Board informs the Supervisory Board regularly concerning issues relating to corporate planning, the risk situation and risk management, compliance and the company's control systems. The strategic orientation of the company is examined in detail and agreed upon with the Supervisory Board. Implementation of the relevant measures is discussed at regular intervals. The Chief Executive Officer reports to the Supervisory Board without undue delay, orally or in writing, on matters that are of special importance to the company.

In addition, the CEO keeps the Chair of the Supervisory Board continuously and regularly informed of the current developments affecting the company's business, significant transactions, upcoming decisions and the long-term outlook and discusses these issues with him or her. The Supervisory Board may also request reports from the Executive Board at any time, especially on matters and business transactions at Deutsche Börse AG and subsidiaries that have a significant impact on Deutsche Börse AG's position. The Rules of Procedures for the Executive Board and Supervisory Board contain provisions on the corresponding information rights and obligations of the Executive Board and Supervisory Board exceeding statutory regulations.

Deutsche Börse AG's Executive Board

The Executive Board manages Deutsche Börse AG and the Deutsche Börse Group. The Executive Board had six members in the reporting year. The main duties of the Executive Board include defining the Group's corporate goals and sustainable strategic orientation, managing and monitoring the operating units, as well as establishing and monitoring an efficient risk management system. The Executive Board is responsible for preparing the annual and consolidated financial statements of Deutsche Börse AG, as well as for producing financial information during the course of the year. In addition, it must ensure the company's compliance with legal requirements and official regulations.

The members of the Executive Board are jointly responsible for all aspects of management. Irrespective of this collective responsibility, the individual members manage the company's business areas assigned to them in the Executive Board's schedule of responsibilities independently and are personally responsible for them. In addition to the business areas, the functional areas of responsibility are that of the Chief Executive Officer (CEO), the Chief Financial Officer (CFO), the Chief Information Officer/Chief Operating Officer (CIO/COO) and Governance, People & Culture. The business areas cover the operating business units, such as the company's cash market activities, the derivatives business, the market data business, securities settlement and custody, collateral and liquidity management, fund distribution services as well as the Investment Management Solutions segment with offerings in the areas of indices, analytics, sustainability information (ESG) and software. For details, see "Deutsche Börse: Fundamental information about the Group" section and www.deutsche-boerse.com > Company > Deutsche Börse Group > Business areas.

Further details of the Executive Board's work are set out in the bylaws that the Supervisory Board has adopted for the Executive Board. Among other things, these list issues that are reserved for the entire Executive Board, special measures requiring the approval of the Supervisory Board, other procedural details and the arrangements for passing resolutions. The Executive Board holds regular meetings. They are convened by the CEO, who coordinates the work of the Executive Board. Any Executive Board member can require a meeting to be convened. In accordance with its bylaws, the entire Executive Board normally takes decisions on the basis of resolutions passed by a simple majority of the members voting on them in each case. If a vote is tied, the CEO has the casting vote.

More information on the Executive Board, its composition, members' individual appointments and biographies can be found at www.deutsche-boerse.com > Investor Relations> Corporate Governance > Executive Board.

Deutsche Börse AG's Supervisory Board

The Supervisory Board supervises and advises the Executive Board in its management of the company. This also covers sustainability matters. The Supervisory Board supports the Executive Board in significant business decisions and provides advice on strategically important issues. In the Rules of Procedures for the Executive Board, the Supervisory Board has defined transactions of fundamental importance which require its approval. In addition, the Supervisory Board is responsible for appointing the members of the Executive Board, deciding on their total remuneration and examining Deutsche Börse AG's annual and consolidated financial statements and the combined management report. Details of the Supervisory Board's work during the 2023 financial year can be found in the "Report of the Supervisory Board".

The Supervisory Board consists of 16 members, made up of an equal number of shareholder representatives and employee representatives in line with the German Mitbestimmungsgesetz (MitbestG, German Co-determination Act). The term of office of the current members ends at the Annual General Meeting in 2024.

The Supervisory Board holds at least six regular meetings every year. In addition, extraordinary meetings are held as required. Executive Board members attend the meetings unless the Supervisory Board decides otherwise in any particular case. The Supervisory Board also meets regularly without the Executive Board. Exchanges also take place as necessary with the annual auditors. The committees also hold regular meetings. Unless mandatory statutory provisions or the articles of incorporation call for a different procedure, the Supervisory Board passes its resolutions by a simple majority. If a vote is tied, the Chair has the casting vote. Further details of how the Supervisory Board and its committees work are defined in particular in the Rules of Procedure for the Supervisory Board, which can be downloaded at www.deutsche-boerse.com > Investor Relations > Corporate Governance > Supervisory Board > Rules of procedure.

The Supervisory Board reviews both the knowledge, skill and experience of the Executive Board and Supervisory Board as a whole and of their members regularly, at least once a year, and examines the structure, size, composition and performance of the Executive Board and Supervisory Board. Its review is based on a catalogue of specific targets, including qualification requirements, which, in turn, are reviewed regularly by the Supervisory Board. As a result of this review the qualification matrix was amended in the reporting year to show the competences "Strategy" and "Sustainability" separately. In this way, the Supervisory Board has made the qualification matrix even more transparent. The Supervisory Board also regularly, at least once a year, reviews the effectiveness of its work, discusses opportunities for improvement and decides on suitable measures if necessary. The concrete targets are described in the chapter Targets for composition and qualification requirements of the Supervisory Board and the annual effectiveness review is described in the chapter Examination of the effectiveness of Supervisory Board work.

The Chair of the Supervisory Board consults, on a regular basis, with the shareholder and employee representatives on the Supervisory Board, also outside the meetings, and arranges talks to prepare for the Supervisory Board meetings as necessary. Separate pre-meetings of shareholder and employee representatives also take place regularly before the ordinary meetings of the full Supervisory Board.

Supervisory Board committees

The Supervisory Board's goal in establishing committees is to improve the efficiency of its work by examining complex matters in smaller groups that prepare them for the plenary meeting of the Supervisory Board. Additionally, the Supervisory Board has delegated individual decision-making powers to the committees, to the extent that this is legally permissible. The Supervisory Board had seven committees in the reporting period. For details of the committees, please refer to the tables Supervisory Board committees in the reporting year: composition and responsibilities. Their individual responsibilities are governed by the Supervisory Board's bylaws. The committees' rules of procedure correspond to those for the plenary meeting of the Supervisory Board. Details of the current duties and members of the individual committees can be found online at www.deutsche-boerse.com > Corporate Governance > Investor Relations> Supervisory Board > Committees.

The chairs of the individual committees report to the plenary meeting about the subjects addressed and resolutions passed in the committee meetings. Outside the meetings the Chair of the Audit Committee also reports regularly to the Audit Committee and the full Supervisory Board on her regular exchanges with the annual auditor. Information on the Supervisory Board's concrete work and meetings during the reporting period can be found in the Report of the Supervisory Board.

More information on the Supervisory Board and its committees, the individual members and their appointments and biographies, can be found at: www.deutsche-boerse.com > Corporate Governance> Investor Relations > Supervisory Board.

Supervisory Board committees in the reporting year: composition and responsibilities

Audit Committee

Members	Provisions for the composition
▪ Barbara Lambert (Chair) ▪ Andreas Gottschling ▪ Oliver Greie[1] ▪ Susann Just-Marx[1] ▪ Achim Karle[1] ▪ Michael Rüdiger	▪ At least four members who are elected by the Supervisory Board ▪ At least one member with financial reporting expertise and one other member with auditing expertise[2] ▪ All members familiar with the financial sector ▪ Prerequisites for the chair of the committee: the person concerned must be independent, and must have specialist knowledge and experience either (i) in the application of accounting principles and internal control and risk management systems or (ii) in auditing, whereby accounting and auditing also include sustainability reporting and its auditing ▪ Persons who cannot chair the committee: the Chair of the Supervisory Board; former members of the company's Executive Board whose appointment ended less than two years ago
	Responsibilities
	▪ Deals with issues relating to the preparation of the annual budget and financial topics, particularly capital management ▪ Deals with issues relating to the adequacy and effectiveness of the company's control systems – in particular, to risk management, compliance and internal audit ▪ Deals with audit reports and financial reporting issues, including oversight of the financial reporting process ▪ Half-yearly financial reports, plus any quarterly financial reports, discusses the results of the reviews with the auditors ▪ Examines the annual financial statements and the management report, the consolidated financial statements and the Group management report, discusses the audit report with the external auditors and prepares the Supervisory Board's resolutions adopting the annual financial statements and approving the consolidated financial statements, as well as the resolution on the Executive Board's proposal on the appropriation of profit ▪ Prepares the Supervisory Board's recommendation to the Annual General Meeting on the election of the external auditors of the annual financial statements, the consolidated financial statements and the half-yearly financial report (to the extent that the latter is audited or reviewed by external auditors) and makes corresponding recommendations to the Supervisory Board ▪ Reviews the non-financial reporting (sections 289b, 315b HGB) ▪ Monitors the audit, particularly the selection and the independence of the external auditors, the quality of the audit and the additional services provided by the auditors ▪ Issues the engagement letter to the external auditor of the annual financial statements and the consolidated financial statements – including, in particular, the decision on and the commissioning of assigning the auditor (i) to review or audit the half-yearly financial reports, (ii) to review the non-financial reporting and (iii) to audit the remuneration report, as well as determining focal areas of the audit and the audit fee ▪ Prepares the Supervisory Board's resolution approving the statement on the German Corporate Governance Code pursuant to section 161 of the AktG and the corporate governance statement in accordance with section 289f of the HGB ▪ Control procedures on related-party transactions pursuant to section 111a (2) sentence 2 AktG ▪ Every member of the Audit Committee has the right to obtain information via the Chair of the Audit Committee from the heads of the company's main central departments; the Chair of the Audit Committee notifies all the committee members of the information obtained

1) Employee representatives.
2) Barbara Lambert has the expertise in auditing and Michael Rüdiger has the expertise in financial reporting required by section 100 (5) AktG. For details see the chapter Targets for composition and qualification requirements of the Supervisory Board.

Nomination Committee

Members	Provisions for the composition
▪ Martin Jetter (Chair) ▪ Markus Beck[1] ▪ Nadine Brandl[1] ▪ Anja Greenwood[1] ▪ Michael Rüdiger ▪ Clara-Christina Streit	▪ Chaired by the Chair of the Supervisory Board ▪ At least five other members who are elected by the Supervisory Board **Responsibilities** ▪ Develops a diversity concept for the Supervisory Board ▪ Deals with the regular, at least annual assessment of the structure, size, composition and performance of the Executive Board and Supervisory Board, as well as possible improvements ▪ Deals with the regular, at least annual assessment of the qualification requirements of individual members of the Executive Board and Supervisory Board, and the Executive Board and Supervisory Board as a whole ▪ Presentation of competencies in the qualification matrix and preparation of the resolution by the Supervisory Board ▪ Proposes suitable candidates to the Supervisory Board for inclusion in the Supervisory Board's election proposal to the Annual General Meeting (the proposal is submitted by shareholder representatives), including the regular review of the concrete targets and qualification requirements on which proposals are based ▪ Reviews the principles for the selection and appointment of Executive Board members and making recommendations to the Supervisory Board in this regard ▪ Addresses succession planning for the Executive Board, identifies suitable candidates to fill a position on the Executive Board and preparing the resolution to be passed by the Supervisory Board ▪ Enters into, amends or terminates service agreements within the framework defined by the Supervisory Board ▪ Prepares resolutions of the Supervisory Board on the remuneration system for Executive Board ▪ Prepares resolutions of the Supervisory Board on aggregate remuneration and retirement benefits of individual Executive Board members and determines payments to surviving dependants and any other similar payments; regularly reviews the reasonableness of Executive Board remuneration and develops proposals for any adjustments where required ▪ Prepares the reporting on the remuneration of the Executive Board and Supervisory Board ▪ Approves appointments of members of Deutsche Börse AG's Executive Board to other executive boards, supervisory boards, advisory boards and similar boards, as well as other part-time work and honorary appointments, including any exemptions from the approval requirement ▪ Approves the granting or revocation of general powers of attorney ▪ Approves cases in which the Executive Board grants employee's retirement pensions or other individually negotiated retirement benefits, or proposes to enter into employer/works council agreements establishing pension plans ▪ Decides on deferring publication of insider information and on drafting ad hoc notifications on information for which the Supervisory Board is responsible ▪ Other tasks and duties set forth in section 4b (5) of the BörsG

1) Employee representatives

Risk Committee

Members	Provisions for the composition
▪ Andreas Gottschling (Chair) ▪ Susann Just-Marx[1] ▪ Barbara Lambert ▪ Daniel Vollstedt[1]	▪ At least four members who are elected by the Supervisory Board **Responsibilities** ▪ Reviews the risk management framework, including the risk appetite and the risk management roadmap ▪ Takes note of and reviews the periodic risk management and compliance reports ▪ Oversees monitoring of the Group's operational, financial and business risks ▪ Takes note of and discusses the annual reports on significant risks and the risk management systems at regulated Group entities, to the extent legally permissible

Strategy and Sustainability Committee

Members	Provisions for the composition
▪ Martin Jetter (Chair) ▪ Anja Greenwood[1] ▪ Achim Karle[1] ▪ Peter Sack[1] ▪ Charles Stonehill ▪ Chong Lee Tan	▪ Chaired by the Chair of the Supervisory Board ▪ At least five other members who are elected by the Supervisory Board **Responsibilities** ▪ Advises the Executive Board on matters of strategic importance to the company and its affiliates ▪ Addresses fundamental strategic and business issues and deals with the group's purpose ▪ Deals with sustainable corporate governance and business activities of Deutsche Börse Group in the areas environmental, social and governance (ESG) criteria (unless another committee is responsible) ▪ Deals with significant projects for Deutsche Börse Group

1) Employee representatives

Technology Committee

Members	Provisions for the composition
▪ Shannon A. Johnston (Chair) ▪ Markus Beck[1] ▪ Andreas Gottschling ▪ Peter Sack[1] ▪ Charles Stonehill ▪ Daniel Vollstedt[1]	▪ At least four members who are elected by the Supervisory Board **Responsibilities** ▪ Supports the Supervisory Board in meeting its supervisory duties with respect to the information technology used to execute the Group's business strategy and with respect to information security ▪ Advises on IT strategy and architecture ▪ Oversees monitoring of technological innovations, the provision of IT services, the technical performance and stability of IT systems, operational IT risks, and information security services and risks

Chairman's Committee

Members	Provisions for the composition
▪ Martin Jetter (Chair) ▪ Markus Beck[1] ▪ Nadine Brandl[1] ▪ Clara-Christina Streit	▪ Chaired by the Chair of the Supervisory Board ▪ Deputy Chair of the Supervisory Board as well as one shareholder representative and one employee representative who are elected by the Supervisory Board **Responsibilities** ▪ Time-sensitive affairs

Mediation Committee

Members	Provisions for the composition
▪ Martin Jetter (Chair) ▪ Markus Beck[1] ▪ Oliver Greie[1] ▪ Barbara Lambert	▪ Chaired by the Chair of the Supervisory Board ▪ Deputy Chairperson of the Supervisory Board as well as one shareholder representative and one employee representative each **Responsibilities** ▪ Tasks and duties pursuant to section 31 (3) MitbestG

1) Employee representatives

Targets for composition and qualification requirements of the Supervisory Board

In accordance with recommendation C.1 GCGC, the Supervisory Board has adopted a catalogue of specific targets concerning its composition that should serve, above all, as a basis for the nomination of future members. The targets include qualification requirements as well as diversity targets. Furthermore, members shall have sufficient time, as well as the personal integrity and suitability of character, to exercise their office. In addition, more than half the shareholder representatives on the Supervisory Board shall be independent. The targets, including the qualification requirements, are reviewed by the Supervisory Board regularly, at least annually, and modified as necessary. The status of implementation can be seen in the qualification matrix at the end of this statement.

In the reporting year, the Supervisory Board reviewed the specific targets at the recommendation of the Nomination Committee and refined them, so that the competences “Strategy” and “Sustainability” are shown separately in the qualification matrix from this reporting year onwards. In this way, the Supervisory Board has made the qualification matrix even more transparent, and in particular it also shows in which ESG areas the respective Supervisory Board members have sustainability experience. The Supervisory Board, supported by the Nomination Committee, also examined the targets for the overall board and for the individual members and confirmed that they had been met.

Qualification requirements

Given their knowledge, skills and professional experience, members of the Supervisory Board shall have the ability to perform the duties of a supervisory board member in a company with international business activities. The Supervisory Board has determined necessary basic competencies and particular competencies. The particular competences are derived from the business model, the corporate targets, as well as from specific regulations applicable to Deutsche Börse Group.

Basic competencies

Ideally, each Supervisory Board member has the following basic competencies:

- Understanding of business issues
- Analytical and strategic skills
- Understanding of the corporate governance system
- Knowledge of the financial sector
- Understanding of Deutsche Börse AG’s activities
- Understanding of Deutsche Börse Group’s structure
- Understanding of sustainability matters as relevant to Deutsche Börse AG
- Understanding of the member’s own position and responsibilities

Particular competencies

The requirements for particular competences refer to the Supervisory Board in its entirety. At least two of its members should have sound knowledge, especially concerning the following topics:

- Capital markets, business models of stock exchanges and data business
- Clearing, settlement and custody business
- Information technology and security, digitalisation
- Strategy
- Sustainability
- Accounting, finance and audit
- Risk management and compliance
- Regulatory requirements, law

The current composition of the Supervisory Board fulfils these criteria concerning the qualification of its members. The requirements of the German Stock Corporation Act and the GCGC for professional knowledge of accounting and auditing in the Audit Committee are also met. Barbara Lambert, the Chair of the Audit Committee, has the necessary professional knowledge of both auditing and accounting. The same applies to Michael Rüdiger, a member of the Audit Committee, who also has the necessary specialist knowledge of both auditing and accounting.

Barbara Lambert studied economics in Switzerland, where she also obtained her diploma as an auditor. As an active auditor of financial statements and banks over many years, she can draw on extensive experience of conducting and managing audit activities, particularly in the financial sector. She continues to update her auditing knowledge on a regular basis to this day. In addition to chairing the Audit Committee of Deutsche Börse AG, Barbara Lambert is a member or chair of the following audit and risk committees of boards of directors and supervisory boards: Implenia AG (since 2019), Synlab AG (since 2021, mandate will be resigned as of 31 March 2024), Merck KGaA (since 2023) and of the two companies UBS Switzerland AG (since 2022) and Credit Suisse (Switzerland) AG (since 2023), which belong to the same group of companies. In these functions, she regularly attends the training sessions offered by the respective companies. Alongside her work on boards of directors and supervisory boards, Barbara Lambert is a member of many relevant professional associations and networks, such as the Swiss expert association for auditing, tax and trusts (EXPERTsuisse), where in 2007 she was also a member of the expert group for bank auditing, and the German Audit Committee Chair Network of the Audit Committee Institute e.V. Her membership of these associations and networks serves not only the professional exchange but also her further professional training. Her full curriculum vitae is available at www.deutsche-boerse.com > Investor Relations > Corporate Governance > Supervisory Board > Barbara Lambert.

Michael Rüdiger has a degree in business studies and specialised in finance and controlling. He has many years of experience in the finance industry and until 2019 was CEO of DekaBank Deutsche Girozentrale. In addition to his work on the Supervisory Board of Deutsche Börse AG, where he has also been a member of the Audit Committee since 2020, Michael Rüdiger chairs the Audit Committee at Evonik Industries AG and chairs the Supervisory Board of BlackRock Asset Management Deutschland AG (2023) and the Board of Directors of BlackRock Asset Management Schweiz AG (since 2023). In these functions he regularly attends the training sessions offered by the respective companies. Michael Rüdiger is a member of relevant networks, such as the German Audit Committee Chair Network of the Audit Committee Institute e.V., where he discusses professional issues and receives ongoing training. He also regularly attends individual training courses on aspects of auditing and accounting, where he makes use of the expertise offered by large auditing firms. His full curriculum vitae is available at www.deutsche-boerse.com > Investor Relations > Corporate Governance > Supervisory Board > Michael Rüdiger.

Independence of Supervisory Board members

In accordance with recommendation C.6 GCGC, the Supervisory Board shall be comprised of what it considers to be an appropriate number of independent shareholder representatives. The shareholder representatives on the Supervisory Board therefore decided that at least half the shareholder representatives on the Supervisory Board shall be independent. Supervisory Board members are considered to be independent within the meaning of C.6 GCGC if they are independent of the company and its Executive Board and independent of any controlling shareholder. In particular, Supervisory Board members are no longer to be considered independent if they have a personal or business relationship with the company or its Executive Board that may cause a substantial (and not merely temporary) conflict of interest. According to recommendation C.7 GCGC, more than half the shareholder representatives shall be independent of the company and the Executive Board.

In the opinion of the shareholder representatives on the Supervisory Board, all of them are independent.

Diversity concept for the Executive Board and the Supervisory Board

The diversity concept for the Executive Board and the Supervisory Board, as adopted by the Supervisory Board in accordance with section 289f (2) no. 6 HGB, has the objective of ensuring a wide range of perspectives and experience through the composition of both bodies. The concept is implemented within the scope of selecting and appointing new Executive Board members or regarding proposals for election of new Supervisory Board members.

Flexible age limit and term of office

The Supervisory Board considers the flexible age limit stipulated in its bylaws (generally 70 years) when nominating candidates for election by the Annual General Meeting. Furthermore, the Supervisory Board's bylaws provide for a general limitation to members' maximum term of office to twelve years, which the Supervisory Board shall also consider in its nominations of candidates to the Annual General Meeting.

The flexible age limit for members of the Executive Board provides for the term of office to expire at the end of the month during which a member reaches the age of 60 years. An Executive Board member may be reappointed for one year at a time from the month in which they reach the age of 60. The last period of office should, nevertheless, end at the close of the month in which the Executive Board member turns 65. When appointing members of the Executive Board, the Supervisory Board pursues the objective of achieving an optimal composition of the Executive Board from the company's perspective. In this context, experience and industry knowledge, as well as professional and personal qualifications, play a major role. Depending on the Executive Board position to be filled, it is not just the scope and depth of skills that is decisive, but also whether the specific skills are up to date. The flexible age limit has been deliberately worded to preserve the Supervisory Board's flexibility in taking decisions on appointments.

At present, no Executive Board member has passed the age limit of 65 years.

Theodor Weimer's term of office as Chairman of Deutsche Börse AG's Executive Board runs until 31 December 2024. Theodor Weimer will reach the age of 65 in 2024. Gregor Pottmeyer's term of office as CFO of Deutsche Börse AG runs until 30 September 2025. Gregor Pottmeyer will reach the age of 63 in 2025. While maintaining the general rule on a flexible age limit, the Supervisory Board decided, in view of their long-standing experience and knowledge of the sector and professional and personal qualifications, not to renew

Theodor Weimer's and Gregor Pottmeyer's term of office solely on an annual basis once they reached the age of 60.

Share of women holding management positions

Deutsche Börse Group is an international company. Working at our company means collaborating with colleagues across over 56 locations from 131 nations. We are proud of the diverse cultural, professional and personal backgrounds of our colleagues around the globe. We are committed to maintaining, supporting and fostering the diverse and inclusive culture of Deutsche Börse AG across all diversity dimensions.

Regulations require us to consider one aspect of this diversity in particular detail in this report: the share of women holding management positions.

Deutsche Börse AG meets the statutory requirements for the proportion of women on the Executive Board and the Supervisory Board. This applies particularly to the diversity requirements for the Executive Board that have been in force since 2021.

Some 37.5 per cent of the shareholder representatives of the Supervisory Board are women and the Supervisory Board is determined to further increase this share.

The Supervisory Board is also determined to increase the proportion of women on the Executive Board, taking the current appointments into consideration. Currently, there is one female member on the board. Future personnel decisions will take this into account.

In detail: with regard to the Supervisory Board, the legally binding gender quota of 30 per cent in accordance with section 96 (2) AktG applies. In order to prevent any discrimination of either shareholder representatives or employee representatives, and in order to increase the planning security in the relevant election procedures, the shareholder representatives on the Supervisory Board have opposed the overall fulfilment of the quota in accordance with section 96 (2) sentence 2 AktG. Thus, the minimum quota of 30 per cent is to be complied with for each gender both with regard to the shareholder representatives and to the employee representatives. Based on the statutory calculation method, this means that at least two women and two men from both the shareholder representatives and the employee representatives must be on the Supervisory Board. There are currently six women on the Supervisory Board: three women among the shareholder representatives and three women among the employee representatives. The statutory gender quota is therefore fulfilled.

A statutory minimum quota for the Executive Board was introduced in the Act to Extend and Amend the Act on Equal Participation of Women and Men in Management Positions in the Private and Public Sectors (FüPoG II) of 10 June 2021. Executive Boards of listed companies with more than three members must include at least one woman and one man (section 76 (3a) AktG). This statutory minimum participation requirement replaces the obligation of companies to set a legally non-binding target quota. Deutsche Börse AG meets these statutory requirements and reports on them in accordance with section 289f (2) No. 5a HGB.

International profile

The composition of the Executive Board and the Supervisory Board shall reflect the company's international activities. With Dr Andreas Gottschling, Shannon A. Johnston, Barbara Lambert, Charles Stonehill, Clara-Christina Streit and Chong Lee Tan, there are six shareholder representatives on the Supervisory Board who are not, or not exclusively, German citizens. In addition, many of the members of the Supervisory Board have long-term professional experience in the international field or are working abroad on a permanent basis. The Supervisory Board will therefore continue to meet the objectives concerning its international composition.

The same applies to the Executive Board, where Stephan Leithner holds non-German citizenship, and whose members have gained long-standing international working experience as well.

Educational and professional background

The Supervisory Board has set itself the objective of considering an appropriate range of educational and professional backgrounds regarding its own composition, as well as regarding the composition of the Executive Board. In addition to possessing professional experience in the financial services industry, members of the Executive Board and the Supervisory Board also have a professional background in consultancy, the IT sector, auditing, administration and regulation. In terms of professional education, most members have business, economics or legal degrees, in addition to backgrounds in IT, engineering and other areas. Education and professional experience thus also contribute to fulfilling the previously mentioned qualification requirements for Supervisory Board members.

The composition of both Deutsche Börse AG's Supervisory Board and Executive Board is in line with the objectives stated above.

The following qualification matrix provides an overview of how the main targets for the composition of the Supervisory Board are met, and of the extent to which the particular competencies defined in the qualification requirements are present.

Qualification matrix: Profile and particular competencies of Supervisory Board members

	Martin Jetter (Chair)	Markus Beck	Nadine Brandl	Andreas Gottschling	Anja Greenwood	Oliver Greie	Shannon A. Johnston	Susann Just-Marx
Member since	2018	2018	2018	2020	2021	2022	2022	2018
Independence	Independent	Employee representative	Employee representative	Independent	Employee representative	Employee representative	Independent	Employee representative
Gender	Male	Male	Female	Male	Female	Male	Female	Female
Year of birth	1959	1964	1975	1967	1974	1976	1971	1988
Nationality	German	German	German	German, Swiss	German	German	USA	German
International experience	Yes	No	No	Yes	Yes	No	Yes	Yes
Educational and professional background [1]	Engineering	Law	Law	Economics and mathematics	Law	Nursing	General studies	Administration, economics
Particular competencies								
Capital markets, business models of stock exchanges and data business	✓	✓						
Clearing, settlement and custody business					✓			✓
Information technology and security, digitalisation	✓			✓			✓	
Strategy	✓	✓			✓			
Sustainability[2]	✓	✓	✓					
Accounting, finance and audit		✓	✓	✓		✓		✓
Risk management and compliance	✓		✓	✓		✓		✓
Regulatory requirements, law	✓	✓	✓	✓	✓		✓	

1) The curricula vitae of the Supervisory Board members can be found at www.deutsche-boerse.com > Investor Relations > Corporate Governance > Supervisory Board
2) Sustainability expertise is described in more detail below

Qualification matrix: Profile and particular competencies of Supervisory Board members

	Achim Karle	Barbara Lambert	Michael Rüdiger	Peter Sack	Charles Stonehill	Clara-C. Streit	Chong Lee Tan	Daniel Vollstedt
Member since	2018	2018	2020	2021	2019	2019	2021	2021
Independence	Employee representative	Independent	Independent	Employee representative	Independent	Independent	Independent	Employee representative
Gender	Male	Female	Male	Male	Male	Female	Male	Male
Year of birth	1973	1962	1964	1962	1958	1968	1962	1976
Nationality	German	German, Swiss	German	German	British, USA	German, USA	Singapore	German
International experience	Yes	Yes	Yes	No	Yes	Yes	Yes	No
Educational and professional background [1]	Finance	Banking, economics, auditor	Banking, business studies	Economist, politics	History	Business studies	Economics and administration	IT and business studies
Particular competencies								
Capital markets, business models of stock exchanges and data business	✓		✓	✓	✓	✓	✓	
Clearing, settlement and custody business			✓	✓	✓	✓		
Information technology and security, digitalisation		✓			✓			✓
Strategy			✓		✓	✓	✓	
Sustainability[2]	✓	✓	✓		✓	✓		
Accounting, finance and audit		✓	✓			✓	✓	
Risk management and compliance		✓	✓		✓			✓
Regulatory requirements, law		✓	✓		✓	✓		

1) The curricula vitae of the Supervisory Board members can be found at www.deutsche-boerse.com > Investor Relations > Corporate Governance > Supervisory Board
2) Sustainability expertise is described in more detail below

Please refer to www.deutsche-boerse.com > Investor Relations > Corporate Governance > Supervisory Board for further information concerning the members of the Supervisory Board and its committees. For further information concerning the members of the Executive Board, please see www.deutsche-boerse.com > Investor Relations > Corporate Governance > Executive Board.

In addition to the basic knowledge of sustainability topics acquired partly from training sessions for the whole Supervisory Board, 8 of the 16 Supervisory Board members have more in-depth experience and knowledge of sustainability-related topics.

Martin Jetter	Markus Beck	Nadine Brandl	Achim Karle	Barbara Lambert	Michael Rüdiger	Charles Stonehill	Clara-C. Streit
E/S/G	S/G	S/G	E/S/G	E/S/G	E/S/G	E/S/G	S/G
Sustainable corporate governance focusing on environment, diversity, equity and inclusion; winner of the IBM Chairman's Environmental Award (2018)	Long-standing legal adviser on corporate governance and sustainability-related regulation	Expert in social sustainability topics and regulation from prior professional activities (academia and research, trade union and legal work)	Expert for ESG indices; member of the works council's Sustainability working group	Expert in sustainability reporting and auditing and the underlying standards	Expert in sustainability reporting and auditing and the underlying standards; expert on sustainability standards in asset management	Independent adviser to companies with a sustainable purpose	Chair of the Government Commission Corporate Governance (GCCG); long-standing involvement with leadership and staff development

Preparing the election of shareholder representatives to the Supervisory Board

The term of office of all the Supervisory Board members ends at the close of the Annual General Meeting 2024. The Supervisory Board's Nomination Committee, whose responsibility it is to put forward suitable candidates to the Supervisory Board for its proposals for election to the Annual General Meeting, has therefore dealt in detail with the election by the Annual General Meeting of the shareholder representatives to the Supervisory Board in 2024. Michael Rüdiger has decided not to stand again for election to the Supervisory Board. In a resolution dated 6 February 2024, the shareholder representatives on the Nomination Committee proposed eight candidates for election as shareholder representatives by the Annual General Meeting. Seven of the eight proposed candidates are currently Supervisory Board members; one candidate has not been a member to date. The targets for the composition of the Supervisory Board and the qualification requirements were taken into account when selecting this candidate. To this end, the shareholder representatives on the Nomination Committee began by drawing up a long list of suitable individuals. After interviewing the candidates on the long list, the shareholder representatives on the Nomination Committee agreed on a new candidate for the Supervisory Board elections in 2024. Information about all the candidates, including their CVs, will be sent with the invitation to the Annual General Meeting of Deutsche Börse AG to be held on 14 May 2024, and can also be viewed before the Annual General Meeting at www.deutsche-boerse.com/agm.

Training and professional development measures for members of the Supervisory Board

As a matter of principle, Supervisory Board members are responsible for their continuing professional development. Deutsche Börse AG follows recommendation D.11 GCGC and the guidelines of the European Securities and Markets Authority (ESMA) on management bodies of market operators and data reporting services providers, and supports Supervisory Board members in this endeavour. For example, it organises targeted introductory events for new Supervisory Board members and workshops on selected strategy, sustainability and current issues or on topics of fundamental importance. In addition to a specific workshop on the Horizon 2026 strategy process, two technology workshops on artificial intelligence and cybersecurity were held in the reporting year. Another two workshops were held on sustainability topics, which dealt with sustainability regulation and the future world of work in sectors relevant to Deutsche Börse AG. One workshop took place on the role of Deutsche Börse Group in the capital markets. Deutsche Börse AG covers the costs of workshops and basic training organised by itself for new Supervisory Board members. They also comprise training events from the Qualified Supervisory Board educational programme that the company designed itself. Deutsche Börse AG also covers the costs of third-party training activities in individual cases. Further information about the Supervisory Board workshops can be found in the Report of the Supervisory Board.

Examination of the effectiveness of Supervisory Board work

Deutsche Börse AG regards regular reviews of the effectiveness of Supervisory Board work – in accordance with recommendation D.12 GCGC – as a key component of good corporate governance. The annual effectiveness review is supported by an external service provider every third year, most recently in 2022. The effectiveness review in 2023 took place internally in the third quarter by means of a structured questionnaire and covered the tasks and composition of the Supervisory Board, collaboration within the Supervisory Board and with the Executive Board, as well as Supervisory Board and committee meetings. In addition, topics relating to the discussion and working culture and how current matters are dealt with by the Supervisory Board were addressed. The review yielded positive results, both in terms of overall effectiveness as well as regarding the audited subject areas. The Supervisory Board discussed the suggestions for improvement that were made, such as giving greater weight to the perspectives of external stakeholders of Deutsche Börse Group and developing the opportunities for exchange within the Supervisory Board, and initiated steps to implement them.

Long-term succession planning for the Executive Board

Together with the Executive Board, the Supervisory Board ensures that long-term succession planning takes place. For this purpose the Supervisory Board, or its Nomination Committee, regularly – at least once a year – concerns itself with potential candidates for the Executive Board. The Chair of the Executive Board is involved in these considerations, provided that the discussions do not refer to their own succession. The Supervisory Board prepares an applicant profile for vacant Executive Board positions. It takes care to ensure that the knowledge, expertise and experience of all Executive Board members is diverse and well balanced and adheres to the adopted diversity concept. Moreover, the Supervisory Board ensures it is informed regularly about the succession planning at the first level beneath the Executive Board, and provides advice to the Executive Board in this regard.

Target figures for the proportion of female executives beneath the Executive Board

Deutsche Börse AG's Executive Board has defined target quotas for women on the two management levels beneath the Executive Board, in accordance with section 76 (4) AktG, in each case referring to Deutsche Börse AG. By 31 December 2023, the proportion of women holding positions in the first and second management levels beneath the Executive Board was planned to reach 15 per cent and 27 per cent, respectively. As of 31 December 2023, the share of women holding positions on the first and second management levels beneath the Executive Board at Deutsche Börse AG in Germany was 15 per cent and 24 per cent, respectively.

Changes at the second management level had an impact on the number of female executives and the achievement of the target percentage at this level.

The Deutsche Börse Group is highly international, which means that for the development of female managers and appointments to management positions the consideration of a cross-company and cross-country perspective plays an important role. In this context, the Executive Board had set a Group-wide target share of women holding upper management positions (first three management levels below the Executive Board) of 23 per cent by 31 December 2023, and of women holding lower management positions of 30 per cent during the same period. In fact, this voluntary commitment went further than the statutory obligation. Firstly, the target figures determined in this context relate to Deutsche Börse Group worldwide. Secondly, the definition of management levels/positions was expanded to include heads of teams, for example. On a global level, as at 31 December 2023, these quotas stood at 23 per cent for upper management levels and 33 per cent for lower management positions.

Shareholder representation, transparent reporting and communication

Shareholders exercise their rights at the Annual General Meeting (AGM). Among other things, the AGM elects the shareholder representatives to the Supervisory Board and decides on formal approval for the actions of the Executive Board and the Supervisory Board. It also passes resolutions on the appropriation of the unappropriated surplus, capital measures, approval of intercompany agreements, amendments to the company's articles of incorporation, Supervisory Board remuneration, approval of the remuneration system for the Executive Board and the remuneration report, and the appointment of the auditors for the financial statements. Ordinary AGMs – at which the Executive Board and the Supervisory Board give an account for the past financial year – take place once a year.

In the spirit of good corporate governance, Deutsche Börse AG aims to make it as easy as possible for shareholders to exercise their shareholder rights and exchange views directly with one another.

For instance, Deutsche Börse AG shareholders may follow the AGM live over the internet and can be represented at the AGM by proxies nominated by Deutsche Börse AG, also by means of electronic communication. The proxies exercise voting rights solely in accordance with shareholders' instructions and can also be reached during the AGM. There is also a postal voting option, which includes electronic communication. When casting their vote, the shareholders have the choice of approving individual agenda items, rejecting them or abstaining.

The Supervisory Board discusses the results of voting at the AGM on a regular basis. A more in-depth discussion takes place particularly if the results are not within the range expected by the Supervisory Board, so for example if the voting differs significantly from that of comparable companies on fundamentally comparable topics. This was not the case in the reporting year for the resolutions taken at the AGM, including the temporary authorisation to hold virtual AGMs.

Section 118a (1) AktG establishes that a company's articles of incorporations may stipulate that the Annual General Meeting is to be held online, without the physical presence of shareholders or their proxies, or may authorise the Executive Board to adopt the corresponding resolutions.

In the reporting year the Executive Board decided, with the approval of the Supervisory Board, on the basis of the transitional provisions of section 26n (1) of the Introductory Act to AktG that the AGM should take place online, without the physical presence of shareholders or their proxies. Shareholders were able to follow the entire Annual General Meeting live online and exercise their voting rights, also via electronic communications, by means of postal voting or appointing the company proxies. They also had the opportunity to exercise their rights to speak and obtain information during the AGM by means of a video link, and to submit comments beforehand. Additionally, the company voluntarily published the speeches by the Chairs of the Executive Board and Supervisory Board ahead of the Annual General Meeting.

In the reporting year, the AGM of Deutsche Börse AG also decided to amend the company's articles of incorporation and authorise the Executive Board for a limited period of two years to hold the AGM virtually, without the physical presence of shareholders or their proxies. For future AGMs, a decision will be taken individually, and taking the particular circumstances as well as the interests of the company and its shareholders into account, as to whether the AGM should be held virtually, and use made of the authorisation. Past experience, as well as the time and expense involved, may also be taken into consideration. The Executive Board decided on this basis to hold the AGM virtually again in 2024.

The company currently intends to structure future virtual AGMs in a similar way to the ordinary Annual General Meeting in the reporting year. In particular, it intends to refrain from accepting and answering questions ahead of the AGM. Furthermore, the Supervisory Board members will attend the venue in person for the virtual AGM 2024.

To maximise transparency and ensure equal access to information, Deutsche Börse AG's corporate communications generally follow the rule that all target groups should receive all relevant information simultaneously. Deutsche Börse AG's financial calendar informs shareholders, analysts, shareholders' associations, the media and interested members of the public of key events such as the date of the AGM, or publication dates for financial performance indicators.

Ad hoc disclosures, information on directors' dealings and voting rights notifications, corporate reports and interim reports, and company news can all be found on Deutsche Börse's website www.deutsche-boerse.com. Deutsche Börse AG provides information about its annual and consolidated financial statements as well as interim reports in conference calls for analysts and investors. Furthermore, a regular investor day is held and Deutsche Börse continuously outlines its strategy and business developments to everyone who is interested, abiding by the principle that all target groups worldwide must be informed at the same time.

Accounting and auditing

Deutsche Börse AG's annual report provides shareholders and interested members of the public with detailed information on Deutsche Börse Group's business performance during the reporting period. Additional information is published in its half-yearly financial report and two quarterly statements. The annual financial statement documents and the annual report are published within 90 days of the end of the financial year (31 December); intra-year financial information (half-yearly financial report and quarterly statements) is made available within 45 days of the end of the relevant quarter or six-month period. Following preparations by the Audit Committee, the annual and consolidated financial statements are discussed by the entire Supervisory Board and with the external auditors, examined and then approved. The Executive Board discusses the half-yearly report and the quarterly statements for the first and third quarters with the Supervisory Board's Audit Committee prior to their publication. The half-yearly financial report is reviewed by the external auditors.

Following the recommendation by the Supervisory Board, the Annual General Meeting 2023 again elected PricewaterhouseCoopers GmbH Wirtschaftsprüfungsgesellschaft, Frankfurt am Main, (PwC) as the auditors for the annual and consolidated financial statements 2023 and for the auditor's review of the half-yearly financial report in the reporting year. PwC was also engaged to perform a review of the form and contents of the remuneration report during the 2023 financial year. The auditors responsible are Marc Billeb and Michael Rönnberg. They have both been responsible for the audit since 2021. The Supervisory Board's proposal was based on a corresponding recommendation by the Audit Committee, which had obtained the necessary statement of independence from PwC before the election. This states that there are no personal, business, financial or other relationships between the auditor, its governing bodies and audit managers, on the one hand, and the company and the members of its Executive and Supervisory Boards, on the other, that could give cause to doubt the auditor's independence. The Audit Committee checked that this continued to be the case during the reporting period. It also oversaw the financial reporting process in 2023. The Supervisory Board was informed in a timely manner of the committee's work and the insights gained; there were no material findings. Information on audit services and fees is provided in note 6 to the consolidated financial statements.

Deutsche Börse AG (notes based on HGB)

The annual financial statements of Deutsche Börse AG are prepared in accordance with the provisions of the German Commercial Code (Handelsgesetzbuch, HGB) and the supplementary provisions of the German Stock Corporation Act (Aktiengesetz, AktG). They are the underlying basis for the notes that follow.

Business and operating environment

Business model and general position of the company

Deutsche Börse AG is the parent company of Deutsche Börse Group. The parent company's business activities include, first and foremost, the cash and derivatives markets, which are reflected in the Trading & Clearing segment. Deutsche Börse AG also operates essential parts of the Group's information technology. The performance of the Securities Services segment (formerly Clearstream) is primarily reflected in Deutsche Börse AG's business performance via the profit and loss transfer agreement with Clearstream Holding AG. The business and the operating environment of Deutsche Börse AG are largely the same as for the Group. They are described in the section "Macroeconomic and sector-specific environment".

Deutsche Börse AG's course of business in the reporting period

Deutsche Börse AG's sales revenue increased by 3.0 per cent in the 2023 financial year, which was in line with the company's expectations. By contrast, total costs (staff costs, amortisation of intangible assets and depreciation of property, plant and equipment and other operating expenses) rose by 6.7 per cent. EBITDA was €2.7 billion in the 2023 financial year and so was significantly above the forecast for the 2023 financial year of €1.4 billion. Net profit was up by 142.1 per cent compared with the previous year. The financial year was mainly defined by the ongoing geopolitical situation and the resulting market risks, rising inflation and interest rate increases by the central banks. Volatility on stock markets was lower overall than in the previous year, however. The increase in net income is primarily due to non-recurring effects within the result from equity investments. This stems partly from the fact that for the first time profits were recognised at Clearstream Holding AG in the period in which they originated, and partly from reorganisation of Deutsche Börse AG's shareholdings. On the basis of these developments, the Executive Board of Deutsche Börse AG considers its performance in 2023 to be positive in context.

Performance figures for Deutsche Börse AG

in € m	2023	2022	Change
Sales revenue	1,697.4	1,647.9	3.0 %
Total costs	1,280.7	1,199.8	6.7 %
Net income from equity investments	1,764.0	524.2	236.5 %
EBITDA	2,698.8	1,215.1	122.1 %
Net profit for the period	2,118.4	875.1	142.1 %
Earnings per share (€)[1]	11.44	4.76	140.3 %

1) Calculation based on weighted average of shares outstanding

Results of operations of Deutsche Börse AG

Deutsche Börse AG's sales revenue rose by 3.0 per cent in 2023. This is largely due to an increase in sales revenue of €22.9 million in the Trading & Clearing Segment. For more information on the development of the Trading & Clearing segment, please refer to the "Trading & Clearing segment" section. The other segments mainly relate to the provision of central functions. By contrast, these segments have a material impact on the company's investment income. The breakdown of income by the company's individual segments is shown in the table "Sales revenue by segment".

The company's total costs were up 6.7 per cent year on year. For a breakdown, please refer to the table "Overview of total costs". Staff costs rose by 16.2 per cent year on year during the year under review, to €341.4 million. The increase in staff costs is mainly due to the larger number of employees following the opening of new offices in Czech Republic and Ireland. Amortisation of intangible assets and depreciation of property, plant and equipment increased by 0.4 per cent in the year under review. Other operating expenses were up 4.0 per cent year on year. This stems from the opening of new offices and general price increases.

The result of equity investments at Deutsche Börse AG rose year on year by 236.5 per cent in 2023. It consisted partly of dividend income of €261.7 million (2022: €161.6 million) and income from the transfer of profits of €1,474.1 million (2022: €412.2 million). The higher income from profit transfers is due to the fact that for the first time profits were recognised in the year in which they originated at the level of Clearstream Holding AG and its net income for the year increased as a result. An internal reorganisation within Deutsche Börse Group, which included the contribution and the sale of the investment in ISS HoldCo Inc. to ISS STOXX GmbH and the transfer of the investment in Axioma Inc. to SimCorp A/S as a capital contribution, resulted in an overall positive effect of €26.8 million in financial year 2023. Impairment losses of €35.9 million were recognised on financial assets, along with write-ups of €37.3 million.

Earnings before interest, taxes, depreciation and amortisation (EBITDA) went up by 122.1 per cent due to the effects mentioned above. Net income for the period amounted to €2,118.4 million, an increase of 142.1 per cent.

Sales revenue by segment

in €m	2023	2022	Change
Trading & Clearing	1,523.9	1,501.0	1.5 %
Securities Services	107.8	116.3	– 7.3 %
Fund Services	54.6	25.9	110.8 %
Investment Management Solutions	11.1	4,7	136.2 %
Total	**1,697.4**	**1,647.9**	**3.0 %**

Overview of total costs

in €m	2023	2022	Change
Staff costs	341.4	293.9	16.2 %
Depreciation and amortisation	73.9	73.6	0.4 %
Other operating expenses	865.4	832.3	4.0 %
Total	**1,280.7**	**1,199.8**	**6.7 %**

Development of profitability

Deutsche Börse AG's return on equity expresses the ratio of net income after taxes to average equity available to the company during the course of 2023. Return on equity rose from 21.9 per cent in 2022 to 49.1 per cent in the year under review. The increase is particularly due to the one-off effect of recognising profits in the year in which they originated at the level of Clearstream Holding AG for the first time.

Financial position of Deutsche Börse AG

As at 31 December 2023, cash and cash equivalents amounted to €150.4 million (2022: €442.0 million). This includes balances on current accounts, fixed-term deposits and other short-term investments, whereby the majority is held in cash.

Deutsche Börse AG has external credit lines available of €600.0 million (2022: €600.0 million), which were unused as at 31 December 2023. Moreover, the company has a commercial paper programme in place, which allows for flexible and short-term financings of up to €2.5 billion, in various currencies. Commercial paper with a nominal value of €590.0 million (2022: €60.0 million) was in circulation at year-end.

Through a Group-wide cash-pooling system, Deutsche Börse AG ensures an optimum allocation of liquidity throughout Deutsche Börse Group; in this way, the parent entity makes sure that all subsidiaries are in a position to honour their payment obligations at all times.

Deutsche Börse AG has issued ten corporate loans with a total nominal volume of €6.8 billion. For more details concerning these bonds, please refer to the "Financial position" section.

In the 2023 financial year, Deutsche Börse AG generated cash flow from operating activities of €832.1 million (2022: €1,209.4 million).

Cash flow from investing activities amounted to €–3,819.5 million (2022: €–392.5 million). The change is primarily due to the acquisition costs of €3.9 billion for SimCorp A/S.

Cash flow from financing activities amounted to €3,097.0 million in the year under review (2022: €–812.2 million). A dividend of €661.5 million was paid for the 2022 financial year. Bonds were issued for a total of €3 billion to finance the acquisition of SimCorp A/S. Commercial papers were also issued in the reporting year with a nominal value of €530.0 million. Cash and cash equivalents amounted to €–866.1 million as at the reporting date 31 December 2023 (2022: €–756.5 million). It is made up of liquid funds of €150.4 million (2022: €442.0 million), less cash-pooling liabilities of €1,016.6 million (2022: €1,198.5 million).

Cash flow statement (condensed)

in €m	2023	2022
Cash flow from operating activities	832.1	1,209.4
Cash flow from investing activities	– 3,819.5	– 392.5
Cash flow from financing activities	3,097.0	– 812.2
Cash and cash equivalents as at 31 December	**– 866.1**	**– 756.5**

Assets of Deutsche Börse AG

As at 31 December 2023, the non-current assets of Deutsche Börse AG amounted to €12,780.5 million (2022: €8,805.5 million). At €12,522.3 million, most of the non-current assets consisted of shares in affiliated companies (2022: €8,024.7 million). The increase in financial year 2023 is primarily due to the acquisition of SimCorp A/S for €3.9 billion.

Deutsche Börse AG's investments in intangible assets and property, plant and equipment totalled €37.6 million during the year under review (2022: €128.2 million) and were thus lower than in the previous year. Depreciation and amortisation in 2023 amounted to €73.9 million (2022: €73.6 million).

Receivables from and liabilities to affiliated companies include invoices for intra-Group services and amounts invested by Deutsche Börse AG within the scope of cash-pooling arrangements. The receivables from affiliated companies relate to invoices for intra-Group services, but primarily to Clearstream Holding AG for the company's profit transfer of €1,474.1 million. Liabilities to affiliated companies resulted mainly from cash-pooling amounting to €1,025.0 million (2022: €1,199.6 million) and trade liabilities of €80.8 million (2022: €84.8 million).

Concerning the change in treasury shares we refer to the more detailed comments in the notes to the financial statements of Deutsche Börse AG in accordance with Section 315 (2) sentence 2 HGB.

Deutsche Börse AG employees

The number of employees (as defined by HGB)[1] at Deutsche Börse AG rose by 860 in the reporting year and totalled 2,570 as at 31 December 2023 (31 December 2022: 1,710). The average number of employees at Deutsche Börse AG in the 2023 financial year was 2,158 (2022: 1,701).

Deutsche Börse AG has employees at eight locations around the world. Two offices were opened – in Czech Republic and Ireland – in 2023. During the 2023 financial year, 138 employees left Deutsche Börse AG, resulting in a staff turnover rate of 6 per cent. Deutsche Börse AG employees are 41 years old on average and have been with the company for an average of 8 years.

[1] Employees do not include the company's legal representatives, apprentices and employees on parental leave.

Remuneration report of Deutsche Börse AG

The principles governing the structure and design of the remuneration system at Deutsche Börse AG are the same as those for Deutsche Börse Group, so reference is made to the "Remuneration report" which is published alongside the annual report.

Corporate governance statement in accordance with section 289f HGB

The corporate governance statement in accordance with section 289f HGB is the same as that for Deutsche Börse Group. Reference is therefore made to the section "Corporate governance statement".

Opportunities and risks facing Deutsche Börse AG

The opportunities and risks of Deutsche Börse AG and the activities and processes to manage these are largely the same as for Deutsche Börse Group, so reference is made to the "Risk report" and the "Report on opportunities". As a rule, Deutsche Börse AG shares the opportunities and risks of its equity investments and subsidiaries in accordance with its equity interest. Risks that could potentially threaten the existence of the Eurex Clearing AG subsidiary would also have a direct influence on Deutsche Börse AG based on a letter of comfort issued by Deutsche Börse AG. As at the reporting date, there were no risks jeopardising the company's existence. Further information on the letter of comfort issued to Eurex Clearing AG is available in the section Other financial obligations and off-balance sheet transactions in the notes to the annual financial statements of Deutsche Börse AG. The description of the internal control system (ICS), required by section 289 (4) HGB, is provided in the Risk report section.

Report on expected developments for Deutsche Börse AG

The expected developments in Deutsche Börse AG's business are largely subject to the same factors as those influencing Deutsche Börse Group. However, the revenue of Deutsche Börse AG is largely determined by the Trading & Clearing segment, whereby this is mostly generated via Eurex Frankfurt AG (EFAG) and Eurex Clearing AG (ECAG) in the form of revenue transfers (operational management structure).

Additional factors affecting future earnings at Deutsche Börse AG are the investment income from affiliated companies and income from profit transfer agreements.

Deutsche Börse AG expects sales of more than €1.7 billion and EBITDA of more than €1.6 billion for 2024.

Further comments on Deutsche Börse AG can be found in the "Report on expected developments" section.

Takeover-related disclosures

Disclosures in accordance with sections 289a sentence 1 and 315a sentence 1 of the German Commercial Code (HGB) and explanatory notes

Deutsche Börse AG makes the following disclosure in accordance with sections 289a sentence 1 and 315a sentence 1 of the German Commercial Code (HGB) as at 31 December 2023:

The share capital of Deutsche Börse AG amounted to €190.0 million on the above-mentioned reporting date and was composed of 190 million no-par value registered shares. There are no other classes of shares besides these ordinary shares.

The share capital has been contingently increased by up to €17.8 million by issuing up to 17.8 million no-par value registered shares (contingent capital 2019). The contingent capital increase will only be implemented to the extent that holders of convertible bonds or of warrants attaching to bonds with warrants issued by the company or by a Group company in the period until 7 May 2024 on the basis of the authorisation granted to the Executive Board by resolution of the Annual General Meeting of 8 May 2019 on Item 8 (b) of the agenda exercise their conversion or option rights, that they meet their conversion or option obligations, or that shares are tendered, and no other means are used to settle such rights or obligations. More details can be found in Article 4 (7) of the Articles of Association of Deutsche Börse AG.

The Executive Board is only aware of those restrictions on voting rights that arise from Aktiengesetz (AktG, German Stock Corporation Act). Those shares affected by section 136 AktG are therefore excluded from voting rights. Furthermore, shares held by Deutsche Börse AG as treasury shares are exempted from the exercise of any rights according to section 71b AktG.

Under the Wertpapierhandelsgesetz (WpHG, German Securities Trading Act), any investor whose shareholding reaches, exceeds or falls below specified voting right thresholds as a result of purchase, sale or any other transaction is required to notify the company and Bundesanstalt für Finanzdienstleistungsaufsicht (BaFin, German Federal Financial Supervisory Authority). The lowest threshold for this disclosure requirement is 3 per cent. Deutsche Börse AG is not aware of any direct or indirect equity interests in its capital exceeding 10 per cent of the voting rights.

There are no shares with special provisions granting the holder control rights.

Employees holding shares in Deutsche Börse AG exercise their rights in the same way as other shareholders in accordance with the statutory provisions and the Articles of Association.

Members of the Executive Board are appointed and dismissed in accordance with sections 84 and 85 AktG and with Article 6 of the Articles of Association of Deutsche Börse AG. Amendments to the Articles of Association of Deutsche Börse AG are adopted by resolution of the Annual General Meeting in accordance with section 119 (1) No. 6 AktG. Under Article 12 (4) of the Articles of Association of Deutsche Börse AG, the Supervisory Board has the power to make changes to the Articles of Association that relate to the wording only. In accordance with Article 18 (1) of the Articles of Association of Deutsche Börse AG, resolutions of the Annual General Meeting are passed by a simple majority of the votes cast, unless otherwise required by the Aktiengesetz. Insofar as AktG additionally prescribes a majority of the share capital represented at the time of a resolution, a simple majority of the share capital represented is sufficient where this is legally permissible.

Subject to the approval of the Supervisory Board, the Executive Board is authorised to increase the share capital by up to a total of €19.0 million on one or more occasions in the period up to 18 May 2026 by issuing new no-par value registered shares in exchange for cash and/or non-cash contributions (authorised capital I). Shareholders must be granted pre-emptive rights. However, subject to approval by the Supervisory Board, the Executive Board may exclude shareholders' pre-emptive rights with respect to fractional amounts. However, according to the authorisation, the Executive Board may only exclude shareholders' pre-emptive rights if the total number of shares that are issued during the term of authorisation and that exclude shareholders' pre-emptive rights does not exceed 10 per cent of the share capital. Full authorisation, and particularly the conditions under which shareholders' pre-emptive rights can be excluded, is derived from Article 4 (3) of the Articles of Association of Deutsche Börse AG.

The Executive Board is also authorised to increase the share capital by up to a total of €19.0 million on one or more occasions in the period up to 18 May 2025, subject to the approval of the Supervisory Board, by issuing new no-par value registered shares against cash and/or non-cash contributions (authorised capital II). Shareholders must be granted pre-emptive rights, which the Executive Board can exclude in certain cases, subject to the approval of the Supervisory Board in each case. The Executive Board is authorised to exclude shareholders' pre-emptive rights: (1) in the case of cash capital increases, provided that the issue price of the new shares is not significantly lower than the quoted price, and the total number of shares issued under exclusion of shareholders' pre-emptive rights does not exceed 10 per cent of the share capital; (2) in the case of physical capital increases in exchange for non-cash contributions for the purpose of acquiring companies, parts of companies, interests in companies or other assets; or (3) with respect to fractional amounts. However, according to the authorisation, the Executive Board may only exclude shareholders' pre-emptive rights if the total number of shares that are issued during the term of authorisation and that exclude shareholders' pre-emptive rights does not exceed 10 per cent of the share capital. Full authorisation, and particularly the conditions under which shareholders' pre-emptive rights can be excluded, is derived from Article 4 (4) of the Articles of Association of Deutsche Börse AG.

In addition, the Executive Board is authorised to increase the share capital by up to a total of €19.0 million on one or more occasions in the period up to 18 May 2024, subject to the approval of the Supervisory Board, by issuing new no-par value registered shares in exchange for cash contributions (authorised capital III). Shareholders must be granted pre-emptive rights, which the Executive Board can exclude, subject to the approval of the Supervisory Board, only for fractional amounts. However, according to the authorisation, the Executive Board may only exclude shareholders' pre-emptive rights if the total number of shares that are issued during the term of authorisation and that exclude shareholders' pre-emptive rights does not exceed 10 per cent of the share capital. The exact content of this authorisation is derived from Article 4 (5) of the Articles of Association of Deutsche Börse AG.

Subject to the approval of the Supervisory Board, the Executive Board is also authorised to increase the share capital by up to a total of €19.0 million on one or more occasions in the period up to 17 May 2027 by issuing new no-par value registered shares in exchange for cash and/or non-cash contributions (authorised capital IV). Shareholders must be granted pre-emptive rights unless the Executive Board makes use of the authorisation granted to it to exclude such rights, subject to the approval of the Supervisory Board. The Executive Board is authorised to exclude shareholders' pre-emptive rights for fractional amounts with the approval of the Supervisory Board. According to the authorisation, the Executive Board may only exclude shareholders' pre-emptive rights if the total number of shares that are issued during the term of authorisation and that exclude shareholders' pre-emptive rights does not exceed 10 per cent of the share capital. The full authorisation is derived from Article 4 (6) of the Articles of Association of Deutsche Börse AG.

The Executive Board is authorised to purchase treasury shares up to 10 per cent of the share capital. However, the acquired shares, together with any treasury shares acquired for other reasons that are held by the company or attributed to it in accordance with sections 71a et seq. AktG, may at no time exceed 10 per cent of the company's share capital. The authorisation to acquire treasury shares is valid until 7 May 2024 and may be exercised by the company in full or in part on one or more occasions. However, it may also be exercised by dependent companies, by companies in which Deutsche Börse AG holds a majority interest or by third parties on its or their behalf. The Executive Board may elect to acquire the shares: (1) on the stock exchange; (2) via a public tender offer addressed to all shareholders or via a public request for offers of sale addressed to the company's shareholders; (3) by issuing tender rights to shareholders; or (4) using derivatives (put options, call options, forward purchases or a combination of put options, call options and forward purchases). The full and exact wording of the authorisation to acquire treasury shares, and particularly the permissible uses to which the shares may be put, can be found in items 6 and 7 of the agenda for the Annual General Meeting held on 8 May 2019.

The following material agreements of the company are subject to a change-of-control clause following a takeover bid:

- On 21 March 2023, Deutsche Börse AG and its subsidiary Clearstream Banking S.A. entered into a facility agreement with a banking syndicate for a working capital credit totalling up to €750.0 million. If there is a change of control, the credit relationship between Deutsche Börse AG and the lenders can be reviewed in negotiations within a period of no more than 60 days. In this process, each lender has the right, at its own discretion, to terminate its credit commitment and demand partial or full repayment of the amounts owing to it. A change of control occurs if Deutsche Börse AG no longer directly or indirectly holds the majority of Clearstream Banking S.A. or if a person or a group of persons acting in concert acquires more than 50 per cent of the voting shares of Deutsche Börse AG.
- Under the terms of Deutsche Börse AG's €600.0 million fixed-rate bond issue 2020/2047 (hybrid bond), and the terms of Deutsche Börse AG's €500.0 million fixed-rated bond issue 2022/2048, Deutsche Börse AG has a termination right in the event of a change of control (as defined in the terms of the bond), which, if exercised, entitles Deutsche Börse AG to redeem the bonds at par, plus accrued interest. If Deutsche Börse AG does not exercise this termination right, the affected bonds' coupon will increase by an additional 500 basis points per annum. A change of control occurs if a person or a group of persons acting in concert, or third parties acting on their behalf, has or have acquired more than 50 per cent of the shares of Deutsche Börse AG or the number of Deutsche Börse AG shares required to exercise more than 50 per cent of the voting rights at Annual General Meetings of Deutsche Börse AG. In addition, the relevant bond terms require that the change of control must adversely affect the long-term rating given to Deutsche Börse AG by Moody's Investors Services, Inc., S&P Global Ratings or Fitch Ratings Limited. Further details can be found in the applicable bond terms.
- According to the terms of Deutsche Börse AG's €500.0 million fixed-rate bond issue 2015/2025, the terms of Deutsche Börse AG's €600.0 million fixed-rate bond issue 2018/2028, the terms of Deutsche Börse AG's €500.0 million fixed-rate bond issue 2021/2026, the terms of Deutsche Börse AG's €500.0 million fixed-rate bond issue 2021/2031, the terms of Deutsche Börse AG's €600.0 million fixed-rate bond issue 2022/2032, the terms of Deutsche Börse AG's €1,000.0 million fixed-rate bond issue 2023/2026, the terms of Deutsche Börse AG's €750.0 million fixed-rate bond issue 2023/2029 and the terms of Deutsche Börse AG's €1,250.0 million fixed-rate bond issue 2023/2033, the holders of the respective bonds have a termination right in the event of a change of control (as defined in the terms of the bond). If these termination rights are exercised, the bonds are repayable at par plus any accrued interest. A change of control occurs if a person or a group of persons acting in concert, or third parties acting on their behalf, has or have acquired more than 50 per cent of the shares of Deutsche Börse AG or the number of Deutsche Börse AG shares required to exercise more than

50 per cent of the voting rights at Annual General Meetings of Deutsche Börse AG. In addition, the respective bond terms require that the change of control must adversely affect the rating given to one of the preferential unsecured debt instruments of Deutsche Börse AG by Moody's Investors Services, Inc., S&P Global Ratings or Fitch Ratings Limited. Further details can be found in the applicable bond terms.

Consolidated income statement

for the period 1 January to 31 December 2023

in €m	Note	2023	2022[1]
Sales revenue	4	5,133.2	4,692.3
Treasury result from banking and similar business	4	961.5	532.2
Other operating income	4	39.8	108.7
Total revenue		**6,134.5**	**5,333.2**
Volume-related costs	4	– 1,057.9	– 995.6
Net revenue (total revenue less volume-related costs)		**5,076.6**	**4,337.6**
Staff costs	5	– 1,422.5	– 1,212.7
Other operating expenses	6	– 695.8	– 609.5
Operating costs		**– 2,118.3**	**– 1,822.2**
Result from financial investments	8	– 14.0	10.2
Result of the equity method measurement of associates		1.8	6.8
Other result		– 15.8	3.4
Earnings before interest, tax, depreciation and amortisation (EBITDA)		**2,944.3**	**2,525.6**
Depreciation, amortisation and impairment losses	10, 11	– 418.4	– 355.6
Earnings before interest and tax (EBIT)		**2,525.8**	**2,170.0**

in €m	Note	2023	2022[1]
Earnings before interest and tax (EBIT)		2,525.8	2,170.0
Financial income	8	46.6	32.8
Financial expense	8	– 120.6	– 96.4
Earnings before tax (EBT)		**2,451.8**	**2,106.5**
Income tax expense	9	– 654.9	– 543.3
Net profit for the period		**1,796.8**	**1,563.2**
Net profit for the period attributable to Deutsche Börse AG shareholders		1,724.0	1,494.4
Net profit for the period attributable to non-controlling interests		72.8	68.8
Earnings per share (basic) (€)	22	**9.35**	**8.14**
Earnings per share (diluted) (€)	22	**9.34**	**8.12**

1) Previous year adjusted, see note 3.

Consolidated statement of comprehensive income

for the period 1 January to 31 December 2023

in €m	Note	2023	2022
Net profit for the period reported in consolidated income statement		**1,796.8**	**1,563.2**
Items that will not be reclassified to profit or loss:			
Changes from defined benefit obligations		– 28.7	132.3
Equity investments measured at fair value through OCI		25.5	– 37.5
Other		0	0.8
Deferred taxes	16	7.8	– 36.9
		4.6	**58.7**
Items that may be reclassified subsequently to profit or loss:			
Exchange rate differences	16	– 53.0	226.7
Other comprehensive income from investments using the equity method		– 0.1	– 0.3
Remeasurement of cash flow hedges		26.8	53.7
Deferred taxes	16	– 7.3	– 30.1
		– 33.5	**250.0**
Other comprehensive income after tax		**– 28.9**	**308.7**
Total comprehensive income		**1,767.9**	**1,871.9**
thereof Deutsche Börse AG shareholders		1,700.7	1,784.6
thereof non-controlling interests		67.3	87.3

Consolidated balance sheet

as at 31 December 2023

Assets

in €m	Note	31 Dec 2023	31 Dec 2022[1]
NON-CURRENT ASSETS		23,416.7	20,758.4
Intangible assets	10	12,478.6	8,610.0
Software		1,111.7	595.2
Goodwill		8,213.3	5,913.7
Payments on account and assets under development		118.3	158.5
Other intangible assets		3,035.3	1,942.6
Property, plant and equipment	11	605.6	631.2
Land and buildings		426.2	437.0
Fixtures and fittings		49.3	45.3
Computer hardware, operating and office equipment		116.3	132.7
Payments on account and construction in progress		13.8	16.2
Financial assets	12	9,870.4	11,322.8
Financial assets measured at FVOCI			
Strategic investments		222.7	182.8
Financial assets measured at amortised cost	12	1,801.9	1,894.7
Financial assets at FVPL			
Financial instruments held by central counterparties		7,667.6	9,078.4
Other financial assets at FVPL		178.2	166.8
Investment in associates		114.5	111.5
Other non-current assets	13	274.2	21.1
Deferred tax assets	9	73.3	61.8

Assets

in €m	Note	31 Dec 2023	31 Dec 2022[1]
CURRENT ASSETS		214,310.2	248,145.2
Financial assets measured at amortised cost	12		
Trade receivables		1,832.2	2,289.2
Other financial assets at amortised cost		18,046.2	18,670.8
Restricted bank balances		53,669.4	93,538.3
Other cash and bank balances		1,655.1	1,275.6
Financial assets at FVPL	12		
Financial instruments held by central counterparties		137,904.9	129,932.8
Other financial assets at FVPL		31.9	15.8
Income tax assets	9	105.2	79.3
Other current assets	13, 14	1,065.4	2,343.3
Total assets		237,726.9	268,903.5

1) Previous year adjusted, see note 3.

Equity and liabilities

in €m	Note	31 Dec 2023	31 Dec 2022[1]
EQUITY	15		
Subscribed capital		190.0	190.0
Share premium		1,501.6	1,370.8
Treasury shares		– 351.0	– 449.6
Revaluation surplus		428.9	416.6
Retained earnings		7,892.0	6,944.0
Shareholders' equity		**9,661.5**	**8,471.8**
Non-controlling interests		438.7	589.1
Total equity		**10,100.2**	**9,060.9**
NON-CURRENT LIABILITIES		**16,206.7**	**14,183.8**
Provisions for pensions and other employee benefits	17, 18	151.5	119.8
Other non-current provisions	18, 19	47.7	14.9
Financial liabilities measured at amortised cost	12	7,484.0	4,535.0
Financial liabilities at FVPL	12		
Financial instruments held by central counterparties		7,667.6	9,078.4
Other financial liabilities at FVPL		51.1	32.9
Other non-current liabilities	13	15.6	14.6
Deferred tax liabilities	9	789.2	388.2

Equity and liabilities

in €m	Note	31 Dec 2023	31 Dec 2022[1]
CURRENT LIABILITIES		**211,420.0**	**245,658.8**
Income tax liabilities		439.2	335.4
Current employee liabilities	17, 18	341.3	262.9
Other current provisions	19	123.8	164.3
Financial liabilities at amortised cost	12		
Trade payables		1,514.2	2,039.8
Other financial liabilities at amortised cost		17,177.6	17,482.8
Cash deposits by market participants		53,401.3	93,283.1
Financial liabilities at FVPL	12		
Financial instruments held by central counterparties		137,341.9	129,568.8
Other financial liabilities at FVPL		16.0	119.3
Other current liabilities	13, 20	1,064.8	2,402.3
Total liabilities		**227,626.7**	**259,842.6**
Total equity and liabilities		**237,726.9**	**268,903.5**

1) Previous year adjusted, see note 3.

Consolidated cash flow statement

for the period 1 January to 31 December 2023

in €m	Note	2023	2022
Net profit for the period		1,796.8	1,563.2
Depreciation, amortisation and impairment losses	10,11	418.4	355.6
Increase/(Decrease) in non-current provisions		7.8	– 9.9
Deferred tax expense/(income)	9	13.0	64.6
Cash flows from derivatives		24.5	67.1
Other non-cash expense/(income)		108.0	104.8
Changes in working capital, net of non-cash items:		113.7	54.0
Decrease/(Increase) in receivables and other assets		484.7	– 1,417.5
(Decrease)/Increase in current liabilities		– 452.8	1,472.9
Increase/(Decrease) in non-current liabilities		81.9	– 1.4
Net (gain)/loss on disposal of non-current assets		0.1	– 57.9
Cash flows from operating activities excluding CCP positions		**2,482.4**	**2,141.6**
Changes in liabilities from CCP positions		2,160.2	432.6
Changes in receivables from CCP positions		– 2,093.6	– 90.5
Cash flows from operating activities	**21**	**2,549.0**	**2,483.6**

in €m	Note	2023	2022
Payments to acquire intangible assets		– 218.4	– 215.6
Payments to acquire property, plant and equipment		– 49.5	– 109.6
Payments to acquire non-current financial instruments		– 318.1	– 850.9
Payments to acquire investments in associates		– 1.4	– 13.5
Payments to acquire subsidiaries, net of cash acquired		– 3,842.2	– 185.5
Effects of the disposal of (shares in) subsidiaries, net of cash disposed		0	27.1
Net decrease in current receivables and securities from banking business with an original term greater than three months		287.2	240.4
Net increase/(decrease) in current liabilities from banking business with an original term greater than three months		86.1	– 343.6
Proceeds from disposals of non-current financial instruments		59.1	44.6
Proceeds from disposals of intangible assets		0.1	0.1
Cash flows from investing activities	**21**	**– 3,997.2**	**– 1,406.5**

in €m	Note	2023	2022
Proceeds from sale of treasury shares		0	11.9
Proceeds from non-controlling interests		7.4	0
Payments (dividends) to non-controlling interests		– 19.9	– 37.8
Net effects from transactions with equity holders (without loss of control over the subsidiary)		120.7	0
Proceeds of long-term financing		2,968.8	1,079.3
Repayment of long-term financing		– 42.0	0
Repayment of short-term financing		– 126.5	– 2,397.0
Proceeds from short-term financing		129.9	1,056.0
Payments of lease liabilities in accordance with IFRS 16		– 83.6	– 75.9
Dividends paid	16	– 661.5	– 587.6
Cash flows from financing activities	21	**2,293.4**	**– 951.1**
Net change in cash and cash equivalents		**845.2**	**126.0**

in €m	Note	2023	2022[1]
Net change in cash and cash equivalents (brought forward)		845.2	126.0
Effect of exchange rate differences		– 1.7	– 37.8
Cash and cash equivalents at beginning of period		2,111.6	2,023.4
Cash and cash equivalents at end of period	21	**2,955.2**	**2,111.6**
Interest-similar income received		2,634.2	1,197.6
Dividends received		9.9	24.2
Interest paid		– 1,800.5	– 660.5
Income tax paid		– 576.5	– 365.4

1) Previous year adjusted, see note 3.

Consolidated statement of changes in equity

for the period 1 January to 31 December 2022

in €m	Attributable to owners of Deutsche Börse AG Subscribed capital	Share premium	Treasury shares	Revaluation surplus	Retained earnings	Shareholders' equity	Non-controlling interests	Total equity
Balance as at 31 December 2021	190.0	1,359.6	– 458.2	– 61.7	6,178.3	7,208.0	534.3	7,742.3
Retrospective adjustment[1]	–	–	–	281.9	– 281.9	–	–	–
Balance as at 1 January 2022	190.0	1,359.6	– 458.2	220.2	5,896.4	7,208.0	534.3	7,742.3
Net profit for the period	–	–	–	–	1,494.4	1,494.4	68.8	1,563.2
Other comprehensive income after tax	–	–	–	193.7	96.5	290.2	18.5	308.7
Total comprehensive income	–	–	–	193.7	1,590.9	1,784.6	87.3	1,871.9
Other adjustments	–	–	–	–	– 1.9	– 1.9	0.1	– 1.8
Sale of treasury shares	–	0.5	0.4	–	–	0.8	–	0.8
Sales under the Group Share Plan	–	10.7	8.2	–	–	19.0	–	19.0
Increase in share-based payments	–	–	–	2.7	–	2.7	–	2.7
Changes due to capital increases/decreases	–	–	–	–	48.3	48.3	28.2	76.5
Changes from business combinations	–	–	–	–	– 2.2	– 2.2	– 24.2	– 26.4
Dividends paid	–	–	–	–	– 587.6	– 587.6	– 36.6	– 624.2
Transactions with shareholders	–	11.2	8.6	2.7	– 543.3	– 520.8	– 32.5	– 553.3
Balance as at 31 December 2022	190.0	1,370.8	– 449.6	416.6	6,944.0	8,471.8	589.1	9,060.9

1) Previous year adjusted, see Note 3.

Consolidated statement of changes in equity

for the period 1 January to 31 December 2023

in €m	Subscribed capital	Share premium	Treasury shares	Revaluation surplus	Retained earnings	Shareholders' equity	Non-controlling interests	Total equity
	Attributable to owners of Deutsche Börse AG							
Balance as at 1 January 2023	190.0	1,370.8	– 449.6	416.6	6,944.0	8,471.8	589.1	9,060.9
Profit for the period	–	–	–	–	1,724.0	1,724.0	72.8	1,796.8
Other comprehensive income	–	–	–	– 1.7	– 21.6	– 23.3	– 5.6	– 28.9
Total comprehensive income	–	–	–	– 1.7	1,702.4	1,700.7	67.3	1,767.9
Other adjustments	–	–	–	– 0.3	1.2	0.9	0.2	1.1
Sales under the Group Share Plan	–	11.9	9.3	–	–	21.3	–	21.3
Increase in share-based payments	–	–	–	14.4	– 25.3	– 10.9	0.8	– 10.1
Transactions with non-controlling interests	–	118.8	89.2	–	– 68.8	139.2	– 198.8	– 59.6
Dividends paid	–	–	–	–	– 661.5	– 661.5	– 19.9	– 681.3
Transactions with shareholders	–	130.8	98.6	14.1	– 754.4	– 511.0	– 217.6	– 728.6
Balance as at 31 December 2023	190.0	1,501.6	– 351.0	428.9	7,892.0	9,661.5	438.7	10,100.2

Notes to the consolidated financial statements

Basis of preparation

01 General principles

Company information

Deutsche Börse AG is the parent company of Deutsche Börse Group. Deutsche Börse AG (the “company”) has its registered office in Frankfurt/Main, Germany, and is registered in the commercial register B of the Frankfurt/Main Local Court (Amtsgericht Frankfurt am Main) under HRB 32232. Deutsche Börse AG and its subsidiaries provide their clients with a broad range of products and services along the value chain of financial market transactions. Their offering ranges from portfolio management software, analytics solutions, the ESG business and index development, via services for trading, clearing and settling orders through to custody services for securities and funds, and liquidity and collateral management services. We also develop and operate the IT systems and platforms that support all these processes. In addition to securities, our platforms are also used to trade derivatives, commodities, foreign exchange and digital assets. Moreover, Deutsche Börse AG has a stock exchange licence and certain subsidiaries of Deutsche Börse AG have a banking licence and offer banking services to customers. Eurex Clearing AG is a central counterparty, a bank and its role is to mitigate performance risks for buyers and sellers. For further details on internal organisation and reporting see the section “Fundamental information about the Group” in the combined management report.

Basis of reporting

The 2023 consolidated financial statements have been prepared in compliance with the International Financial Reporting Standards (IFRS) issued by the International Accounting Standards Board (IASB) and the related interpretations issued by the International Financial Reporting Interpretations Committee (IFRIC), as adopted by the European Union in accordance with Regulation No. 1606/2002 of the European Parliament and of the Council on the application of international accounting standards.

The disclosures required in accordance with Handelsgesetzbuch (HGB, German Commercial Code) section 315e (1) have been presented in the notes to the consolidated financial statements.

The consolidated income statement is structured using the nature of expense method.

Deutsche Börse AG’s consolidated financial statements have been prepared in euros, the functional currency of Deutsche Börse AG. Unless stated otherwise, all amounts are shown in millions of euros (€m). Due to rounding, actual amounts may differ from unrounded or disclosed figures.

Information about capital management, which is also part of these consolidated financial statements, is included in the chapter Regulatory capital requirements and regulatory capital ratios in the Risk report section in the combined management report.

The consolidated financial statements have been prepared on a going concern basis.

All accounting policies, estimates, measurement uncertainties, and discretionary judgements referring to specific subject matter are described in the corresponding note. Such disclosures are focused on applicable accounting options under IFRS. Deutsche Börse Group does not present the underlying published IFRS guidelines, unless this is considered crucial to enhance transparency. The annual financial statements of subsidiaries included in the consolidated financial statements have been prepared on the basis of the Group-wide accounting policies based on IFRS that are described in the following. They were applied consistently to the periods shown.

Assets and liabilities and items in the consolidated statement of comprehensive income and any mandatory disclosures are listed separately if they are material. We define as material a proportion of around 10 per cent of the relevant total.

New accounting standards – implemented in the year under review

All the mandatory standards and applications endorsed by the European Commission were applied by us in the reporting year 2023. They were not applied earlier than required.

Standard/Amendment/Interpretation

		Application date	Effects
IAS 1	Amendments to IAS 1 and IFRS Practice Statement 2 on materiality	1 Jan 2023	See notes
IAS 8	Clarification on how to better distinguish changes in accounting policy from changes in accounting estimate	1 Jan 2023	none
IAS 12	Amendments with respect to deferred tax relating to assets and liabilities arising from a single transaction	1 Jan 2023	See notes
IAS 12	Amendments to the international tax reform – Pillar II model rules	1 Jan 2023	See notes
IFRS 17	Insurance contracts	1 Jan 2023	See notes
IFRS 17, IFRS 9	Initial application of IFRS 17 and IFRS 9 – Comparative information	1 Jan 2023	none

The amendment to IAS 1 and IFRS Guidance document 2 on materiality

The amendment to IAS 1 supplements guidelines for determining disclosures on accounting methods in an entity's financial statements and explains , how an entity can identify material accounting policies. These amendments have no material effect on the Group's financial performance or financial position.

The Amendments to Deferred Tax related to Assets and Liabilities arising from a Single Transaction

The amendment to IAS 12 (Income Taxes) relates to the recognition of deferred taxes in connection with transactions that give rise to equal amounts of taxable and deductible temporary differences on first-time recognition. The amendment makes it clear that the non-recognition of deferred taxes when an asset or liability is recognised for the first time outside a business combination does not apply to these transactions. These amendments, which typically apply to leases from the lessor perspective and to restoration obligations, do not have any material impact on the Group's financial performance or financial position.

IAS 12 Pillar II Model Rules

In October 2021, more than 135 countries agreed to introduce a global minimum tax rate for multinational groups with consolidated annual sales of at least €750 million as part of the OECD/G20 Inclusive Framework on Base Erosion and Profit Shifting (BEPS). The reform project known as Pillar II Model Rules pursues the goal of ensuring effective minimum taxation of profits of affected multinational corporations at 15 per cent per jurisdiction. The aim is to limit international tax competition and ensure fair and appropriate taxation.

The Pillar II Model Rules were published by the OECD in December 2021 and on 12 December 2022 the EU member states agreed on a directive for the effective minimum taxation of multinational corporations that has to be transposed into national law by 31 December 2023. The German parliament passed the Minimum Taxation Directive - Transposition Act on 10 December 2023 with effect for financial years starting on or after 01 January 2024; corresponding rules also apply in the great majority of jurisdictions outside the EU that are relevant for us.

Since our subsidiaries and permanent establishments are predominantly domiciled in jurisdictions whose nominal tax rate is above the minimum tax rate of 15 per cent, we do not expect any material tax impact for 2024, the first year of application.

The amendments to IAS 12 provide for a temporary exemption from the obligation to recognise deferred taxes in connection with the introduction of the global minimum tax rate.

IFRS 17 "Insurance Contracts"

The new accounting standard IFRS 17 (Insurance Contracts) was published in May 2017 and replaces the IFRS 4 standard. Generally speaking, the new standard is not only relevant to insurance companies, but to all entities that issue insurance contracts within the scope of the standard. It is not relevant for accounting by the insured party, however. IFRS 17 aims for the consistent, rules-based accounting treatment of insurance contracts and provides for insurance liabilities to be measured at their current settlement value. Furthermore, the objective is to form a uniform basis regarding the recognition, measurement and presentation of insurance contracts, including the notes. The standard is applicable in the EU for financial years beginning on or after 1 January 2023 The standard was endorsed by the EU on 23 November 2021. The revised version of IFRS 17 has no impact on the Group's financial performance or financial position.

New accounting standards – not yet implemented

The IASB issued the following new or amended standards and interpretations, which were not applied in the consolidated financial statements, because endorsement by the EU was still pending or the application was not mandatory. The new or amended standards and interpretations must be applied for financial years beginning on or after the respective effective date. Even though early application may be permitted for some standards, Deutsche Börse Group does not usually use any early application options.

Standard/Amendment/Interpretation

		Application date	Effects
IAS 1	Amendments in classification of liabilities as current or non-current and amendments in the classification of liabilities with covenants	1 Jan 2024	See notes
IAS 7 and IFRS 7	Amendment to supplier finance arrangements disclosure	1 Jan 2024	none
IAS 21	Amendments affecting guideline IAS 21: lack of exchangeability	1 Jan 2025	none
IFRS 16	Amendments in the accounting for lease liabilities in sale and leaseback transactions on seller/lessee	1 Jan 2024	See notes

The amendment to IAS 1 Amendments to the Classification of Liabilities as Current or Non-current and Amendments to the Classification of Liabilities with Covenants

The amendments relate to the classification of liabilities with covenants. The IASB clarified that covenants that have to be met before or on the reporting date may have an effect on classification as current or non-current. Covenants that only have to be met after the reporting date do not affect the classification, however. Rather than being considered as part of the classification, any such covenants should be disclosed in the notes. This is intended to enable users of financial statements to judge whether non-current liabilities could become due within twelve months. These amendments have no material effect on the Group's financial performance or financial position.

Amendments to IFRS 16 concerning accounting by the seller-lessee for liabilities under sale and leaseback transactions.

The amendments relate to the measurement of lease liabilities under sale and leaseback transactions and require a seller-lessee to subsequently measure lease liabilities arising from a leaseback in such a way that it does not recognise any amount of the gain or loss that relates to the right of use it retains. The new examples explain various different procedures, particularly for variable lease payments. The amendments are applicable to financial years beginning on or after 1 January 2024. The IASB permits the amendments to be applied earlier, subject to an EU endorsement. These amendments are not expected to have an impact on the Group's financial performance or financial position.

02 Consolidation principles

Intra-Group assets and liabilities are eliminated. Income arising from intra-Group transactions is netted against the corresponding expenses. Intercompany profits or losses arising from deliveries of intra-Group goods and services, as well as dividends distributed within the Group, are eliminated. Deferred taxes for consolidation adjustments are recognised where these are expected to reverse in subsequent years.

Interests in equity attributable to non-controlling shareholders are presented under “non-controlling interests” within equity. Where these are classified as “puttable instruments”, they are reported under “liabilities” at cost.

Currency translation

Transactions denominated in a currency other than a company's functional currency are translated into the functional currency at the spot exchange rate applicable at the transaction date. Monetary balance sheet items in foreign currencies are measured at the exchange rate on the reporting date. Non-monetary balance sheet items recognised at historical cost are measured at the exchange rate on the transaction date. By contrast, non-monetary balance sheet items measured at fair value are translated at the exchange rate prevailing at the valuation date. Exchange rate differences for monetary balance sheet items are recognised either as other operating income or expenses, or as the result of banking and similar business or as result from financial investments in the period in which they arise, unless the underlying transactions are hedged. In the case of equity instruments designated at FVOCI, the exchange rate differences are recognised in other comprehensive income.

Balance sheet items of entities whose functional currency is not the euro are translated into the reporting currency as follows: assets and liabilities are translated into euros at the spot rate and equity items at historical rates. The positions in the consolidated income statement are converted at average exchange rates for the reporting period. Resulting exchange differences are recognised directly in "revaluation surplus". Resulting exchange differences are recognised without effect on profit or loss in the revaluation reserve. When the relevant subsidiary is sold, these exchange rate differences are recognised in the net profit for the period in which the deconsolidation gain or loss is realised.

The following euro exchange rates of consequence to Deutsche Börse Group were applied:

Exchange rates

		Average rate 2023	Average rate 2022	Closing price as at 31 Dec 2023	Closing price as at 31 Dec 2022
Swiss francs	CHF (Fr.)	0.9736	1.0030	0.9306	0.9864
US dollars	USD (US$)	1.0810	1.0524	1.1065	1.0671
Czech koruna	CZK (Kč)	24.0165	24.5458	24.6996	24.1469
Singapore dollar	SGD (S$)	1.4506	1.4491	1.4594	1.4309
British pound	GBP (£)	0.8712	0.8547	0.8683	0.8850
Danish kroner	DKK (dKr.)	7.4493	7.4398	7.4542	7.4364

Any goodwill arising on the acquisition of a foreign operation and any fair value adjustments to the carrying amounts of assets and liabilities arising from initial consolidation are reported in the functional currency of the foreign operation and translated at the closing rate.

Net investments in a foreign operation

Translation differences from a monetary item that is part of a net investment of Deutsche Börse Group in a foreign operation are initially recognised in the revaluation reserve and are reclassified from equity to the consolidated income statement when the net investment is sold.

Subsidiaries and business combinations

Deutsche Börse AG and all subsidiaries directly or indirectly controlled by Deutsche Börse AG are included in the consolidated financial statements. Deutsche Börse AG controls a company if it is exposed to variable returns resulting from its involvement with the company in question or has rights to such returns and is able to influence them by using its power over the company.

Initial consolidation of subsidiaries in the course of business combinations uses the purchase method. The acquiree's identifiable assets, liabilities and contingent liabilities are recognised at their acquisition date fair values. Any excess of cost over the acquirer's interest in the fair value of the subsidiary's net identifiable assets is recognised as goodwill. Goodwill is reported in subsequent periods at cost less accumulated impairment losses. Non-controlling interests are measured at the acquisition date by the corresponding proportion of the identifiable net assets of the acquired entity.

Deutsche Börse AG's equity interests in subsidiaries and associates included in the consolidated financial statements as at 31 December 2023 are presented in the list of shareholdings in note 34.

Material acquisitions

Acquisition of SimCorp A/S, Copenhagen, Denmark (SimCorp)

On 22 September 2023 Deutsche Börse announced the final result of the public takeover offer for SimCorp A/S , Copenhagen, Denmark (SimCorp). Including the shares bought directly on the market, Deutsche Börse held more than 90 per cent of all SimCorp shares (not including treasury shares held by SimCorp).

After the successful completion of the public takeover on Friday, 29 September 2023, Deutsche Börse AG exercised its right to acquire all the SimCorp shares from the remaining minority shareholders (Squeeze-out). Since 31 October 2023 Deutsche Börse AG holds 100 per cent of the outstanding shares in SimCorp.

SimCorp and its subsidiaries have been fully consolidated in Deutsche Börse Group since 29 September 2023. The SimCorp business was allocated to the new Investment Management Solutions segment from the fourth quarter of 2023 onwards, where the activities of the previous Data & Analytics segment are also reported.

Initial consolidation of SimCorp in the consolidated financial statements took place using the purchase method. Significant revenue and cost synergies are expected from the transaction, which are reflected in the goodwill resulting from the transaction.

The identifiable assets and liabilities of SimCorp are recognised at fair value on the acquisition date. Any excess of cost over the acquirer's interest in the fair value of the subsidiary's net identifiable assets is recognised as goodwill. Goodwill is reported in subsequent periods at cost less accumulated impairment losses.

The purchase price allocation was based on a preliminary basis, as it was not yet possible to make a final determination, particularly with regards to taxes and intangible assets.

Goodwill resulting from the business combination with SimCorp A/S, Copenhagen, Denmark (SimCorp)

in €m	Preliminary goodwill calculation 29 Sep 2023
Consideration transferred	
Purchase price in cash	3,747.6
Financial liability[1]	139.7
Total consideration	**3,887.3**
Acquired assets and liabilities	
Customer relationships	848.7
Trade names	359.3
Software	423.1
Property, plant and equipment	37.1
Non-current contract assets	185.3
Other non-current assets	18.8
Deferred tax assets	4.0
Current contract assets	86.1
Other current assets	17.1
Trade receivables	79.0
Acquired bank balances	54.8
Deferred tax liabilities	– 390.2
Miscellaneous non-current liabilities	– 49.6
Contract liabilities	– 39.8
Miscellaneous current liabilities	– 82.0
Total assets and liabilities acquired	**1,551.7**
Goodwill (not tax-deductible)	**2,335.6**

1) At the acquisition date of 29 September 2023, there was still a financial liability for the planned squeeze-out, which was completed on the balance sheet date of 31 December 2023.

The full consolidation of SimCorp resulted in an increase in net revenues of €198.0 million as well as in an increase in profit after tax of €12.3 million. If the company had been consolidated as at 1 January 2023, this would have resulted in an increase in net revenues of €544.1 million as well as in an decrease of profit after tax of €– 69.3 million, including the financing costs.

03 Adjustments

As at 31 December 2023 Deutsche Börse Group made various changes in presentation and reclassifications in the consolidated statement of financial position and the consolidated statement of changes in equity. The published figures as at 31 December 2022 have been adjusted accordingly. These are purely changes in presentation, which had no effect on net income for the period or total comprehensive income.

Adjustments relating to the SAP S/4 HANA transformation

We adjusted the structure of the consolidated statement of financial position when the new Group account structure was drawn up in the course of our SAP S/4 HANA transformation, because it is more transparent and logical to present all benefits to employees in separate balance sheet items, in order to emphasise the importance of these obligations. We also brought the presentation within Group equity into line with the current market standard, in order to make the financial information more comparable. The presentation of certain liabilities from clearing transactions was also sharpened.

Equity

- The currency translation reserve previously reported as part of retained earnings will henceforth be reported as part of the revaluation surplus. This resulted in a reclassification to equity of €–145.5 million as at 1 January 2022 and of €–352.1 million as at 31 December 2022.

- The cumulative changes from the revaluation of defined benefit obligations are now reported as part of retained earnings and were previously part of the revaluation surplus. This resulted in a reclassification to equity of €–133.2 million as at 1 January 2022 and of €–36.3 million as at 31 December 2022.
- Shares granted as part of stock option programmes and settled in equity instruments were not presented uniformly within equity hitherto. Certain programmes were previously presented within retained earnings and will now be presented on a uniform basis in the revaluation surplus. This resulted in a retrospective reclassification of €–3.2 million as at 1 January 2022 and of €–5.5 million as at 31 December 2022.

Employee benefits

We have introduced a new non-current and current balance sheet item, "Employee benefits" (see note 17) to pool pension obligations, other non-current employee benefits and non-current termination benefits. A reclassification from the previous item "Provisions for pensions and other employee benefits" of €149.0 million was made retrospectively as at 01 January 2022 and of €23.9 million as at 31 December 2022. Obligations from early retirement benefits, share-based payments and variable remuneration were also reclassified from other non-current provisions. This resulted in a retrospective reclassification of €14.8 million as at 01 January 2022 and of €95.9 million as at 31 December 2022. €30.6 million as at 1 January 2022, and €38.0 million as at 31 December 2022 was also reclassified retrospectively from other current liabilities for holiday entitlements, flexitime and overtime credits to the new item "Current employee benefits". €186.9 million as at 1 January 2022 and €224.9 million as at 31 December 2022 was also reclassified retrospectively from other current provisions for share-based payment, bonus and severance payments.

Reclassification of clearing liabilities

Liabilities in connection with the processing of clearing transactions that were settled in cash were previously presented in other current liabilities. This difference was identified in the course of the SAP S/4 HANA migration and they were reclassified to "Other financial liabilities at amortised cost". This resulted in a reclassification of €74.2 million as at 1 January 2022 and of €15.1 million as at 31 December 2022. The consolidated statement of financial position as at 31 December 2022 was restated accordingly.

Reclassifications of financial assets and liabilities under sanctions

In prior years, current financial assets and the corresponding current liabilities to which the Group had no access because of international sanctions were presented in the consolidated statement of financial position. The accounting treatment for these items was revised on the basis of a legal analysis. This reduced the financial assets and financial liabilities in the consolidated statement of financial position by €188.0 million as at 1 January 2022 and by €203.8 million as at 31 December 2022.

Notes on the consolidated income statement

04 Net revenue

Recognition of income and expenses

Overall, Deutsche Börse Group's net revenue comprised the following items:

- Revenue,
- result of treasury activities in banking and similar business,
- other operating income, and
- volume-related costs.

Revenue recognition
This section comprises details on revenue from contracts with customers. They particularly include performance obligations and methods of revenue recognition. Revenue is measured on the basis of the consideration agreed in a customer contract. The Group recognises revenue when it transfers control over goods or services to the customer. For information on contract assets and liabilities, see note 13.

Sales revenue
We report our sales revenue on the basis of our segment structure. Revenue recognition for the segments' main product lines, as broken down and reported by us, are described as follows:

Investment Management Solutions

The Group generates revenue from calculating and marketing indices, which financial market participants use as underlyings for financial instruments or as a benchmark for the performance of investments-. The index offering ranges from blue-chip to benchmark to strategy to sustainability to smart-beta indices. The recognition of revenue for index licences is based on fixed payments, variable payments (usage-based volumes; mostly assets under management) or a combination of the two. The customer simultaneously receives and consumes the benefits provided by the entity's performance during the contract term. Revenue is revised when warranted by the circumstances. Increases and decreases in estimated revenue are reflected in the consolidated income statement in the period in which the circumstances that give rise to the revision become known by the management. For two fee components (minimum fee and usage-based fee), a contract liability is recognised and reduced each month based on the usage that has been recognised each month.

Software solutions offers its clients risk-analytics and portfolio-construction tools. Customers receive the right to use the intellectual property. The intellectual property licences are granted for software products, which are subsequently referred to as "SaaS Front Office" and "SaaS Middle Office"(Software as a Service). Revenue generated with SaaS Front Office fees is recognised at a specific point in time because all contractual obligations are fulfilled, and the customer obtains control of the asset as soon as the licence key is transferred to the customer. SaaS Middle Office fees are recognised over time, i.e. the contractual term. Fees are also charged for the maintenance and servicing (summarised as "Maintenance") of the software products, which are realised over the contract term. For this purpose, the transaction price for maintenance is calculated and allocated according to the “expected cost plus a margin” approach. Additional costs are capitalised for multi-year contracts when initiating a contract.

ESG’s product portfolio includes Corporate Solutions, ESG Analytics and Governance Solutions. Most of this revenue stems from fixed-term contracts and recurring services. Revenue is recognised on a pro rata basis over the term of the contracted services to customers. Fees are generally charged in advance, either before the licence starts or periodically over the term of the licence. Proxy voting services are provided at a specific point in time and revenue is recognised accordingly when the contractually agreed service is provided. Fees for exceeding the minimum volumes for proxy research and services in connection with the exercise of voting rights are also variable consideration. Since neither the volume that will be used nor the price of these services can be determined with reasonable certainty when the contract starts, the variable portion of the consideration can only be recognised when the transaction price can be determined. Consideration is generally due 30 days after the invoice date. Upon commencement of the contract, there is an expectation that the period between providing the service and receiving the consideration from the client will be no more than one year, so there is no significant financing component. For multi-year contracts, additional costs of obtaining a contract are capitalised.

SimCorp primarily generates revenues in three categories: revenue from customers that operate and service their SimCorp solution on their own servers (on-premise), revenues from SaaS solutions, and professional services. The on-premise revenues come from licence fees, software updates and support services. The SaaS revenues come from fees for SaaS licences and SaaS services, which comprise services and software updates, operating services, including Platform-as-a-Service/hosting fees, and BPaaS fees (business processes as a service). Generally speaking, licence fees may stem from subscriptions or open-ended licensing agreements. Subscriptions entitle the customer to use the software for a particular period, whereas open-ended software licences give the customer the right to use the software for as long as the contract for software updates and support is in effect. Revenue from licences is recognised as soon as all the contractual obligations have been satisfied, i.e. the licence has been transferred to the customer and the customer has gained control over the software. Revenue for software updates and support is recognised on a linear basis of the term of the contract. SaaS services, which include infrastructure services, operating services, digital portal services, investment accounting services, investment operational services, data management services and regulatory reporting platform services, are recognised over the term of the contract. Fees for professional services result primarily from implementation; revenues are recognised on the basis of work completed for time and service contracts. Fixed fee agreements are recognised on the basis of percentage of completion, unless the customer is obliged to take delivery. Additional costs are capitalised for multi-year contracts when initiating a contract.

Trading & Clearing

Financial derivatives

Revenue in the financial derivatives business is generated from fees that are charged for transactions with regard to the matching/registration, administration and regulation of order book and off-book transactions on Eurex Germany. Revenue is also generated with clearing and settlement services for over-the-counter (OTC) transactions. This mainly comes in the form of booking and management fees. Fees, as well as any reductions are specified in price lists and circulars. Rebates depend mainly on monthly volumes or the monthly fulfilment of liquidity provisioning obligations in certain products or product groups.

Revenue for transactions in listed derivatives is recognised as soon as contracts are matched/registered and there is no unfulfilled obligation towards the customer. In the case of OTC transactions, posting fees are recognised at novation on a monthly basis. These fees are recognised at a point in time. Fees for the administration of financial derivative positions are recognised over time as the service is provided until the transaction has been closed, terminated or has matured.

Commodities

Its product portfolio comprises contracts on power, natural gas and emission allowances, as well as freight rates and agricultural products. Revenue is generated primarily from fees that are charged for exchange trading and clearing of commodities products. Transaction fees are specified in the price list. Rebates are granted primarily in the form of monthly rebates for the provision of a certain volume or level of liquidity. These types of rebates are dependent upon the total monthly volume or the monthly fulfilment of certain liquidity provision obligations. Revenue for transactions is recognised as soon as contracts are matched/registered, i.e. there is no unfulfilled obligation towards the customer.

Cash equities

Contracts for trading and clearing of cash market products in securities are accounted for in the same way as described in the Financial derivatives section. As a general rule, securities intended for trading on the regulated market of Frankfurter Wertpapierbörse (FWB, the Frankfurt Stock Exchange) are subject to the admission and listing, or inclusion, resolved by FWB's Exchange Management. Deutsche Börse AG, as the operator of the public-sector exchange, charges fees for the admission, listing, inclusion and quotation of securities on the regulated market. Fees charged for the admission and inclusion of securities with definite maturities on the regulated market are realised using the projected useful lives of the underlying securities. Accordingly, the fees charged for the listing of securities on the regulated unofficial market are realised using the projected useful lives of the underlying securities. The method for measuring the percentage of completion of the performance obligation on the basis of projected useful lives is considered appropriate within the meaning of IFRS 15. Listing fees are levied for the activity of all bodies of FWB, which supervise the trading and the settlement of trades as well as ensure the proper functioning of all trading activities (permanent possibility to make use of exchange facilities). Listing fees are recurring fees, which are charged for a service that is delivered over time. Accordingly, revenue is realised on a pro-rata basis. Revenue from fees for listings on the regulated unofficial market is realised in a similar manner.

Foreign exchange

In the foreign exchange business, revenue is recognised for the entire trading process of foreign-exchange products and the commissions generated from this in the form of trading fees. Revenue is recognised when the contractually agreed service is provided to customers. The fees include discounts on a monthly basis. Such discounts are considered accordingly in the month in which the services are rendered and reduce the sales revenue of the respective period.

Fund Services

The Fund services segment provides services to standardise fund processing and to increase efficiency and safety in the investment fund sector. The services offered include order routing, settlement, asset management, custody services and distribution and placement of investments. Processing fees for fund custody and the management of distribution agreements are recognised over time. Transaction-related fees are recognised at the time the agreed service is provided. This occurs when instructions are received and the transactions are processed. The service has been fulfilled at this point in time. Revenue is recognised based on the price specified in the price list and reduced by the corresponding rebates.

Securities services

The Group generates revenues from infrastructure services and post-trading services, the settlement of securities transactions as well as the custody and administration of securities. The fees are calculated in accordance with the prices set in the price list as well as with any relevant discounts granted. Customers in the custody business receive the benefit from the service provided and consume it at the same time as the performance is fulfilled during the contract period. Fees collected for administrative services, such as corporate events for securities, are recognised when the agreed service is provided to clients. This occurs when instructions are received and the transactions are processed. The service has been fulfilled at this point in time. In accordance with the general terms and conditions, customers authorise direct debiting and consequently no financing component has been identified.

Result of treasury activities in banking and similar business

The treasury result of banking and similar business stems mainly from investing surplus liquidity and from the fair value measurement of foreign exchange transactions. It also includes income from exchange rate differences resulting from finance instruments in the banking business. As a result of interest rate policies, we also generate interest income from customer balances held with us (in a negative interest rate environment). Furthermore, this item comprises interest payments made on customer balances (positive interest rate environment) as well as cash investments (negative interest rate environment) and fees for providing customer credit lines. Interest income and interest expenses are calculated, allocated and realised when due, with the applicable effective interest rate on a daily basis. In addition, impairment losses from financial instruments as well as income from the reduction of liabilities relating to the banking business are recognised in this item.

Other operating income

Other operating income is income not directly attributable to our typical business model. Other operating income is usually realised when all opportunities and risks have been transferred. Other operating income comprises, for instance, income from subleasing property and income from agency agreements, as well as the reversal of impairments recognised on trade receivables. In addition, valuation effects, such as income from exchange rate differences from non-banking business, are reported under other operating income.

Volume-related costs

The item “volume-related costs” consists of expenses directly related to revenue and which depend directly on the following factors:

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- the number of certain trading and settlement transactions,
- the custody volume and volume of global securities financing,
- the amount of purchased data,
- the sales commissions to distribution parties for the distribution of capital investments,
- revenue sharing agreements and maker-taker price models.

Volume-related costs are not incurred if the corresponding revenue is no longer generated.

Composition of net revenue (part 1)

	Sales revenue		Treasury result from banking and similar business		Other operating income		Volume-related costs		Net revenue	
in €m	2023	2022	2023	2022	2023	2022	2023	2022	2023	2022
Investment Management Solutions										
ESG & Index	613.2	616.7	0	0	0.3	0.9	– 47.2	– 41.3	566.3	576.3
Index	230.7	235.1	0	0	0.3	0.9	– 25.4	– 20.4	205.6	215.6
ESG	254.4	250.2	0	0	0	0	– 12.3	– 11.6	242.1	238.6
Other ESG & Index	128.1	131.4	0	0	0	0	– 9.5	– 9.3	118.6	122.1
SimCorp Axioma[1]	330.3	93.4	0	0	0.8	0.6	– 34.2	– 18.6	296.9	75.4
On-premises	126.7	0	0	0	0	0	– 0.1	0	126.6	0
SaaS (incl. Analytics)	157.9	93.4	0	0	0.2	0.6	– 33.9	– 18.6	124.2	75.4
Other Software Solutions	45.7	0	0	0	0.6	0	– 0.2	0	46.1	0
	943.5	**710.1**	**0**	**0**	**1.1**	**1.5**	**– 81.4**	**– 59.9**	**863.2**	**651.7**
Trading & Clearing										
Financial derivatives	1,247.5	1,211.3	136.1	149.6	29.0	18.9	– 148.3	– 145.4	1,264.3	1,234.4
Equities	571.7	607.7	0	0	0.4	0.4	– 101.1	– 99.1	471.0	509.0
Interest rates	375.5	346.9	0	0	52.7	53.0	– 31.1	– 32.0	397.1	367.9
Margin fees	38.2	35.9	136.1	149.6	– 83.2[2]	– 67.8[2]	– 0.1	– 0.1	91.0	117.6
Other	262.1	220.8	0	0	59.1	33.3	– 16.0	– 14.2	305.2	239.9
Commodities	465.5	377.2	117.7	108.7	1.9	1.6	– 20.1	– 12.0	565.0	475.5
Power	250.0	187.7	0	0	0	0	– 8.5	– 4.4	241.5	183.3
Gas	103.9	91.0	0	0	0	0	– 2.2	– 1.8	101.7	89.2
Other	111.6	98.5	117.7	108.7	1.9	1.6	– 9.4	– 5.8	221.8	203.0
Cash equities	350.1	380.8	0.8	0.3	9.9	29.5	– 66.9	– 66.2	293.9	344.4
Trading	155.4	197.5	0.8	0.3	8.3	21.3	– 33.7	– 38.7	130.8	180.4
Other	194.7	183.3	0	0	1.6	8.2	– 33.2	– 27.5	163.1	164.0
Foreign exchange	144.9	138.7	0	0	0.9	0	– 6.2	– 5.9	139.6	132.8
	2,208.0	**2,108.0**	**254.6**	**258.6**	**41.7**	**50.0**	**– 241.5**	**– 229.5**	**2,262.8**	**2,187.1**

1) SimCorp was only included in the consolidated financial statements from 29 September 2023, which means that no comparison is possible.
2) Reallocation of margin fees to the business areas, which are originally included in interest rates and other.

Composition of net revenue (part 2)

	Sales revenue		Treasury result from banking and similar business		Other operating income		Volume-related costs		Net revenue	
in €m	2023	2022	2023	2022	2023	2022	2023	2022	2023	2022
Fund Services										
Fund processing	231.3	224.8	0	0	0	0	– 17.4	– 13.3	213.9	211.5
Fund distribution	580.8	565.0	0.2	0	0.2	7.0	– 495.9	– 482.3	85.3	89.7
Other	96.0	82.0	61.9	1.8	0.3	0	– 17.5	– 9.1	140.7	74.7
	908.1	871.8	62.1	1.8	0.5	7.0	– 530.8	– 504.7	439.9	375.9
Securities Services										
Custody	816.7	773.9	0.2	0	0.7	5.9	– 202.5	– 194.8	615.1	585.0
Settlement	179.6	174.5	0	0	0	0.1	– 65.2	– 69.8	114.4	104.8
Net interest income	0	0	645.4	260.0	0	0	0.1	0	645.5	260.0
Other	166.9	150.2	– 0.8	11.8	1.8	50.9	– 32.2	– 39.8	135.7	173.1
	1,163.2	1,098.6	644.8	271.8	2.5	56.9	– 299.8	– 304.4	1,510.7	1,122.9
Total	5,222.8	4,788.5	961.5	532.2	45.8	115.4	– 1,153.5	– 1,098.5	5,076.6	4,337.6
Consolidation of internal revenue	– 89.6	– 96.2	0	0	– 6.0	– 6.7	95.6	102.9	0	0
thereof Investment Management Solutions	– 70.2	– 78.5	0	0	0	0	1.9	0	– 68.3	– 78.5
thereof Trading & Clearing	– 6.4	– 5.7	0	0	– 6.0	– 6.7	90.6	100.2	78.2	87.8
thereof Fund Services	– 0.3	– 0.5	0	0	0	0	0.2	0	– 0.1	– 0.5
thereof Securities Services	– 12.7	– 11.5	0	0	0	0	2.9	2.7	– 9.8	– 8.8
Group	5,133.2	4,692.3	961.5	532.2	39.8	108.7	– 1,057.9	– 995.6	5,076.6	4,337.6

Revenue recognised in the financial year from performance obligations fulfilled or partially fulfilled in prior periods amounted to €14.0 million (2022: €17.7 million).

Composition of treasury result from banking and similar business

in €m	2023	2022
Interest income from positive interest environment		
Financial assets measured at amortised cost	2,625.4	613.8
Interest expenses from positive interest environment		
Financial liabilities measured at amortised cost	– 1,698.8	– 295.9
Interest income from negative interest environment		
Financial liabilities measured at amortised cost	4.2	449.4
Interest expenses from negative interest environment		
Financial assets measured at amortised cost	– 11.7	– 308.0
Net interest income	**919.1**	**459.3**
Other valuation result	42.4	72.9
Total	**961.5**	**532.2**

The significant increase in interest income and interest expenses from financial instruments measured at amortised cost is driven by the changes in the interest rate environment.

Other operating income

Other operating income of €39.8 million (2022: €108.7 million) results mainly from foreign exchange differences of €7.5 million (2022: €7.8 million), income from management services of €1.4 million (2022: €0.8 million), income from written-off receivables of €2.0 million (2022: €2.9 million) and rental income from subleases (income from operating leases) of €1.2 million (2022: €0.7 million).

05 Staff costs

Composition of staff costs

in €m	2023	2022
Wages and salaries	993.1	862.0
Share-based payments	60.1	48.5
Pension costs	55.1	57.8
Other staff costs	141.3	99.4
Social security contributions	172.8	145.0
Total	**1,422.5**	**1,212.7**

Wages and salaries include one-off costs for restructuring programmes and severance payments of €55.7 million (2022: €28.0 million).

06 Other operating expenses

Composition of other operating expenses

in €m	2023	2022
Costs for IT service providers and other consulting services	241.1	206.1
IT costs	196.9	166.3
Non-recoverable input tax	72.0	68.1
Premises expenses	47.9	41.1
Insurance premiums, contributions and fees	31.0	26.1
Advertising and marketing costs	28.3	26.5
Travel, entertainment and corporate hospitality expenses	29.8	18.4
Cost of exchange rate differences	7.2	11.0
Supervisory Board remuneration	5.0	5.1
Short-term leases	2.9	3.0
Miscellaneous	33.7	37.8
Total	**695.8**	**609.5**

The costs of IT service providers and other consulting services mainly relate to expenses in connection with software development. These costs also include expenses for strategic consultancy and legal advice, as well as for auditing.

Composition of fees paid to the auditor

	2023		2022	
in €m	PwC network	Thereof PwC GmbH	PwC network	Thereof PwC GmbH
Statutory audit services	9.1	5.1	9.2	6.0
Other assurance or valuation services	1.3	0.7	1.3	0.5
Tax advisory services	0	0	0	0
Other services	0.3	0.0	0.1	0.1
Total	**10.7**	**5.8**	**10.6**	**6.6**

The fee for auditing services“ from PricewaterhouseCoopers GmbH Wirtschaftsprüfungsgesellschaft (PwC) mainly related to the audit of consolidated and individual financial statements of Deutsche Börse AG, as well as to various audits of financial statements at subsidiaries. Audit-integrated reviews of interim financial statements were performed. Other assurance services mainly relate to business reviews of internal systems and controls required by law or contract, the voluntary review of the remuneration report and the issuance of comfort letters. The fee for other services mostly relates to project-related advisory services for non-regulated subsidiaries.

07 Result from financial investments

Result from financial investments comprises measurement effects, dividend payments, distributions, foreign currency translation effects and write-downs on financial investments. Gains and losses on financial investments at FVPL are recognised on a net basis in the period in which they arise. Distributions from funds and dividends are recognised in profit or loss when the Group's right to receive payments is established and to the extent that such dividends are not capital repayments.

Composition of result from financial investments

in €m	2023	2022
Result of the equity method measurement of associates	1.8	6.8
Result of financial investments measured at amortised cost	– 1.8	0
Result of financial investments measured at fair value through profit or loss	– 13.8	2.1
Result of derivatives	2.4	2.5
Result of hedge accounting	– 2.7	– 1.2
Total	**– 14.0**	**10.2**

For changes in financial investments see note 12.

08 Financial result

The financial result comprises interest income and expenses which are not attributable to the Group's banking business and are therefore not recognised in net revenue. Interest income and expense are recognised using the effective interest method over the respective financial instrument's term to maturity. Interest income is recognised when it is probable that the economic benefits associated with the transaction will flow to the entity and the income can be measured reliably. Interest expense is recognised in the period in which it is incurred. Measurement effects from interest rate derivatives, including interest rate hedges, are also shown in this item. The position also includes measurement effects from foreign exchange derivatives to the extent that they relate to treasury activities in the non-banking business.

Composition of financial income

in €m	2023	2022 [1]
Interest income from financial assets measured at amortised cost	25.6	8.6
Interest income from financial liabilities measured at amortised cost	0.9	2.9
Interest income from financial assets measured at fair value through other comprehensive income	0	0.1
Result from hedge accounting	0	3.8
Fair value gain from foreign currency derivatives	3.6	14.4
Interest income on tax refunds	5.3	2.5
Other interest income and similar income	11.2	0.5
Total	**46.6**	**32.8**

1) The reclassification of fair value gains recognised in other comprehensive income in connection with interest rate hedges was reported under financial income in the previous year. Such interest rate hedges are concluded to hedge the cash flow risk arising from potential interest rate changes. In order to reflect this economic purpose more accurately, the resulting amount was adjusted retrospectively as at 31 December 2022 by €–4.8 million. This led to a reduction of €–4.8 million in financial income in the consolidated income statement as at 31 December 2022 and a corresponding reduction in financial expenses.

Composition of financial expense

in €m	2023	2022[1]
Interest expense from financial liabilities measured at amortised cost[2]	79.5	48.9
Transaction cost of financial liabilities measured at amortised cost	7.1	1.4
Interest expense from financial assets measured at amortised cost	0.1	3.0
Interest expense from lease liabilities	8.1	6.7
Fair value loss from foreign currency derivatives	0	9.5
Interest expense on taxes	7.7	15.8
Expense of the unwinding of the discount on pension provisions	2.7	1.8
Other interest expense and non-interest expense	15.5	9.3
Total	**120.6**	**96.4**

1) Previous year adjusted, see note 3.
2) This includes €7.8 million (2022: €4.8 million) time value gains from interest rate swaps designated as hedging instruments to hedge cash flow risk from bond issues.

09 Income taxes

Deutsche Börse Group is subject to the tax laws of those countries in which it operates and generates income. If it is probable that the tax authorities will not accept the disclosed amounts or the legal assessments on which the Group's tax declarations are based (uncertain tax positions), tax liabilities are recognised based on the best possible estimate of expected cash outflows. Tax assets are recognised if it is considered almost certain that they will be realised. The recognition of uncertain tax positions is reassessed if there is a change in the underlying facts or their legal assessment (e.g. change in case law).

Deferred tax assets and liabilities are computed using the balance sheet liability approach. The deferred tax calculation is based on temporary differences between the carrying amounts of assets and liabilities in the IFRS financial statements and their tax base that will lead to a future tax liability or benefit when assets are used or sold or liabilities are settled. These differences are used to calculate deferred tax assets or liabilities. The deferred tax assets or liabilities are measured using the tax rates that are currently expected to apply when the temporary differences reverse, based on tax rates that have been enacted or substantively enacted by the reporting date. Deferred tax assets are recognised for the unused tax loss and interest carryforwards only to the extent that it is probable that future taxable profit will be available. Deferred tax assets and deferred tax liabilities are offset where a legally enforceable right to set off current tax assets against current tax liabilities exists, and the deferred tax assets and deferred tax liabilities relate to income taxes levied by the same taxation authority.

Composition of tax expense

in €m	2023	2022
Current income tax expense/(-income)	**645.4**	**478.6**
for the current year	638.9	513.2
for previous years	6.5	– 34.6
Deferred income tax expense/(-income)	**9.5**	**64.7**
due to temporary differences	9.5	– 7.4
due to tax loss and interest carryforwards	15.2	14.9
due to changes in tax legislation and/or tax rates	– 5.7	7.2
for previous years	– 9.5	50.0
Total income tax expense	**654.9**	**543.3**

Allocation of income tax expense to Germany and foreign jurisdictions

in €m	2023	2022
Current income tax expense/(-income)	**645.4**	**478.6**
Germany	312.6	276.3
Foreign jurisdictions	332.8	202.3
Deferred income tax expense/(-income)	**9.5**	**64.7**
Germany	19.7	62.3
Foreign jurisdictions	– 10.2	2.4
Total income tax expense	**654.9**	**543.3**

Tax rates of 27.4 to 31.9 per cent (2022: 27.4 to 31.9 per cent) were used in the reporting period to calculate income taxes for the German Group companies. These reflect trade income tax at rates of 11.6 to 16.1 per cent (2022: 11.6 to 16.1 per cent), corporation tax of 15 per cent (2022: 15 per cent) and the 5.5 per cent solidarity surcharge (2022: 5.5 per cent) on corporation tax.

Tax rates of 24.9 to 27.2 per cent (2022: 24.9 to 27.7 per cent) were used for the Group companies in Luxembourg. Tax rates of 11.8 to 31.4 per cent (2022: 9.1 to 34.6 per cent) were applied to the Group companies in the remaining countries; see Note 34.

Current income tax expense was reduced by €2.6 million in the reporting year by the utilisation of previously unrecognised tax loss carryforwards (2022: €2.6 million). Deferred tax assets of €1.0 million were created by previously unrecognised tax losses (2022: €1.7 million). Changes in loss allowances for deductible temporary differences also gave rise to deferred tax expenses of €0.2 million (2022: nil).

The following table shows the carrying amounts of deferred tax assets and liabilities as at the reporting date by line item or loss carryforwards:

Composition of deferred taxes

	Deferred tax assets		Deferred tax liabilities	
in €m	31 Dec 2023	31 Dec 2022	31 Dec2023	31 Dec 2022
Intangible assets	**81.8**	**53.1**	**– 828.4**	**– 484.8**
Internally developed software	15.1	4.9	– 75.4	– 43.2
Other	66.7	48.2	– 753.0	– 441.6
Financial assets	3.0	4.9	– 93.3	– 33.2
Other assets	72.8	69.5	– 17.1	– 19.0
Provisions for pensions and other employee benefits	44.9	39.0	– 19.3	– 16.7
Other provisions	28.9	17.3	– 6.2	– 2.9
Liabilities	46.6	26.5	– 68.1	– 32.5
Tax loss and interest carryforwards	38.5	52.4	0	0
Deferred taxes (before netting)	**316.5**	**262.7**	**– 1,032.4**	**– 589.1**
thereof recognised in profit and loss	290.3	241.9	– 980.5	– 542.2
thereof recognised in other comprehensive income[1]	26.2	20.8	– 51.9	– 46.9
Deferred taxes set off	– 243.2	– 200.9	243.2	200.9
Total	**73.3**	**61.8**	**– 789.2**	**– 388.2**

1) See note 15 for further information on deferred taxes recognised in other comprehensive income

Short-term elements of deferred taxes are recognised in non-current assets and liabilities in the consolidated balance sheet, in line with IAS 1 “Presentation of Financial Statements”.

At the end of the reporting period, accumulated unused tax losses amounted to €104.6 million (2022: €40.5 million), for which no deferred tax assets were recognised. These unused tax losses are attributable to domestic losses totalling €1.5 million and to foreign tax losses totalling €103.1 million (2022: Germany €0.2 million, foreign tax losses €40.3 million).

Tax losses may be carried forward for up to 7 years in Switzerland. Tax losses arising before 1 January 2018 may be carried forward in the USA for up to 20 years. Losses incurred after 31 December 2017 may be carried forward indefinitely, taking into account the minimum taxation rules. Losses generated as of 1 January 2017 will only be able to be carried forward in Luxembourg for a maximum period of 17 years. Losses that arose before 1 January 2017 are not affected by this limitation. Tax losses may be carried forward indefinitely in Singapore.

There were no unrecognised deferred tax liabilities on future dividends of subsidiaries and associates or on gains from the disposal of subsidiaries and associates in the reporting period (2022: none).

Reconciliation from expected to reported income tax expense

in €m	2023	2022
Earnings before tax (EBT)	2,451.8	2,106.5
Expected income tax expense	637.5	547.7
Effects of different tax rates	– 9.0	– 12.1
Effects of non-deductible expenses	23.8	21.4
Effects of tax-exempt income	– 2.7	– 23.9
Tax effects from loss carryforwards	– 2.5	– 3.8
Changes in valuation allowance for deferred tax assets	10.3	0
Effects from changes in tax rates	– 5.7	7.2
Other	6.2	– 8.6
Income tax expense arising from current year	**657.9**	**527.9**
Income taxes for previous years	– 3.0	15.4
Income tax expense	**654.9**	**543.3**

To determine the expected income tax expense, earnings before tax have been multiplied by the composite tax rate of 26 per cent assumed for 2023 (2022: 26 per cent).

As at 31 December 2023, the reported income tax rate was 26.7 per cent (2022: 25.8 per cent).

Notes on the consolidated statement of financial position

10 Intangible assets

Recognition and measurement

Capitalised development costs are amortised from the date of first use of the software using the straight-line method over the asset's expected useful life. The useful life of internally developed software releases is generally assumed to be seven years; a useful life of ten years is used as the basis in the case of newly developed systems.

Purchased software is generally amortised based on the projected useful life. The expected useful life is 3 to 7 years, depending on the individual purchase. The amortisation period for intangible assets with finite useful lives is reviewed at a minimum at the end of each financial year. If the expected useful life of an asset differs from previous estimates, the amortisation period is adjusted accordingly.

The other intangible assets were largely acquired within the context of business combinations and refer to exchange licences, trade names,customer relationships and order backlog. The acquisition costs correspond to the fair values as at the acquisition date. Depending on the relevant acquisition transaction, the expected useful life is 5 to 20 years for trade names with finite useful lives, 4 to 24 years for participants, customer relationships and order backlog, and 2 to 20 years for other miscellaneous intangible assets.

Stock exchange licences and certain trade names have an indefinite useful life. The intention is also to keep them as part of the general company strategy. Their useful lives are therefore assumed to be indefinite.

Intangible assets are derecognised on disposal or when no further economic benefits are expected to flow from them.

Impairment tests

At each reporting date, the Group assesses whether there are any indications that an intangible asset may be impaired. If this is the case, the carrying amount is compared with the recoverable amount (the higher of value in use and fair value less costs of disposal) to determine the amount of any potential impairment.

Value in use is estimated on the basis of the discounted estimated future cash flows from continuing use of the asset and from its ultimate disposal, before taxes. For this purpose, discount rates are estimated based on the prevailing pre-tax weighted average cost of capital. If no recoverable amount can be determined for an asset, the recoverable amount of the cash-generating unit (CGU) to which the asset can be allocated is determined.

Irrespective of any indications of impairment, intangible assets with indefinite useful lives and intangible assets not yet available for use must be tested for impairment at least once a year. Impairment tests on CGUs with allocated goodwill are carried out on 1 October every financial year. If the estimated recoverable amount of the asset or CGU is lower than the respective carrying amount, an impairment loss is recognised and the net carrying amount of the asset or CGU, respectively, is reduced to its estimated recoverable amount.

At the acquisition date, goodwill is allocated to the CGU, or groups of CGUs, that is/are expected to create synergies from the relevant acquisition. If changes arise in the structure of CGUs, for example through a new segmentation, goodwill is allocated taking into account the relative fair values of the newly defined CGUs. Irrespective of any indications of impairment, these items must be tested for impairment at least annually at the lowest level of impairment at which we monitor the respective goodwill. An impairment loss is recognised if the carrying amount of the CGU, or groups of CGUs, to which goodwill is allocated (including the carrying amount of that goodwill) is higher than the recoverable amount of this group of assets. The impairment loss is first allocated to the goodwill, then to the other assets in proportion to their carrying amounts.

The recoverable amount of the (groups of) CGUs was determined based on the fair value less costs to sell. The value in use was only determined if the fair value less costs to sell did not exceed the carrying amount. Given that no active market was available for the (groups of) CGUs, the determination of fair value less costs to sell was based on the discounted cash flow method (level 3 input factors). The detailed planning period generally covers a time period of five years; for (groups of) CGUs, which have been allocated an asset with an indefinite useful life, such time period ends in perpetuity. Individual costs of capital are determined for each (group of) CGU(s), for the purpose of discounting projected cash flows. These capital costs are based on data incorporating beta factors, borrowing costs, as well as the capital structure of the respective peer group. Pricing, trading volumes, assets under custody, market share assumptions or general business development assumptions are based on past experience or market research. Other key assumptions are mainly based on external factors and generally correspond to internal management planning. Significant macroeconomic indicators include, for instance, equity index levels, volatility of equity indices, as well as interest rates, exchange rates, GDP growth, unemployment levels and government debt. When calculating value in use, the projections are adjusted for the effects of future restructurings and performance investments, if appropriate.

At each reporting date, the Group assesses whether there are any indications that an impairment recognised for non-current assets in previous years (except goodwill) no longer applies. If this is the case, the carrying amount of the asset is increased and the difference is recognised in profit or loss. The maximum amount of this reversal is limited to the carrying amount that would have resulted if no impairment loss had been recognised in previous periods. Deutsche Börse Group does not reverse any goodwill impairments.

Intangible assets

in €m	Purchased software	Internally developed software	Goodwill	Payments on account and construction in progress	Other intangible assets	Total
Historical cost as at 1 Jan 2022	**416.4**	**1,392.0**	**5,596.0**	**115.6**	**2,184.7**	**9,704.7**
Acquisitions through business combinations	7.5	3.2	164.1	1.4	45.6	221.8
Adjustment of previous year goodwill	0	0	– 3.9	0	0	– 3.9
Disposals from change in scope of consolidation	– 0.3	0	0	0	0	– 0.3
Additions	18.3	106.1	0	95.0	0.1	219.5
Disposals	– 14.7	0	0	0	0	– 14.7
Reclassifications	1.7	32.0	0	– 33.7	0	0
Exchange rate differences	11.1	3.2	157.4	– 0.1	69.6	241.2
Historical cost as at 31 Dec 2022	**440.0**	**1,536.5**	**5,913.7**	**178.2**	**2,300.0**	**10,368.4**
Acquisitions through business combinations	430.2	0	2,345.3	0	1,212.4	3,987.8
Additions	14.9	49.6	0	151.9	2.0	218.4
Disposals	– 79.0	– 111.9	0	– 0.2	0	– 191.1
Reclassifications	43.5	148.1	0	– 191.7	0	– 0.1
Exchange rate differences	– 4.3	– 4.0	– 45.5	– 0.1	– 15.0	– 69.0
Historical cost as at 31 Dec 2023	845.2	1,618.3	8,213.3	138.1	3,499.4	14,314.4
Amortisation and impairment losses as at 1 Jan 2022	**231.5**	**1,023.7**	**0**	**15.5**	**271.1**	**1,541.8**
Amortisation	48.6	73.6	0	0	83.0	205.2
Impairment losses	0	16.2	0	4.2	0	20.4
Disposals from change in scope of consolidation	– 0.3	0	0	0	0	– 0.3
Disposals	– 14.6	0	0	0	0	– 14.6
Reclassifications	3.0	– 3.0	0	0	0	0
Exchange rate differences	1.5	1.1	0	0	3.3	5.9
Amortisation and impairment losses as at 31 Dec 2022	**269.7**	**1,111.6**	**0**	**19.7**	**357.4**	**1,758.3**
Amortisation	58.5	89.9	0	0	90.3	238.7
Impairment losses	7.6	8.7	0	0.2	17.0	33.5
Disposals	– 79.0	– 111.9	0	– 0.2	0	– 191.2
Reclassifications	10.0	– 10.5	0	0.4	0.1	0
Exchange rate differences	– 0.2	– 2.6	0	– 0.2	– 0.6	– 3.5
Amortisation and impairment losses as at 31 Dec 2023	266.5	1,085.3	0	19.8	464.2	1,835.9
Carrying amount as at 31 Dec 2022	170.3	424.9	5,913.7	158.5	1,942.6	8,610.0
Carrying amount as at 31 Dec 2023	578.7	533.0	8,213.3	118.3	3,035.3	12,478.6

Changes in other intangible assets by category

in €m	Exchange licences	Trade names	Member, customer relationships and order backlog	Miscellaneous intangible assets	Total
Balance as at 1 Jan 2022	**24.2**	**648.4**	**1,237.1**	**4.0**	**1,913.6**
Acquisitions through business combinations	0	15.2	30.4	0	45.6
Additions	0	0	0	0.1	0.1
Amortisation	0	– 2.1	– 79.4	– 1.5	– 83.0
Exchange rate differences	1.5	11.6	53.2	0	66.3
Balance as at 31 Dec 2022	**25.7**	**673.1**	**1,241.3**	**2.6**	**1,942.6**
Acquisitions through business combinations	0	359.6	852.8	0	1,212.4
Additions	0	0	0	2.0	2.0
Amortisation	– 0.1	– 2.0	– 87.2	– 0.9	– 90.2
Impairments	0	– 2.9	– 14.1	– 0.1	– 17.1
Exchange rate differences	– 0.6	– 7.2	– 6.9	0.2	– 14.4
Balance as at 31 Dec 2023	25.0	1,020.6	1,985.9	3.8	3,035.3

Material intangible assets with with finite useful lives

	Carrying amount as of		Remaining amortisation period as at	
	31 Dec 2023 €m	31 Dec 2022 €m	31 Dec 2023 years	31 Dec 2022 years
Customer Relationship SimCorp	829.8	n.a.	24.8	n.a.
Customer Relationship ISS	406.2	474.3	19.1	20.2
Customer Relationship Clearstream Funds Centre	234.8	234.0	16.8	17.8
Customer Relationship 360T	149.4	159.5	14.8	15.8

Software, payments on account and software in development

Research costs are recognised as expenses in the period in which they are incurred. Development costs for internally developed intangible assets are only capitalised when the definition and recognition criteria for intangible assets according to IAS 38 are met and development costs can be separated from research costs.

Development costs that have to be capitalised include direct labour costs, costs of purchased services and workplace costs, including proportionate overheads that can be directly attributed to the preparation of the respective asset for use, such as costs for the infrastructure of software development.

Development costs that do not meet the requirements for capitalisation are recognised through profit or loss. Interest expense that cannot be allocated directly to one of the development projects is recognised through profit or loss in the reporting period.

Total development costs in the reporting year 2023 came to €323.9 million (2022: €274.5 million), of which €201.5 million were capitalised (2022: €181.8 million).

Impairment testing in 2023 revealed an impairment loss of €33.5 million (2022: €20.4 million), which is shown in the line item "Depreciation, amortisation and impairment losses" and relates to the following assets:

- An extraordinary impairment test of Crypto Finance AG was performed as at 30 September 2023 because its performance was persistently under plan. This resulted in an impairment loss in the Trading & Clearing segment (recoverable amount: negative) of €24.6 million (customer relations €14.1 million, software €7.6 million and trade name €2.9 million).
- Impairment losses of €8.7 million were also recognised for internally developed software in the Securities Services segment and of €0.2 million in the Fund Services segment (recoverable amount: negative) in the fourth quarter of 2023. The reasons for the impairment were that existing functionalities were no longer used and that significant revenues can no longer be generated.

The change in the internal reporting structure related to the introduction of the new Investment Management Solutions segment (IMS) also caused (groups of) CGU to which goodwill had been allocated to be divided up. Deutsche Börse Group reallocated the corresponding carrying amounts based on the relative fair values. The goodwill, that was allocated to the former group of CGUs Qontigo was partially allocated to the group of CGUs ISS STOXX (80.7 per cent) as well as SimCorp Axioma (19.3 per cent) in the current financial year. The goodwill allocated to the CGU ISS was fully allocated to the group of CGUs ISS STOXX. The following tables show the new allocation of goodwill to the corresponding (group of) CGU and the changes over time:

Goodwill and other intangible assets from business combinations

Changes in goodwill classified by (groups of) CGUs

in €m	Eurex	EEX	360T	Xetra	Securities Services	Fund Services	Qontigo	ISS	SimCorp Axioma	ISS STOXX	Total
Balance as at 1 Jan 2022	1,378.6	120.2	244.6	61.9	1,125.9	584.7	691.2	1,388.9	0.0	0.0	5,596.0
Acquisitions through business combinations	0.0	7.0	0.0	0.0	0.0	157.1	0.0	0.0	0.0	0.0	**164.1**
Adjustment of previous year goodwill	0.0	0.0	0.0	2.2	0.0	0.0	0.0	– 6.1	0.0	0.0	**– 3.9**
Exchange rate differences	3.7	3.4	3.4	2.9	0.8	26.1	40.1	77.0	0.0	0.0	**157.4**
Balance as at 31 Dec 2022	1,382.3	130.6	248.0	67.0	1,126.7	767.9	731.3	1,459.8	0.0	0.0	5,913.6
Reallocation due to change in reporting structure	0.0	0.0	0.0	0.0	0.0	0.0	– 735.8	– 1,468.8	142.0	2,062.6	**0**
Acquisitions through business combinations	0.0	5.0	0.0	0.0	0.0	4.7	0.0	0.0	2,335.6	0.0	**2,345.3**
Exchange rate differences	– 2.4	– 2.2	– 2.1	3.5	– 0.5	32.7	4.5	9.0	– 4.9	– 83.1	**– 45.5**
Balance as at 31 Dec 2023	1,379.9	133.4	245.9	70.5	1,126.2	805.3	0	0	2,472.7	1,979.4	8,213.3

Key assumptions used for impairment tests in 2023

(Group of) CGU	Allocated book value €m	Risk-free interest rate %	Market risk premium %	Discount rate %	Long-term growth rate %	CAGR[1] Net revenue %	CAGR[1] Operating costs %
Goodwill							
SimCorp Axioma[2]	2,468.2	2.7/4.4	5.0/6.5	8.7/9.0	2.0	7.8	4.5
ISS Stoxx	2,062.5	2.7/4.4	5.0/6.5	9.4/9.7	2.0/2.3	6.5	5.1
Eurex	1.382,7	2.7	6.5	7.4	1.5	5.7	3.5
Securities Services	1,126.8	2.7	6.5	6.8	1.0	4.6	3.5
Fund Services	780.1	2.7	6.5	7.7	2.0	8.3	5.4
360T	248.4	2.7	6.5	6.9	1.5	5.9	3.9
EEX	135.7	2.7	6.5	7.7	1.5	5.0	4.8
Xetra	68.3	2.7	6.5	7.6	1.0	– 0.1	2.3
Trade names and exchange licenses							
STOXX	420.0	2.8	6.5	9.4	2.0	6.3	1.1
SimCorp	359.5	2.8	6.5	8.7	2.0	8.0	4.2
ISS	120.6	4.9	5.0	10.1	2.3	7.6	5.8
Axioma	65.2	4.9	5.0	9.3	2.0	8.2	0.9
Nodal	29.0	4.9	5.0	8.7	1.5	1.6	3.9
360T Core	19.9	2.8	6.5	6.8	1.5	5.8	4.3
Kneip	15.0	2.8	6.5	7.0	2.0	15.7	1.2
EEX Core	14.2	2.8	6.5	7.8	1.5	3.8	3.8
360TGTX	1.8	4.5	5.0	7.5	1.5	7.7	7.6

1) CAGR = compound annual growth rate in detailed planning period including the rate used to perpetuity
2) The group of CGUs includes CGUs with business activities in different currency areas (euro and USD). As a result, where applicable individual disclosures for the cost of capital parameters for the separate impairment tests included in the group of CGUs, are provided.

Even in case of a reasonably possible change of one of the parameters, under the condition that all the other parameters remain constant, none of the above-mentioned CGUs or groups of CGUs, with the exception of the SimCorp Axioma CGU, would be impaired.

In the annual impairment test the recoverable amount for the CGU SimCorp Axioma exceeded the carrying amount by €330.1 million. A decrease in the average annual growth rate of net revenue to 7.6 per cent or an increase in operating costs to 4.9 per cent or an increase in the discount rate by 0.4 per cent or a reduction in the growth rate in perpetuity by 0.9 percent would result in the recoverable amount being less than the carrying amount.

Key assumptions used for impairment tests in 2022

(Group of) CGUs	Allocated book value m €	Risk-free interest rate %	Market risk premium %	Discount rate %	Perpetuity growth rate %	CAGR[1] Net revenue %	CAGR[1] Operating costs %
Goodwill							
ISS	1,580.5	3.5	5.5	9.0	2.3	9.0	5.2
Eurex	1,338.0	1.5	7.3	6.8	1.5	7.1	3.6
Securities Services	1,128.0	1.5	7.3	6.5	1.0	6.6	3.5
Qontigo	791.7	1.5	7.3	8.6	2.0	9.0	8.4
Fund Services	791.6	1.5	7.3	7.5	2.0	8.6	7.5
360T	253.0	1.5	7.3	6.5	1.5	9.5	7.7
EEX	135.8	1.5	7.3	7.1	1.5	7.8	5.4
Xetra	68.8	1.5	7.3	6.8	1.0	3.1	4.8
Trade names and exchange licences							
STOXX	420.0	1.5	7.3	8.6	2.0	7.9	9.6
ISS Core	137.8	3.5	5.5	9.0	2.3	9.0	5.2
Axioma	73.3	3.5	5.5	8.9	2.0	11.4	6.8
Nodal	32.6	3.5	5.5	7.8	1.5	20.0	10.8
360T Core	19.9	1.5	7.3	6.5	1.5	9.5	8.0
EEX Core	14.9	1.5	7.3	7.1	1.5	6.4	4.7
Kneip	11.9	1.5	7.3	6.8	2.0	21.1	9.3
Crypto Finance/ Digital Assets	2.8	1.5	7.3	15.9	2.0	39.1	10.8
360TGTX	2.0	3.2	5.5	6.9	1.5	9.3	4.7

1) CAGR = compound annual growth rate in detailed planning period including the rate used to perpetuity

11 Property, plant and equipment

Measurement of purchased property, plant and equipment

Depreciable items of property, plant and equipment are carried at cost less cumulative depreciation. The straight-line depreciation method is used. The carrying amount is immediately written down to its recoverable amount if the carrying amount is higher than its recoverable amount. Costs of an item of property, plant and equipment comprise all costs directly attributable to the production process, as well as an appropriate proportion of production overheads. No borrowing costs were recognised in the reporting period or in the previous year as they could not be directly allocated to any particular development project. If it is probable that the future economic benefits associated with an item of property, plant and equipment will flow to the Group and the cost of the asset in question can be reliably determined, expenditure subsequent to acquisition is added to the carrying amount of the asset as incurred. The carrying amounts of any parts of an asset that have been replaced are derecognised. Repair and maintenance costs are expensed as incurred.

Useful life of property, plant and equipment

	Depreciation period
IT hardware	3 to 5 years
Operating and office equipment	5 to 19 years
Leasehold improvements	Based on lease term

Measurement of right-of-use assets

We lease a large number of different assets. These mainly include buildings and cars. Right-of-use assets are measured at cost. Any accumulated depreciation and impairment amounts are deducted from the cost of right-of-use assets as part of subsequent measurement. This does not apply to short-term leases with a term of not more than 12 months and leases for low-value assets. Expenses in the reporting year resulting from the above-mentioned short-term and low-value assets are reported in other operating expenses.

Useful life of property, plant and equipment

	Depreciation period
Right-of-use – land and buildings	Based on lease term
Right-of-use – IT hardware, operating and office equipment as well as carpool	Based on lease term

As a lessor in the case of an operating lease, we present the leased asset as an item of property, plant and equipment and measure the asset at amortised cost. The lease instalments received during the period are shown under other operating income.

Property, plant and equipment (incl. Right-of-use assets)

in €m	Land and buildings (right-of-use)	Fixtures and fittings	IT hardware, operating and office equipment as well as carpool			Advance payments made and construction in proress	Total
			Right-of-use	Purchased	Total		
Historical costs as at 1 Jan 2022	588.1	112.3	17.5	372.6	390.1	8.5	1,099.0
Acquisitions through business combinations	4.9	0	0.2	0.4	0.6	0	5.5
Disposals from change in scope of consolidation	0	0	0	– 0.4	– 0.4	0	– 0.4
Additions	52.2	5.3	5.5	88.7	94.2	10.2	161.9
Disposals	– 2.3	– 2.4	– 0.1	– 23.8	– 23.9	– 0.4	– 29.0
Reclassifications	9.1	– 5.4	0	– 2.1	– 2.1	– 1.6	0
Exchange rate differences	1.3	0.6	0.3	0.5	0.8	– 0.5	2.2
Historical costs as at 31 Dec 2022	653.3	110.4	23.4	435.9	459.3	16.2	1,239.2
Acquisitions through business combinations	32.0	1.7	0	3.3	3.3	0.3	37.3
Additions	32.5	7.6	4.7	34.0	38.7	4.0	82.8
Disposals	– 8.1	– 10.1	– 3.9	– 63.4	– 67.3	0	– 85.5
Reclassifications	– 4.4	10.0	0	0.9	0.9	– 6.6	0
Exchange rate differences	– 5.8	– 0.5	– 0.3	– 0.7	– 1.0	– 0.1	– 7.4
Historical costs as at 31 Dec 2023	699.5	119.1	23.9	410.0	433.9	13.8	1,266.3
Depreciation and impairment losses as at 1 Jan 2022	150.1	55.3	11.7	288.2	299.9	0	505.3
Amortisation	69.6	8.5	4.0	45.9	49.9	0	128.0
Impairment losses	0.7	0	0	0	0	0	0.7
Disposals from change in scope of consolidation	0	0	0	– 0.4	– 0.4	0	– 0.4
Disposals	– 1.0	– 0.9	– 0.1	– 23.3	– 23.4	0	– 25.3
Reclassifications	– 2.4	2.4	0	0	0	0	0
Exchange rate differences	– 0.7	– 0.2	0.3	0.2	0.5	0	– 0.4
Depreciation and impairment losses as at 31 Dec 2022	216.3	65.1	15.9	310.6	326.5	0	607.9
Amortisation	69.9	9.2	4.5	54.6	59.1	0	138.2
Impairment losses	0.2	0	0	0	0	0	0.2
Disposals	– 8.1	– 10.1	– 3.9	– 63.4	– 67.3	0	– 85.5
Reclassifications	– 5.5	5.6	0	– 0.2	– 0.2	0	– 0.1
Exchange rate differences	0.5	– 0.1	– 0.1	– 0.6	– 0.7	0	– 0.3
Depreciation and impairment losses as at 31 Dec 2023	273.3	69.7	16.4	301.0	317.4	0	660.4
Carrying amount as at 31 Dec 2022	437.0	45.3	7.5	125.3	132.7	16.2	631.3
Carrying amount as at 31 Dec 2023	426.2	49.4	7.5	109.0	116.4	13.8	605.8

The weighted average remaining term of leases is 10.4 years. For details regarding the corresponding lease liabilities, please see note 12.

12 Financial instruments

Financial assets

Additions and disposals

Financial assets are recognised when the Group or one of its companies becomes party to a financial instrument. Regular way purchases and sales of financial assets are generally recognised and derecognised at the trade date. Purchases and sales of debt instruments classified as "at amortised cost" and of equities eligible for clearing via the central counterparties (CCPs) of Deutsche Börse Group are recognised and derecognised at the settlement date. Financial assets are derecognised when the contractual rights to the cash flows expire or when the company transfers these rights in a transaction that transfers substantially all risks and rewards of ownership of the financial assets.

Clearstream Banking S.A. acts as a principal in securities borrowing and lending transactions in the context of the ASLplus securities lending system and is an intermediate between lender and borrower without becoming a contracting party from an economic perspective. Consequently, these transactions are not recognised in the consolidated balance sheet.

First-time measurement and classification

Financial assets are first recognised at fair value. For financial assets not at fair value through profit or loss the recognised amount also includes transaction costs that can be allocated directly to the acquisition of this asset. Transaction costs of financial assets at fair value through profit or loss are expensed.

Financial assets are classified at the acquisition date, from which subsequent measurement is derived. We assign financial assets to the following measurement categories:

- At fair value (either at "fair value through other comprehensive income" (FVOCI) or "fair value through profit or loss" (FVPL))
- At amortised cost (aAC)

Debt instruments are allocated on the basis of the business model for managing the financial assets and the contractual cash flow characteristics. Debt instruments are only reclassified if the business model for managing them is changed. We do not make use of the option to designate debt instruments at fair value through profit or loss upon initial recognition (fair value option).

The classification of investments in equity instruments not held for trading depends on whether the option of designating the corresponding financial assets as at fair value through other comprehensive income (FVOCI option) is used on initial recognition. Each individual equity instrument can be allocated separately and may not be changed in subsequent periods.

Subsequent measurement of debt instruments

We allocate each debt instrument to one of the following categories:

- **Amortised cost (aAC):** Assets allocated to the "hold" business model and whose cash flows consist solely of payments of principal and interest are measured at amortised cost. Interest income from these financial assets is measured using the effective interest method. Gains and losses from derecognition, impairment and exchange rate movements are recognised through profit or loss. Measurement effects are shown in banking business or non-banking business depending on how the financial assets are allocated. For financial assets from banking business all measurement effects are shown in the treasury result of banking and similar business. Interest income from the non-banking business is shown in the financial result. All other effects of non-banking business are presented in result from financial investments. All effects relating to the measurement of trade receivables are shown in other operating income and expenses.

- **Fair value through other comprehensive income (FVOCI)**: Investments in debt instruments allocated to the "hold and sell" business model and whose cash flows consist solely of payments of principal and interest are measured as at fair value through other comprehensive income. Impairments on these debt instruments are recognised as result from financial investments through profit or loss. On disposal of these debt instruments all the balances in the revaluation surplus are reclassified to result from financial investments through profit or loss. Interest income from fixed income debt securities in this category are shown in the financial result.

- **Fair value through profit or loss (FVPL)**: Financial assets that do not meet the criteria for measurement at amortised cost or at FVOCI, are measured at FVPL and their measurement effects are shown in result from financial investments. Distributions from fund interests are also shown in result from financial investments. Interest income from fixed income bonds in this category are shown in the financial result.

Subsequent measurement of equity instruments

As a rule, equity instruments are subsequently measured at fair value through profit or loss (FVPL). For certain equity instruments we used the irrevocable FVOCI option on acquisition, so that gains and losses there are recognised in other comprehensive income. When the item is derecognised the gains and losses are not recycled through profit or loss, but reclassified to retained earnings. Dividends from these financial assets are shown in result from financial investments.

Impairment

As a rule, any impairment for expected credit losses for debt instruments or balances on nostro accounts for which the simplified impairment model does not apply, and which are carried at amortised cost and at fair value through other comprehensive income is determined using the three-stage impairment model in IFRS 9. The losses represent a forward-looking measurement of future losses that are generally subject to estimates.

- **Stage 1**: The impairment upon initial recognition is measured on the basis of the expected losses in the event of default within the next twelve months after the reporting date.
- **Stage 2**: If a financial asset's credit risk has increased significantly, the expected credit loss is determined over the entire term. A significant increase in credit risk is determined individually using internal ratings. A significant increase in the credit risk is assumed if an asset is downgraded by three levels within the internal rating system.
- **Stage 3**: Credit-impaired financial assets are allocated to Stage 3 and the impairment is based on the full lifetime expected credit losses. This is the case if there are observable data of significant financial difficulties and there is a high risk of default, even if the definition of a default has not yet been met.

If the credit risk for debt instruments at amortised cost and at fair value through profit or loss or for balances on nostro accounts for which the simplified impairment model does not apply, is low in absolute terms as at the reporting date, they remain in Stage 1 even if the default risk has increased.

We have the following two triggers to identify a default event and which cause a transfer to Stage 3 of the model:

- Legal default event: A contracting party of the Group is unable to fulfil its contractual obligations due to its insolvency.
- Contractual default event: A contracting party of the Group is unable or unwilling to fulfil its contractual obligations in a timely manner. The non-fulfilment of the contractual obligation could result in a financial loss for us.

We measure the expected credit losses for trade receivables using a simplified approach, which requires lifetime expected losses to be recognised from initial recognition of a receivable. Due to the high recovery rate for trade receivables with a due date of less than 360 days, a default is assumed for amounts which are overdue for more than 360 days.

A detailed list of expected credit losses is shown in note 24.

Financial liabilities

Additions and disposals

Financial liabilities are recognised when a Group company becomes a party to the financial instrument. Purchases and sales of equities via the central counterparty Eurex Clearing AG are recognised at the settlement date analogous to financial assets. Financial liabilities are derecognised when the contractual obligation has been extinguished because it has been discharged or cancelled or has expired.

Financial liabilities measured at amortised cost

Financial liabilities not held for trading are accounted for at amortised cost. The borrowing costs associated with the placement of financial liabilities are included in the carrying amount and accounted for using the effective interest method if they are directly attributable. Discounts are amortised over the term of the liabilities using the effective interest method. Liabilities for the acquisition of non-controlling shares settled in cash or another financial asset are recognised at the present value of the future purchase price. The effect of the present value of accrued interest on the financial obligation and all measurement changes in the obligation is subsequently measured through profit or loss. The equity interest attributable to non-controlling shareholders underlying the transaction is accounted for as if it had already been acquired at the time of the transaction.

Financial liabilities measured at fair value through profit or loss

Contingent purchase payments recognised by the purchaser of a business combination in accordance with IFRS 3 are not measured at amortised cost. The resulting financial liabilities are recognised at fair value. With a contingent purchase price component the purchaser is obliged to transfer additional assets or shares to the seller if certain conditions are met. Subsequent measurement is at fair value through profit or loss.

We do not make use of the option to designate financial liabilities at fair value through profit or loss upon initial recognition (fair value option).

Our exposure to various risks associated with the financial instruments is discussed in note 24. The maximum exposure to credit risk at the end of the reporting period is the carrying amount of each class of financial assets mentioned above.

Presentation and netting of financial assets and liabilities

Financial assets and liabilities in the statement of financial position are divided into non-current and current. They are presented as non-current if the remaining term is more than twelve months as at the reporting date. They are presented as current assets if the remaining term is less than twelve months.

Financial assets and liabilities are offset and only the net amount is presented in the consolidated balance sheet when a Group company currently has a legally enforceable right to set off the recognised amounts and intends either to settle on a net basis or to realise the asset and settle the liability simultaneously.

Derivative financial instruments and hedge accounting

The derivative financial instruments we use include interest rate swaps, foreign exchange swaps, foreign exchange forwards and foreign exchange options.

Derivatives are initially recognised at fair value on the date a derivative contract is taken out. The Group applies the provisions of IFRS 9 to account for hedges that meet the criteria for hedge accounting. When a hedging transaction takes place the economic relationship between the hedging instrument and the hedged item is documented in accordance with the requirements of IFRS 9.

All other derivative transactions serve mainly to hedge foreign exchange risks in economic hedging relationships. They are classified as “held for trading” for accounting purposes and are remeasured at the end of each reporting period at fair value through profit or loss. Depending on the type of transaction, gains and losses from the subsequent measurement are either recognised in the result of treasury activities in banking business and similar business, in result from financial investments or in the financial result.

Cash flow hedges that qualify for hedge accounting

As in the previous year, in the reporting year we used cash flow hedge accounting for hedges of foreign exchange risk on highly likely transactions and to hedge translation effects for monetary items within the Group. The cash flow hedge used the previous year to hedge the interest rate risk of a planned security issue was terminated when the bond issue was completed.

The effectiveness of the hedging relationship is assessed at the beginning and over the entire duration of the hedging relationship to ensure that there is an economic relationship between the hedging instrument and the hedged item. This entails establishing hedging transactions in which all the relevant contractual parameters of the hedging instrument exactly match those of the hedged item. Hedging of planned transactions may be ineffective if the timing of the planned transaction differs from the original estimate. Ineffectiveness due to changes in our default risk or that of the counterparty to the hedging transaction is deemed to be negligible. Effectiveness is measured regularly as at the reporting dates. The Group uses the hypothetical derivative method for this purpose.

The effective portion of changes in the fair value of derivatives designated as cash flow hedges is shown in the reserve for cash flow hedges as part of other comprehensive income; it is limited to the cumulative absolute change in the fair value of the hedged item value since the hedging transaction. Gains or losses on the ineffective portion are recognised directly through profit or loss either in the treasury result of banking and similar business or in result from financial investments. The ineffective portion of interest rate hedges is recognised either in the treasury result of banking and similar business or in the financial result. If forward contracts are used to hedge planned transactions we designate the entire change in the fair value of the forward, including the forward component, as a hedging instrument. In this case the gains or losses from the effective portion of the change in fair value for the entire future transaction are recognised in the reserve for cash flow hedges as a component of equity. If the Group uses futures to hedge existing receivables and liabilities, only the spot component of the future is designated. Gains or losses from the effective portion of the change in the spot component of the future are shown in the reserve for cash flow hedges.

Changes in the forward component of the hedging instrument that relates to the hedged item are considered to be hedging costs and shown separately in the reserve for hedging costs in other comprehensive income. The fair value of the forward component not included in the hedging relationship at the time it is designated is written off pro rata temporis over the period of the hedging relationship. The amount written down is recycled from the reserve for hedging costs to profit or loss.

Cumulative amounts in the reserve for cash flow hedges are reclassified according to the following methodology:

- If the cash flow hedges serve to hedge a planned transaction, the amount from the hedging instrument that has accumulated in other comprehensive income up to the acquisition date is derecognised from the reserve and treated as part of the acquisition costs.
- For cash flow hedges of existing receivables and liabilities, the amount that has accumulated in the reserve for cash flow hedges is reclassified to profit or loss in the periods in which there are changes in the hedged future cash flows recognised through profit or loss.
- If this amount is a loss, however, and the assumption is that all or part of this loss cannot be recouped in future periods, then this amount is recognised immediately through profit or loss.

- Reclassified amounts for foreign exchange hedges are either recognised in the result of treasury activities in banking business and similar business or in result from financial investments. For interest rate hedges recognition is either in the treasury result of banking and similar business or in the financial result.

When a hedging instrument expires or is sold or terminated, or when a hedge no longer meets the criteria for hedge accounting, hedge accounting is discontinued. However, the hedging relationship continues if it was designated as a rolling hedge from the outset. To the extent that the expected transaction is still considered to be highly probable, the expiring positions are replaced by new hedging instruments. When the forecast transaction is no longer expected to occur, the cumulative gain or loss and deferred costs of hedging that were reported in equity are immediately reclassified to profit or loss.

Financial assets measured at fair value through other comprehensive income

This item comprises strategic investments which we have irrevocably elected to recognise at fair value through other comprehensive income in this category at initial recognition. The carrying amount as at 31 December 2023 was €222.7 million (2022: €182.8 million).

None of these financial assets was pledged as collateral. There was an increase of €9.3 million in strategic equity investments in 2023 due to new investments.

Amounts recognised in other comprehensive income

in €m	2023	2022
Gains/(losses) recognised in other comprehensive income		
Strategic investments	25.5	– 37.1
Debt instruments	0	– 0.3
Total	**25.5**	**– 37.4**

Financial assets and liabilities measured at amortised cost

Composition of financial assets at amortised cost

	31 Dec 2023			31 Dec 2022[1]		
in €m	Non-current	Current	Total	Non-current	Current	Total
Trade Receivables	**0**	**1,832.2**	**1,832.2**	**0**	**2,289.2**	**2,289.2**
of which expected losses	0	– 8.3	– 8.3	0	– 6.3	– 6.3
Other financial assets measured at amortised costs	**1,801.9**	**18,046.2**	**19,848.0**	**1,894.7**	**18,670.8**	**20,565.5**
Fixed income securities	1,756.0	219.2	1,975.2	1,782.1	522.9	2,305.0
Balances on nostro accounts	0	436.4	436.4	0	613.4	613.4
Money market lendings	0	16,407.1	16,407.1	0	16,272.6	16,272.6
Customer overdrafts from settlement business	0	390.5	390.5	0	130.1	130.1
Receivables from CCP balances	0	341.5	341.5	0	1,076.6	1,076.6
Other	45.8	251.5	297.3	112.7	55.2	167.9
of which expected losses	– 0.4	– 2.3	– 2.7	– 0.4	– 1.5	– 1.9
Restricted bank balances	**0**	**53,669.4**	**53,669.4**	**0**	**93,538.3**	**93,538.3**
Cash and other bank balances	**0**	**1,655.1**	**1,655.1**	**0**	**1,275.6**	**1,275.6**
Total	**1,801.9**	**75,202.8**	**77,004.7**	**1,894.7**	**115,773.9**	**117,668.6**

1) Previous year adjusted, see note 3.

Debt securities amounting to €600.1 million expired in 2023 (2022: €471.8 million). The amount of long-term listed debt securities includes collateral with a nominal volume of €2.0 million (2022: €5.0 million).

Amounts reported separately under liabilities as cash deposits by market participants are restricted. Such amounts are mainly invested via bilateral or triparty reverse repurchase agreements and in the form of overnight deposits at central banks and other banks and shown as restricted bank balances. Government and government-guaranteed bonds with an external credit rating of at least AA– are accepted as collateral for the reverse repurchase agreements.

Composition of financial liabilities at amortised cost

	31 Dec 2023			31 Dec 2022[1]		
in €m	Non-current	Current	Total	Non-current	Current	Total
Trade payables	0	1,514.2	1,514.2	0	2,039.8	2,039.8
Other liabilities at amortised costs	7,484.0	17,177.6	24,661.6	4,535.0	17,482.8	22,017.9
Bonds issued	7,096.2	0	7,096.2	4,123.4	0	4,123.4
Commercial Papers issued	0	1,138.3	1,138.3	0	564.5	564.5
Money market borrowings	0	14.7	14.7	0	134.8	134.8
Deposits from securities settlement business	0	15,125.4	15,125.4	0	15,506.3	15,506.3
Liabilities from CCP balances	0	335.8	335.8	0	1,021.5	1,021.5
Lease liabilities	384.3	85.0	469.3	410.7	70.8	481.5
Bank overdrafts	0	5.5	5.5	0	53.2	53.2
Other	3.5	472.9	476.3	0.9	131.7	132.6
Cash deposits from market participants	**0**	**53,401.3**	**53,401.3**	**0**	**93,283.1**	**93,283.1**
Total	**7,484.0**	**72,093.0**	**79,577.0**	**4,535.0**	**112,805.8**	**117,340.8**

1) Previous year adjusted, see note 3.

Deutsche Börse AG issued three corporate bonds to finance the acquisition of SimCorp in 2023, which are shown in the following table:

Issued Bonds

ISIN	Due date	Annual coupon	Notional volumes
		%	€m
DE000A351ZR8A	September 2026	3.88	1,000
DE000A351ZS6A	September 2029	3.75	750
DE000A351ZT4A	September 2033	3.88	1,250

The financial liabilities recognised on the balance sheet were not secured by liens or similar rights as at 31 December 2023 or as at 31 December 2022.

Financial assets and liabilities measured at fair value through profit or loss

Financial instruments of the central counterparties

Eurex Clearing AG, European Commodity Clearing AG and Nodal Clear, LLC all act as central counterparties:

- Eurex Clearing AG guarantees the settlement of all transactions involving futures and options on Eurex Germany. It also guarantees the settlement of all transactions for Eurex Repo (repo trading platform) and certain exchange transactions in equities on Frankfurter Wertpapierbörse (FWB, the Frankfurt Stock Exchange). Eurex Clearing AG also guarantees the settlement of off-order-book trades entered for clearing in the trading systems of the Eurex exchanges, Eurex Bonds, Eurex Repo and the Frankfurt Stock Exchange. In addition, Eurex Clearing AG clears over-the-counter (OTC) interest rate derivatives and securities lending transactions, where these meet the specified novation criteria.
- European Commodity Clearing AG guarantees the settlement of spot and derivatives transactions at the trading venues of EEX group and the connected partner exchanges.
- Nodal Clear, LLC, as part of the Nodal Exchange Group, is a Derivatives Clearing Organisation (DCO) registered in the United States and is the central counterparty for all transactions executed on Nodal Exchange.

The transactions of the clearing houses are only executed between the respective clearing house and a clearing member. Purchases and sales of equities and bonds via the Eurex Clearing AG central counterparty are recognised and simultaneously derecognised at the settlement date. For products that are marked to market (futures, options on futures, as well as OTC interest-rate derivatives), the clearing houses recognise gains and losses on open positions of clearing members on each exchange day. By means of the variation margin, profits and losses on open positions resulting from market price fluctuations are settled on a daily basis. The difference between this and other margin types is that the variation margin does not comprise collateral, but is a daily offsetting of profits and losses in cash. Therefore, futures and OTC interest rate derivatives are not reported in the consolidated balance sheet. “Traditional” options, for which the buyer must pay the option premium in full upon purchase, are carried in the consolidated balance sheet at fair value. Receivables and liabilities from repo transactions and from cash-collateralised securities lending transactions are classified as held for trading and carried at fair value.

The fair values recognised in the consolidated balance sheet are based on daily settlement prices, which the clearing houses determine and publish according to the rules defined in the contract specifications.

Composition of financial instruments held by central counterparties

in €m	31 Dec 2023	31 Dec 2022
Repo transactions	118,074.6	109,687.8
Options	27,498.0	29,323.4
Total	**145,572.5**	**139,011.2**
thereof non-current	7,667.6	9,078.4
thereof current	137,904.9	129,932.8

Receivables and liabilities that may be offset against a clearing member are reported on a net basis. Financial liabilities of €563.0 million were eliminated because of intra-Group GC Pooling transactions (31 December 2022: €364.0 million).

Other financial assets and liabilities at FVPL

Other financial assets and liabilities measured at fair value through profit or loss

	Carrying amount 31.12.2023			Carrying amount 31.12.2022		
in €m	Non-current	Current	Total	Non-current	Current	Total
Derivatives	**0.2**	**17.6**	**17.8**	**0.9**	**14.8**	**15.7**
Derivatives designated as cash flow hedges	0	5.3	5.3	0	5.4	5.4
Derivatives not designated as hedges	0.2	12.3	12.5	0	9.3	9.3
Miscellaneous financial assets	**178.0**	**14.3**	**192.3**	**165.9**	**1.0**	**167.0**
Strategic investments	102.3	1.1	103.4	94.3	0	94.3
Fund units and other financial instruments	75.8	13.2	88.9	71.7	1.0	72.7
Total other financial assets	**178.2**	**31.9**	**210.1**	**166.8**	**15.8**	**182.6**
Derivatives	**50.8**	**15.9**	**66.6**	**26.8**	**119.0**	**145.8**
Derivatives designated as cash flow hedges	0	9.9	9.9	26.8	0	26.8
Derivatives not designated as hedges	50.8	6.0	56.7	0	119.0	119.0
Miscellaneous financial liabilities	**0.3**	**0.1**	**0.4**	**6.1**	**0.3**	**6.4**
Contingent consideration	0.3	0.1	0.4	6.1	0.3	6.4
Total other financial liabilities	**51.1**	**16.0**	**67.0**	**32.9**	**119.3**	**152.2**

The fund interests include collateral of €8.0 million (31 December 2022: €8.0 million). As of 31 December 2023 there were foreign currency derivatives not designated as part of a hedging relationship with a term of less than two months with a nominal volume of €4,006.7 million (31 December 2022 : €5,552.3 million with a term of less than six months). Of the total, €2,596.0 million (31 December 2022: €1,554.6 million) relate to foreign exchange derivatives with a positive fair value and €1,410.7 million (31 December 2022: €3,997.7 million) to derivatives with a negative fair value. These foreign currency derivatives are mainly used to convert payments received in US dollars into euros for liquidity management purposes and also as an alternative to unsecured deposits and loans, to hedge the unsecured counterparty risk and liquidity risk in everyday liquidity management.

Amounts recognised in profit or loss

in €m	2023	2022
Net gain/(loss) from derivatives not designated as hedges	– 90.0	74.5
Net gain/(loss) from cash flow hedges	– 2.7	– 1.1
Net gain/(loss) from cash flow IRS hedges	0	3.8
Net gain/(loss) from other financial assets measured at fair value through profit or loss	– 4.4	– 4.9
Distributions from fund units	0.6	11.4
Net gain/(loss) from other financial liabilities measured at fair value through profit or loss	– 9.5	– 4.6
Total	**– 106.0**	**79.1**

Cash flow hedges that qualify for hedge accounting

We enter into cash flow hedges to hedge existing or future transactions. The hedged items covered by hedge accounting consist of internal Group loans and highly probable planned transactions.

The effects of foreign currency hedging instruments on the financial position and financial performance is as follows:

The foreign exchange forwards designated as hedging instruments are for US dollars and are in the same currency as the internal foreign exchange transactions and the highly probable future transactions. Therefore, the hedge ratio is 1:1. The foreign exchange hedging transactions in US dollars are due in 2024.

Hedging transactions in cash flow hedges

	2023	2022
Foreign exchange derivative in USD		
Positive market value		
Carrying amount in €m	5.3	5.4
Notional amount in USDm	159.0	156.0
Cumulative change in value of hedged items used to determine the ineffectiveness of the hedging relationship in €m	5.3	5,4
Weighted average hedge rate for hedging instruments	1.1	1.0
Negative market value		
Carrying amount in €m	9.9	26.8
Notional amount in USDm	227.0	340.8
Cumulative change in value of hedged items used to determine the ineffectiveness of the hedging relationship in €m	4.3	24.9
Weighted average hedge rate for hedging instruments	1.2	1.2

Interest rate hedges with a nominal volume of €2,000.0 million and foreign exchange hedges with a nominal volume of US$ 113.8 million expired in 2023.

The revaluation surplus for cash shown in other comprehensive income relates to the following hedging instruments:

Cash flow hedge reserve

in €m	Cost of hedging reserve	Reserve for cash flow hedges foreign currency derivatives	Reserve for cash flow hedges interest rate swaps	Total
Balance as at 1 Jan 2022	**0.9**	**0.2**	**11.6**	**12.6**
Change in fair value of hedging instruments recognised in OCI	0	– 9.9	51.6	41.7
Hedging costs deferred and recognised in other comprehensive income	– 2.0	0	0	– 2.0
Reclassification to profit or loss	3.6	15.3	– 4.8	14.2
Settlement	0	– 0.2	0	– 0.2
Balance as at 31 Dec 2022	**2.5**	**5.4**	**58.4**	**66.3**
Change in fair value of hedging instruments recognised in OCI	0	5.3	36.8	42.1
Hedging costs deferred and recognised in other comprehensive income	– 4.8	0	0	– 4.8
Reclassification to profit or loss	3.3	0	– 7.8	– 4.5
Settlement	– 0.6	– 5.4	0	– 6.0
Balance as at 31 Dec 2023	0.3	5.3	87.5	93.1

The separate amount in the cost of hedging reserve comprises the forward component of forward contracts. The separated costs relate to over-time hedged items in the form of loans to Group companies. The amounts in the reserve for cash flow hedges relating to interest rate swaps are reversed pro rata temporis until April 2032.

Fair value hierarchy

The financial assets measured at fair value includes financial assets and liabilities at the following three hierarchy levels:

- **Level 1**: Financial instruments with a quoted price for identical assets and liabilities in an active market.
- **Level 2**: Financial instruments with no quoted prices for identical instruments on an active market and whose fair value is determined using valuation methods based on observable market parameters.
- **Level 3**: Financial instruments where the fair value is determined using one or more unobservable significant inputs. This does not apply to listed equity instruments

There were no transfers between levels for recurring fair value measurements during the year under review.

Fair value hierarchy

in €m	Fair value as at 31 Dec 2023	thereof attributable to: Level 1	Level 2	Level 3
Financial assets measured at fair value through other comprehensive income (FVOCI)				
Strategic investments	222.7	75.2	0	147.5
Financial assets measured at fair value through profit or loss (FVPL)				
Non-current financial instruments held by central counterparties	7,667.6	0	7,667.6	0
Other non-current financial assets	178.2	20.3	0	157.9
Current financial instruments held by central counterparties	137,904.9	0	137,904.9	0
Other current financial assets	31.9	12.0	17.6	2.3
Total assets	**146,005.3**	**107.5**	**145,590.1**	**307.6**
Financial liabilities measured at fair value through profit or loss (FVPL)				
Non-current financial instruments held by central counterparties	7,667.6	0	7,667.6	0
Other non-current financial liabilities	51.1	0	0	51.1
Current financial instruments held by central counterparties	137,341.9	0	137,341.9	0
Other current financial liabilities	16.0	0	15.9	0.1
Total liabilities	**145,076.5**	**0**	**145,025.4**	**51.2**

Fair value hierarchy previous year

in €m	Fair value as at 31 Dec 2022	thereof attributable to: Level 1	Level 2	Level 3
Financial assets measured at fair value through other comprehensive income (FVOCI)				
Strategic investments	182.8	39.3[1]	0	143.5[1]
Financial assets measured at fair value through profit or loss (FVPL)				
Non-current financial instruments held by central counterparties	9,078.4	0	9,078.4	0
Other non-current financial assets	167.0	12.5[1]	0.0	154.4[1]
Current financial instruments held by central counterparties	129,932.8	0	129,932.8	0
Other current financial assets	15.8	0	14.8	1.0
Total assets	**139,376.8**	**51.8[1]**	**139,026.1**	**298.9[1]**
Financial liabilities measured at fair value through profit or loss (FVPL)				
Non-current financial instruments held by central counterparties	9,078.4	0	9,078.4	0
Other non-current financial liabilities	32.9	0	26.8	6.1
Current financial instruments held by central counterparties	129,568.8	0	129,568.8	0
Other current financial liabilities	119.3	0	119.0	0.3
Total liabilities	**138,799.5**	**0**	**138,793.0**	**6.4**

1) Strategic investments (FVOCI) of €39.3 million and non-current financial assets (FVPL) of €1.6 million were measured as at 31 December 2022 on the basis of available market prices and so are classified as Level 1.The disclosures on Level 3 as at 31 December 2022 were adjusted accordingly.

The other non-current and current assets and liabilities included in the Level 2 hierarchy include foreign currency forwards. The basis for measuring the market value of the foreign currency forwards is the forward rate at the reporting date for the remaining term. They are based on observable market prices. The basis for measuring the market value of financial instruments held by central counterparties are market transactions for identical or similar assets on non-active markets and option pricing models based on observable prices.

The following table presents the valuation techniques, including material unobservable inputs, used to determine the fair value of Level 3 financial instruments (FVPL).

Measurement methods and inputs for the fair value hierarchy Level 3

Financial instrument	Measurement method	Material unobservable inputs	Connection between material unobservable inputs and fair value measurement
Derivatives	Internal Black-Merton-Scholes option pricing model	Value of equity Riskfree interest rate Volatility Dividend yield	The estimated fair value would go up (down), if: - the expected value of the equity were lower (higher) - the risk-free interest rate were lower (higher) - the volatility were higher (lower) - dividend yields were higher (lower)
Strategic investments	Adjusted prices for assets on inactive markets	Measurement by means of price adjustments for assets on inactive markets A descriptive sensitivity analysis is not used here for this reason.	n.a.
Interests in institutional investment funds	Net asset value	These investments include private equity funds and alternative investments held by Deutsche Börse Group. They are valued by the fund manager based on net asset value. Net asset value is determined using non-public information from the respective private equity managers. Deutsche Börse Group only has limited insight into the specific inputs used by the fund managers; a descriptive sensitivity analysis is therefore not used here.	n.a.
Contingent purchase price components	Discounted cash flow model	Value of equity	The estimated fair value would go up (down), if the expected value of the equity were higher (lower)

The following table shows the reconciliation from opening to closing balance for the fair value of Level 3 financial instruments.

Changes in level 3 financial instruments	Assets		Liabilities
in €m	Financial assets measured at fair value through other comprehensive income[1]	Financial assets measured at fair value through profit or loss[1]	Financial liabilities measured at fair value through profit or loss
Balance as at 1 Jan 2022	**139.2**	**153.2**	**1.9**
Additions	1.6	25.1	0
Disposals	– 7.3	– 3.7	0
Unrealised capital losses recognised in profit or loss	0	– 10.1	4.7
Changes recognised in the revaluation surplus	8.6	0	0
Unrealised effects from currency translation recognised in equity	1.6	4.0	0
Gains/(losses) recognised in equity	– 0.3	0	0
Balance as at 31 Dec 2022	**143.5**	**155.4**	**6.4**
Changes from business combinations	4.8	0	0
Additions	9.3	22.7	54.0
Disposals	0	– 0.5	– 15.2
Reclassifications	0.9	– 0.9	0
Realised capital gains/(losses) recognised in profit or loss	0	0	– 0.3
Unrealised capital losses recognised in profit or loss	0	– 16.6	6.2
Changes recognised in the revaluation surplus	– 7.2	0	0
Unrealised effects from currency translation recognised in equity	– 3.8	0	0
Balance as at 31 Dec 2023	**147.5**	**160.2**	**51.2**

1) Strategic investments (FVOCI) of €39.3 million and non-current financial assets (FVPL) of €1.6 million were measured as at 31 December 2022 on the basis of available market prices and so are classified as Level 1.The disclosures on Level 3 as at 31 December 2022 were adjusted accordingly.

The change in financial assets measured at FVOCI is mainly due to the acquisition of strategic investments in the amount of €9.3 million and positive valuation effects in the amount of €7.2 million, which were recognised in the revaluation surplus with no effect on profit or loss. In addition to the acquisition of fund shares in the amount of €4.7 million and convertible bonds in the amount of €14.2 million measured at FVPL, negative valuation effects in the amount of €16.6 million resulted. The increase in other non-current liabilities measured at FVPL is mainly due to the first time recognition of derivatives that were not in the money on the balance sheet date.

The unobservable inputs can generally consist of a range of values that are considered probable. The sensitivity analysis determines the fair values of the financial instruments using input factors that lie at the lower or upper limit of the possible range. The fair values of the Level 3 financial instruments would change as follows when using these inputs:

Sensitivity analysis of the financial assets and financial liabilities allocated to Level 3 depending on unobservable input parameters.

	Change input paramter[1]	Fair value change Increase €m	Fair value change Decrease €m
Financial liabilities			
Derivatives	Expected value of equity (10% change)	– 14.5	21.3
	Volatility(10% change)	12.0	– 11.0

1) A possible change in one of the significant unobservable input factors with the other input factors remaining unchanged would have the effects shown in the table above.

The fair values of the other financial assets and liabilities not measured at fair value were determined as follows:

The financial assets measured at amortised cost held by us include debt instruments with a fair value of €1,891.2 million (31 December 2022: €2,157.4 million), The fair value of the debt instruments was determined by reference to published price quotations in an active market. The securities were allocated to level 1.

The bonds issued by us have a fair value of €6,953.4 million (31 December 2022: €3,635.3 million) and are disclosed under liabilities measured at amortised cost. The fair value of such instruments is based on the debt instruments' quoted prices. Due to insufficient market liquidity, the debt securities were allocated to Level 2.

The financial instrument's carrying amount represents a reasonable approximation of fair value for all other positions.

Offsetting financial instruments

Gross presentation of offset financial instruments held by central counterparties

	Gross amount of financial instruments		Gross amount of offset financial instruments		Net amount of financial instruments	
in €m	31 Dec 2023	31 Dec 2022	31 Dec 2023	31 Dec 2022	31 Dec 2023	31 Dec 2022
Financial assets from repo transactions	251,971.3	163,774.7	– 133,896.7	– 54,086.9	118,074.6	109,687.8
Financial liabilities from repo transactions	– 251,408.3	– 163,410.7	133,896.7	54,086.9	– 117,511.6	– 109,323.8
Financial assets from options	84,622.7	96,580.1	– 57,124.7	– 67,256.7	27,498.0	29,323.4
Financial liabilities from options	– 84,622.7	– 96,580.1	57,124.7	67,256.7	– 27,498.0	– 29,323.4

Cash or securities held as collateral by central counterparties

As the clearing houses of the Deutsche Börse Group guarantee the settlement of all traded contracts, they have established multi-level collateral systems. The central pillar of the collateral systems is the determination of the overall risk per clearing member (margin) to be covered by cash or securities collateral. Losses calculated on the basis of current prices and potential future price risks are covered up to the date of the next collateral payment.

In addition to these daily collateral payments, each clearing member must make contributions to the respective default fund (for further details, see "Risk report" section in the combined management report). Cash collateral is reported in the consolidated balance sheet under "cash deposits by market participants" and the corresponding amounts under "restricted bank balances".

Securities collateral is generally not derecognised by the clearing member providing the collateral, as the opportunities and risks associated with the securities are not transferred to the secure party. Recognition at the secure party is only permissible if the clearing member providing the transfer is in default according to the underlying contract.

The aggregate margin calls based on the executed transactions and default fund requirements after haircuts was €100,990.9 million as at the reporting date (2022: €155,339.1 million), collateral totalling €122,728.5 million (2022: €182,104.6 million) was actually deposited.

Composition of collateral held by central counterparties

in €m	31 Dec 2023	31 Dec 2022
Cash collateral (cash deposits)[1,3]	53,318.6	93,067.7
Securities and book-entry securities collateral[2,3]	69,409.9	89,036.9
Total	**122,728.5**	**182,104.6**

1) The amount includes the clearing fund totalling €6,292.8 million (2022: €7,580.5 million),
2) The amount includes the clearing fund totalling €2,709.7 million (2022: €2,481.6 million),
3) The collateral value is determined on the basis of the fair value less a haircut

13 Contract balances

The Group has recognised the following assets and liabilities from contracts with customers:

Contract balances

	31.12.2023			31.12.2022		
in €m	non-current	current	Total	non-current	current	Total
Contract costs	10.5	11.0	21.5	5.7	8.5	14.2
Contract assets	259.6	87.8	347.4	0	0	0
Contract liabilities	11.9	203.0	214.8	13.6	172.0	185.6

Contract costs are "incremental costs of obtaining a contract" within the meaning of IFRS 15 and include sales commissions. The Group only recognises the costs of obtaining a contract as an asset for multi-year contracts. The recognised costs are amortised in line with revenue recognition. Total amortisation came to €7.9 million in 2023 (2022: €5.2 million) and is shown in the consolidated income statement under depreciation, amortisation and impairment losses. Contract costs are presented in the consolidated statement of financial position in the items “Other non-current assets” and “Other current assets”.

Contract assets represent a legal right to consideration for software that has already been transferred to customers under subscription agreements with future payments. The increase is due to the SimCorp acquisition. Contract assets are presented in the consolidated statement of financial position in the items “Other non-current assets” and “Other current assets”.

Contract liabilities are generally advance payments by customers for performance obligations that have not yet been satisfied in full. The €177.8 million included in contract liabilities as at 31 December 2022 was recognised as revenue in the financial year 2023. The increase in contract liabilities is mainly due to changes in the basis of consolidation of €39.8 million from the SimCorp acquisition. Contract liabilities are presented in the consolidated statement of financial position in the items “Other non-current liabilities” and “Other current liabilities”.

The total transaction price allocated to performance obligations that have not been satisfied in full as at 31 December 2023 for multi-year contracts that are not invoiced on a variable basis as performance obligations are satisfied is €1,080.2 million (2022: €179.8 million), We anticipate that €322.4 million (2022: €58.5 million) of the transaction price will be recognised as revenue in the next reporting period. The remaining €757.8 million will be recognised in subsequent financial years. The significant increase is mainly due to changes in the basis of consolidation from the SimCorp acquisition.

14 Other current assets

Composition of other current assets

in €m	31 Dec 2023	31 Dec 2022
Other receivables from CCP transactions (commodities)	721.5	2,133.6
Prepaid expenses	126.9	127.9
Contractual assets	87.8	0
Tax receivables (excluding income taxes)	60.6	26.1
Interest receivables on taxes	40.2	9.2
Contract costs	11.0	8.5
Crypto assets	7.9	7.6
Miscellaneous	9.7	30.4
Total	**1,065.4**	**2,343.3**

The decline in other current assets results almost exclusively from the decline in receivables from the CCP business in connection with physical commodity deliveries on the spot markets, which were subject to high volatility at year-end 2022. Other current liabilities also fell correspondingly, see note 20. These receivables do not belong to the financial assets, as the claims do not include receipts of cash or cash equivalents but are claims to physical deliveries of commodities.

15 Equity

Changes in equity are presented in the consolidated statement of changes in equity. As at 31 December 2023 the number of no-par value registered shares of Deutsche Börse AG in issue was 190,000,000 (31 December 2022: 190,000,000).

Subject to the agreement of the Supervisory Board, the Executive Board is authorised to increase the subscribed share capital by the following amounts:

Composition of contingent capital

	Number shares	Date of authorisation by the shareholders	Expiry date	Existing shareholders' pre-emptive rights may be disapplied for fractioning and/or may be disapplied if the share issue is:
Authorised share capital I[1]	19,000,000	19 May 2021	18 May 2026	n.a.
Authorised share capital II[1]	19,000,000	19 May 2020	18 May 2025	for cash at an issue price not significantly lower than the stock exchange price, up to a maximum amount of 10 per cent of the nominal capital.
				against non-cash contributions for the purpose of acquiring companies, parts of companies, interests in companies, or other assets.
Authorised share capital III[1]	19,000,000	19 May 2020	18 May 2024	n.a.
Authorised share capital IV[1]	19,000,000	18 May 2022	17 May 2027	n.a.

1) Shares may only be issued, excluding shareholders' pre-emptive subscription rights, provided that the aggregate amount of new shares issued excluding shareholders' pre-emptive rights during the term of the authorisation (including under other authorisations) does not exceed 10 per cent of the issued share capital.

Contingent capital

By resolution of the Annual General Meeting of 8 May 2019, the Executive Board is authorised, subject to the consent of the Supervisory Board, to issue in the period until 7 May 2024 on one or several occasions convertible bonds and/or warrant-linked bonds or a combination of such instruments with a total principal amount of up to €5,000,000,000 with or without a limited term and to grant holders or creditors of such bonds conversion or option rights, respectively, to acquire new no-par value registered shares in Deutsche Börse AG representing a notional interest in the share capital of up to €17,800,000, as stipulated in the terms and conditions of convertible bonds or the terms and conditions of the warrants attaching to the warrant-linked bonds.

The Executive Board is authorised, subject to the consent of the Supervisory Board, to exclude the subscription rights of the shareholders in relation to bonds with conversion or option rights to acquire shares in Deutsche Börse AG in the following cases: The Executive Board is authorised, subject to the approval of the Supervisory Board, to exclude shareholders' pre-emptive rights to bonds with conversion or option rights to shares of Deutsche Börse AG in the following cases: (i) to avoid fractional amounts, (ii) when the issue price of a bond is not materially below the theoretical fair value determined in accordance with recognised financial techniques and the total number of shares attributable to these bonds does not exceed 10 per cent of the share capital, (iii) to grant the holders of conversion or option rights to shares of Deutsche Börse AG subscription rights to offset any dilutive effects to the same extent as they would be entitled to receive after exercising these rights.

The bonds may also be issued by companies based in Germany or abroad that are affiliated with Deutsche Börse AG within the meaning of sections 15 ff. of the Aktiengesetz (AktG, German Stock Corporation Act). Accordingly, the share capital was contingently increased by up to €17,800,000 (contingent capital

2019). To date, the authorisation to issue convertible bonds and/or bonds with warrants has not been exercised.

There were no further subscription rights to shares as at 31 December 2023 or 31 December 2022.

In November 2023, Deutsche Börse AG announced a share buyback program for 2024 based on the authorisation granted by the Annual General Meeting on 8 May 2019. In the period up to 3 May 2024 at the latest, up to 14,000,000 shares in the company are to be repurchased at a total cost of up to €300 million (excluding incidental acquisition costs).

The development of treasury shares is shown in the following overview:

Development of treasury shares

in numbers of shares	2023
Treasury shares, beginning of the fiscal year	6,261,055
Issuance under share-based payments and employee share programs	– 129,872
Own shares as consideration	– 1,243,643
Treasury shares, end of fiscal year	**4,887,540**

As part of the acquisition of non-controlling interests, 1,243,643 own shares were used as consideration. In addition, 129,872 own shares were sold to employees as part of the employee participation programme (Group Share Plan, GSP), see note 18.

Revaluation surplus

Revaluation surplus

in €m	Share-based payments	Equity investments measured at FVOCI	Cash flow hedges	Defined benefit obligations	Other	Total
Balance as at 1 Jan 2022 (gross)	**3.2**	**83.9**	**12.6**	**145.5**	**0**	**245.2**
Changes from defined benefit obligations	5.2	0	0	0	0	5.2
Fair value measurement	0	– 37.4	53.7	0	0	16.3
Changes from share-based payments	0	0	0	206.7	0	206.7
Balance as at 31 Dec 2022 (gross)	**8.3**	**46.5**	**66.3**	**352.2**	**0**	**473.4**
Changes from defined benefit obligations	14.4	0	0	0	0	14.4
Changes from share-based payments	0	25.5	26.8	0	0	52.4
	0	0	0	– 47.9	0	– 47.9
	0	0	0	0	– 0.1	– 0.1
Balance as at 31 Dec 2023 (gross)	**22.7**	**72.1**	**93.1**	**304.3**	**– 0.1**	**492.2**
Deferred taxes						
Balance as at 1 Jan 2022	0	– 24.4	0.0	0	0	– 24.4
Reversals	0	– 14.6	– 18.1	0	0	– 32.7
Balance as at 31 Dec 2022	0	– 39.0	– 18.1	0	0	– 57.1
Additions	0	1.1	– 7.3	0	0	– 6.2
Balance as at 31 Dec 2023	**0**	**– 37.9**	**– 25.4**	**0**	**0**	**– 63.3**
Balance as at 1 Jan 2022 (net)	3.2	59.5	12.6	145.5	0	220.8
Balance as at 31 Dec 2022 (net)	8.3	7.5	48.2	352.2	0	416.3
Balance as at 31 Dec 2023 (net)	22.7	34.2	67.8	304.3	– 0.1	428.9

Retained earnings

The “Retained earnings” item includes changes from defined benefit obligations after deferred taxes in the amount of €–58.7 million (2022: €–36.3 million).

Intra-Group reorganisations within Deutsche Börse Group, which included the sale of the investment in ISS HoldCo Inc. to ISS STOXX GmbH with the simultaneous participation of a non-Group investor and the contribution of the investment in Axioma Inc. to SimCorp A/S, resulted in an effect recognised directly in equity of €– 68.8 million in retained earnings as a result of transactions with equity holders, as well as changes in non-controlling interests of €– 198.8 million.

16 Shareholders’ equity and appropriation of net income of Deutsche Börse AG

The annual financial statements of the parent company Deutsche Börse AG, prepared as at 31 December 2023 in accordance with the provisions of the Handelsgesetzbuch (HGB, the German Commercial Code), report net profit for the period of €2,118.4 million (2022: €875.1 million) and equity of €5,918.8 million (2022: €4,229.9 million). In 2023, Deutsche Börse AG distributed €661.5 million (€3.60 per share) from distributable profit for the previous year.

Proposal on the appropriation of the unappropriated surplus

in €m	31 Dec 2023	31.12.2022
Net profit for the period	2,118.4	875.1
Appropriation to other retained earnings in the annual financial statements	– 1,058.4	– 175.1
Unappropriated surplus	**1,060.0**	**700.0**
Proposal by the Executive Board:		
Distribution of a regular dividend to the shareholders of €3.80 per share for 185,112,460 no-par value shares carrying dividend rights	703.4	661.5
Appropriation to retained earnings	356.6	38.5

No-par value shares carrying dividend rights

Number	31 Dec 2023	31 Dec 2022
Number of shares issued as at 31 December	190,000,000	190,000,000
Number of treasury shares as at the reporting date	– 4,887,540	– 6,261,055
Number of shares outstanding as at 31 December	**185,112,460**	**183,738,945**

The proposal on the appropriation of distributable profit reflects treasury shares held directly or indirectly by the company that do not carry dividend rights under section 71b Aktiengesetz (AktG, the German Stock Corporation Act). The number of shares carrying dividend rights can change until the Annual General Meeting through the repurchase or sale of further treasury shares. In this case, with a dividend of €3.80 per eligible share, an amended resolution for the appropriation of distributable profit will be proposed to the Annual General Meeting.

17 Employee benefits

Employee benefits consist of:

- Provisions for pensions,
- provisions for all current and non-current employee benefits and
- provisions for termination benefits

Composition of employee benefits

	31 Dec 2023			31 Dec 2022		
in €m	Non-current	Current	Total	Non-current	Current	Total
Provisions for pensions	48.1	0	48.1	12.0	0	12.0
Provisions for employee benefits	76.8	324.7	401.5	70.0	258.6	328.6
Share based payment	54.9	41.2	96.1	47.4	38.3	85.7
Bonuses	12.0	217.2	229.1	10.7	176.9	187.6
Vacation entitlements, flextime and overtime	0	54.4	54.4	0	38.0	38.0
Other personnel provisions	9.9	11.9	21.9	11.9	5.4	17.3
Provisions on the occasion of termination of employment	26.6	16.6	43.1	37.8	4.3	42.1
Early retirement agreements	26.6	0	26.6	37.8	0	37.8
Severance agreements	0	16.6	16.6	0	4.3	4.3
Total benefits to employees	**151.5**	**341.3**	**492.8**	**119.8**	**262.9**	**382.7**

The individual categories of provisions changed as follows in the financial year 2023:

Changes in provisions

in €m	Bonuses	Share-based payments	Holiday entitlements, flexitime and overtime	Other personnel provisions	Early retirement and severance
Balance as at 1 Jan 2023	**187.6**	**85.7**	**38.0**	**17.3**	**42.1**
Changes in the basis of consolidation	14.4	4.2	10.4	3.5	4.3
Reclassification	– 6.6	– 0.2	– 0.9	– 3.8	1.0
Utilisation	– 185.2	– 35.5	– 50.8	– 21.2	– 42.8
Reversal	– 17.8	– 1.6	– 31.1	– 2.2	– 1.5
Additions	228.6	43.5	87.0	28.2	39.0
Interest	0	0	0	0.3	0.9
Currency translation	8.1	0	1.8	– 0.2	0.1
Balance as at 31 Dec 2023	**229.1**	**96.1**	**54.4**	**21.9**	**43.1**

Provisions for pensions

Defined benefit pension plans

Provisions for pensions and similar obligations are measured using the projected unit credit method on the basis of actuarial reports. Calculating the present value requires certain actuarial assumptions (e.g. discount rate, staff turnover rate, salary and pension trends) to be made. The current service cost and the net interest expense or income for the subsequent period are calculated on the basis of these assumptions.

The fair value of the plan assets is deducted from the present value of the pension obligations, if necessary taking into account the regulations on the upper limit of the value of plan assets in excess of the obligation (so-called asset ceiling), so that the net pension obligation or the asset value from the defined benefit plans results. Net interest expense for the financial year is calculated by applying the discount rate determined at the beginning of the financial year to the net defined benefit liability determined as at that date.

The relevant discount rate is determined by reference to the return on long-term corporate bonds with a rating of at least AA (Moody's Investors Service, S&P Global Ratings, Fitch Ratings and DBRS) on the basis of the information provided by Bloomberg, and a maturity that corresponds approximately to the maturity of the pension obligations. Moreover, the bonds must be denominated in the same currency as the underlying pension obligation. Measurement of the pension obligations in euros is based on a discount rate which is determined according to the adjusted "GlobalRate:Link" methodology from the advisory company Willis Towers Watson, updated in line with the current market trend.

The actuarial gains or losses and the difference between the expected and the actual return or loss on plan assets are recognised in other comprehensive income in the revaluation surplus. They result from changes in expectations with regard to life expectancy, pension trends, salary trends and the discount rate.

Other long-term benefits for employees and members of executive boards (total disability pension, transitional payments) are also measured using the projected unit credit method. Actuarial gains and losses and past service cost are recognised immediately and in full through profit or loss.

The defined benefit obligations of the companies of Deutsche Börse Group relate primarily to final salary arrangements and pension plans based on capital components, which guarantee employees a choice of either lifelong pensions or capital payments on the basis of the final salary paid. The Group uses external trust solutions to cover some of its pension obligations.

Net liability of defined benefit obligations

in €m	Germany	Luxembourg	Other	Total 31 Dec 2023	Total 31 Dec 2022
Present value of defined benefit obligations that are at least partially funded	421.0	72.4	86.8	580.2	500.7
Fair value of plan assets	– 396.3	– 67.3	– 75.7	– 539.3	– 493.8
Funded status	**24.7**	**5.1**	**11.1**	**40.9**	**6.9**
Present value of unfunded obligations	7.2	0	0	7.2	5.1
Net liability of defined benefit obligations	**31.9**	**5.1**	**11.1**	**48.1**	**12.0**
Amount recognised in the balance sheet	**31.9**	**5.1**	**11.1**	**48.1**	**12.0**

The defined benefit plans comprise a total of 4,907 beneficiaries (2022: 4,527). The present value of defined benefit obligations can be allocated to the beneficiaries as follows:

Allocation of the present value of the defined benefit obligation to the beneficiaries

in €m	Germany	Luxembourg	Other	Total 31 Dec 2023	Total 31 Dec 2022
Eligible current employees	173.8	62.8	80.8	317.4	183.3
Former employees with vested entitlements	157.9	9.1	2.3	169.3	232.5
Pensioners or surviving dependants	96.5	0.5	3.7	100.7	90.0
	428.2	**72.4**	**86.8**	**587.4**	**505.8**

Essentially, the retirement benefits encompass the following retirement benefit plans:

Executive boards of Group companies (Germany and Luxembourg)
Individual commitment plans exist for executive board members of certain Group companies; they are based on the plan for executives described in the second paragraph below, i.e. in each calendar year the company provides an annual contribution to a capital component calculated in accordance with actuarial principles. The benefit assets equal the total of the acquired capital components of the individual years and are converted into a lifelong pension once the benefits fall due. In addition, retirement benefit agreements are in place with members of the executive boards of Group companies, under which they are entitled to pension benefits upon reaching the age of 63 and following reappointment. When the term of office began, the replacement rate was 30 per cent of individual pensionable income. It rose by 5 percentage points with each reappointment, up to a maximum of 50 per cent of pensionable income.

Germany

There is an employee-funded deferred compensation plan for employees of certain Deutsche Börse Group companies in Germany who joined prior to 1 January 2019. Under this plan, it is possible to convert portions of future remuneration entitlements into benefit assets of equal value which bear interest of 6 per cent p.a. The benefits consist of a capital payment made in equal annual instalments over a period of three years upon the reaching the age of 65 or at an earlier date due to disability or death.

In the period from 1 January 2004 to 30 June 2006, executives in Germany were offered the opportunity to participate in the following pension system based on capital components: the benefit is based on annual income received, composed of fixed annual salary and the variable remuneration. Every year, participating Group companies provide for an amount that corresponds to a certain percentage of the pensionable income. The participating companies provide an amount corresponding to a specific percentage of this eligible income every year. This amount is multiplied by a capitalisation factor depending on age, resulting in the “annual capital component”. The benefit assets equal the total of the acquired capital components of the individual years and are converted into a lifelong pension once the benefits fall due. This benefit plan was closed to new staff on 30 June 2006; the executives who were employed in the above period can continue to earn capital components.

As part of adjustments to the remuneration systems to bring them into line with supervisory requirements, contracts were adjusted for some executives. For executives affected, whose contracts allowed for the inclusion of only the income received and the variable remuneration above the upper limit of the contribution assessment as pensionable income, the pensionable income was determined on the basis of income received from the year 2016. This is adjusted annually to account for the increase of the cost of living according to the consumer price index for Germany as issued by the Federal Statistical Office. For executives affected whose capital components were calculated on the basis of income received, without observing the upper limit of the contribution assessment, an amount has been determined that will be reviewed annually, and adjusted if necessary, by the Supervisory Board, taking any changes in circumstances in terms of income and purchasing power into account.

Luxembourg

The defined benefit pension plan in favour of Luxembourg employees is funded by means of cash contributions to an “association d'épargne pension” (ASSEP) organized in accordance with Luxembourg law. The benefits consist of a one-off capital payment, which is generally paid upon reaching the age of 65. Employees receive an annual account statement showing their current balance. The pension plan does not pay any benefits in the event of death or disability. Contributions to the ASSEP are funded in full by the participating companies. The contributions are determined annually on the basis of actuarial opinions in accordance with Luxembourg law.

Changes in net defined benefit obligations

in €m	Present value of obligations 2023	Present value of obligations 2022	Fair value of planassets 2023	Fair value of planassets 2022	Total 2023	Total 2022
Balance as at 1 Jan	**505.8**	**668.6**	**– 493.8**	**– 533.1**	**12.0**	**135.5**
Current service cost	21.4	28.0	0	0	21.4	28.0
Interest expense/(income)	18.1	7.5	– 17.8	– 6.1	0.3	1.4
Past service cost	1.3	0	0	0	1.3	0
	40.8	**35.5**	**– 17.8**	**– 6.1**	**23.0**	**29.4**
Remeasurements						
Return on plan assets, excluding amounts already recognised in interest income	0	0	– 10.7	55.1	– 10.7	55.1
Adjustments to demographic assumptions	0	0	0	0	0	0
Adjustments to financial assumptions	36.9	– 194.0	0	0	36.9	– 194.0
Experience adjustments	2.4	6.1	0	0	2.4	6.1
	39.3	**– 187.9**	**– 10.7**	**55.1**	**28.6**	**– 132.8**
Effect of exchange rate differences	5.3	2.7	– 4.8	– 2.3	0.5	0.4
Contributions:						
Employers	0.5	0	– 17.8	– 21.1	– 17.3	– 21.1
Plan participants	2.5	2.3	– 2.6	– 2.3	– 0.1	0
Benefit payments	– 16.4	– 14.7	16.4	14.7	0	0.0
Tax and administration costs	– 0.7	– 0.5	0.7	0	0	– 0.5
Reclassification to Held for Sale	0	0	0	0.6	0	0.6
Changes in the basis of consolidation	10.2	– 0.1	– 8.9	0.5	1.3	0.4
Balance as at 31 Dec	**587.4**	**505.8**	**– 539.3**	**– 493.8**	**48.1**	**12.0**

For Germany, there is a past service cost of around €1.0 million resulting from the new entitlements to the termination pension provided for members of the Executive Board.

In the 2023 financial year, employees converted a total of €6.6 million (2022: €5.8 million) of their variable remuneration into deferred compensation benefits.

Assumptions

Provisions for pension plans and other employee benefits are measured annually at the reporting date using actuarial techniques. The assumptions for determining the actuarial obligations for the pension plans differ according to the individual conditions in the countries concerned and are shown in the following table:

Actuarial assumptions

	31 Dec 2023		31 Dec 2022	
in %	Germany	Luxembourg	Germany	Luxembourg
Discount rate	3.18	3.18	3.73	3.73
Salary growth	3.00	3.50	3.00	3.50
Pension growth	2.20	0	2.20	0
Staff turnover rate[1]	2.00	2.00	2.00	2.00

1) Up to the age of 50, afterwards 0 per cent

In Germany, the “2018 G” mortality tables (generation tables) developed by Klaus Heubeck are used. For Luxembourg, generation tables of the Institut national de la statistique et des études économiques du Grand-Duché de Luxembourg are used.

Owing to the current very high inflation rates, pension adjustments in the next two to three years will significantly exceed the assumed (long-term) pension trend. This cumulative inflation (adjustment backlog) was taken into account in the corresponding commitments through the one-off increase in pensions.

Sensitivity analysis

The sensitivity analysis presented in the following considers the change in one assumption of the main plans in Germany and Luxembourg at a time, leaving the other assumptions unchanged from the original calculation, i.e. possible correlation effects between the individual assumptions are not taken into account.

Sensitivity of defined benefit obligation to change in the weighted principal assumptions

in €m	Change in actuarial assumption	Effect on defined benefit obligation 2023 Defined benefit obligation in €m	2023 Change in %	2022 Defined benefit obligation in €m	2022 Change in %
Discount rate	Increase by 1.0 percentage point	445.1	– 11.1%	393.1	– 11.1%
	Reduction by 1.0 percentage point	568.9	13.6%	502.4	13.6%
Salary growth	Increase by 0.5 percentage points	508.3	1.5%	448.5	1.4%
	Reduction by 0.5 percentage points	494.2	– 1.3%	436.9	– 1.2%
Pension growth	Increase by 0.5 percentage points	509.1	1.7%	449.4	1.7%
	Reduction by 0.5 percentage points	492.8	– 1.6%	434.9	– 1.6%
Life expectancy	Increase by one year	511.8	2.2%	451.2	2.1%
	Reduction by one year	489.1	– 2.3%	432.3	– 2.2%

Composition of plan assets

Germany

In Germany, plan assets are held by a trustee in safekeeping for individual companies of the Group and for the beneficiaries. At the company's instruction, the trustee uses the funds transferred to acquire securities, without any consulting by the trustee. The contributions are invested in accordance with an investment policy, which may be amended by the companies represented in the investment committee. The trustee may refuse to carry out instructions if they are in conflict with the fund's allocation rules or the payment provisions. In accordance with the investment policy, a value preservation mechanism is applied; investments can be made in different asset classes.

Luxembourg

In Luxembourg, the Board of Directors of the Clearstream Pension Fund is responsible for determining the investment strategy, with the aim of maximising returns in relation to a benchmark. This benchmark is 75 per cent derived from the return on five-year German federal government bonds and 25 per cent from the return on the EURO STOXX 50 Index. According to the investment policy, the fund may only invest in fixed-income and variable-rate securities, as well as listed investment fund units; it may hold cash, including in the form of money market funds.

Composition of plan assets

in €m	31 Dec 2023		31 Dec 2022	
Bonds	**420.5**	**78.0 %**	**400.1**	**81.0 %**
Government bonds	319.0		301.0	
Multilateral development banks	92.8		82.4	
Corporate bonds	8.7		16.7	
Derivatives	**6.9**	**1.3 %**	**– 0.2**	**– 0.0 %**
Stock index futures	3.7		– 0.1	
Interest rate futures	3.2		– 0.1	
Investment funds	**31.0**	**5.7 %**	**30.0**	**6.1 %**
Total listed	**458.4**	**85.0 %**	**430.0**	**87.1 %**
Qualifying insurance policies	49.0	9.1 %	42.9	8.7 %
Cash	31.9	5.9 %	20.9	4.2 %
Total not listed	**80.9**	**15.0 %**	**63.8**	**12.9 %**
Total plan assets	**539.3**	**100.0 %**	**493.8**	**100.0 %**

As at 31 December 2023 the plan assets did not include any financial instruments of the Group (2022: zero). Neither did they include any properties or other assets used by companies in Deutsche Börse Group.

Risks

In addition to the general actuarial risks, the risks associated with the defined benefit obligations relate especially to financial risks in connection with the plan assets, including in particular counterparty credit and market risks.

Market risk

The return on plan assets is assumed to be the discount rate determined on the basis of corporate bonds with an AA rating. If the actual rate of return on plan assets is lower than the discount rate used, the net defined benefit liability increases accordingly. If volatility is low, the actual return is further expected to exceed the return on corporate bonds with a good rating in the medium to long term. The amount of the net obligation is also influenced in particular by changes in the discount rates. We consider the share price risk resulting from derivative positions in equity index futures in the plan assets to be appropriate. The company bases its assessment on the expectation that the overall volume of payments from the pension plans will be manageable in the next few years, that the total amount of the obligations will also be manageable and that it will be able to meet these payments in full from operating cash flows. Any amendments to the investment policy take into account the duration of the pension obligation as well as the expected payments over a period of ten years.

Inflation risk

Possible inflation risks that could lead to an increase in defined benefit obligations exist because some pension plans are final salary plans or the annual capital components are directly related to salaries, i.e. a significant increase in salaries would lead to an increase in the benefit obligation from these plans. In Germany, however, there are no contractual arrangements with regard to inflation risk for these pension plans. An interest rate of 6 per cent p.a. has been agreed for the employee-financed deferred compensation plan; the plan does not include any arrangements for inflation, so that it has to be assumed that there will be little incentive for employees to contribute to the deferred compensation plan in times of rising inflation. In Luxembourg, salaries are adjusted for the effects of inflation on the basis of a consumer price index no more than once a year; this adjustment leads to a corresponding increase in the benefit obligation from the pension plan. Since the obligation will be met in the form of a capital payment, there will be no inflation-linked effects once the beneficiary reaches retirement age.

Duration and expected maturities of the pension obligations

The weighted duration of the pension obligations as at 31 December 2023 is 12.6 years (2022: 12.7 years).

Expected maturities of undiscounted pension payments

	Expected pension payments[1]	
in €m	31 Dec 2023	31 Dec 2022
Less than 1 year	18.6	14.5
Between 1 and 2 years	21.4	16.3
Between 2 and 5 years	83.7	69.7
Between 5 and 10 years	219.3	173.7
Total	**343.0**	**274.2**

1) The expected payments in Swiss francs were translated into euros at the relevant closing rate on 31 December.

The expected service costs for defined benefit plans (excluding service cost for deferred compensation) for the financial year 2023 amount to approximately €13.3 million plus €1.2 million for the net interest expense.Defined contribution pension plans and multi-employer plans

Defined contribution pension plans and multi-employer plans

Defined contribution plans

There are defined contribution plans as part of the occupational pension system using pension funds and similar pension institutions. In addition, contributions are paid to the statutory pension insurance scheme. The level of contributions is normally determined in relation to income. As a rule, no provisions are recognised for defined contribution plans. The contributions paid are reported as pension expenses in the year of payment. There are defined contribution pension plans for employees in several countries. In addition, the employer pays contributions to employees' private pension funds.

During the reporting period, the costs associated with defined contribution plans amounted to €61.3 million (2022: €54.6 million).

Multi-employer plans

Several Deutsche Börse Group companies are member institutions of BVV Versicherungsverein des Bankgewerbes a.G., a pension insurance provider with its registered office in Berlin. Employees and employers make regular contributions, which are used to provide guaranteed pension plans, and a potential surplus. The contributions to be made are derived from contribution rates applied to active employees' monthly gross salaries, taking into account specific financial thresholds. Member institutions have a subsidiary liability for the fulfilment of BVV's agreed pension benefits. However, we consider the risk that this liability will be invoked as remote. Given that BVV membership is governed by several Works Council Agreements, membership termination is subject to certain conditions. The notice period for termination is defined in the articles of association of the BVV pension scheme. The employer retains a subsidiary liability for the pension entitlements of every individual employee that have vested as at the termination date. Deutsche Börse Group considers BVV pension obligations as multi-employer defined benefit pension plans. However, we currently lack information regarding the allocation of BVV assets to individual member institutions and the respective beneficiaries. Moreover, we do not know Deutsche Börse Group’s actual share in BVV’s total obligations. This plan is therefore shown in the Group’s financial reporting as a defined contribution plan. On the basis of current information published by BVV there is no shortfall that could affect the future contributions payable by the Group. The Deutsche Börse Group is not liable for commitments by other members of BVV.

EPEX Netherlands B.V. participates in the ABP pension fund within the EEX subgroup. Participation is mandatory for all employees. Employer contributions are calculated by ABP and adjusted, if necessary. Since the allocation of assets to member institutions and beneficiaries is not possible, this pension plan can also be presented only as a defined contribution plan.

During the reporting period, the costs associated with such designated multi-employer plans amounted to €10.3 million (2022: €10.1 million). In 2024 we expect to make contributions to multi-employer plans amounting to around €10.3 million.

18 Share-based payment

Share-based payments for employees, managers and Executive Board members comprise cash-settled remuneration plans and remuneration plans settled with equity instruments. The main remuneration plans at Deutsche Börse Group are described below.

Stock Bonus Plan (SBP)

The SBP is open to senior executives of Deutsche Börse AG and its participating subsidiaries. It grants a long-term remuneration component in the form of so-called SBP shares. These are generally accounted for as share-based payments for which Deutsche Börse AG has a choice of settlement in cash or equity instruments for certain tranches. Tranches due in previous years were each settled in cash. In the reporting period, the Deutsche Börse Group established an additional tranche of the SBP for senior executives who are not risk takers. In order to participate in the SBP, beneficiaries must have earned a bonus. The awards are settled in cash and the SBP shares are measured as cash-settled share-based payment transactions. The cost of the options is estimated using an option pricing model (fair value measurement) and recognised in staff costs in the consolidated income statement.

The number of stock options is determined by the amount of the individual and performance-based SBP bonus for the financial year, divided by the average share price (Xetra closing price) of Deutsche Börse AG’s shares in the fourth quarter of the financial year in question. Neither the converted SBP bonus nor the stock options are paid at the time the bonus is determined. Rather, the entitlement is generally received three years after the grant date (the “waiting period”). Within this period, beneficiaries cannot assert shareholder rights (in particular, the rights to receive dividends and attend the Annual General Meeting). Once they have met the condition of service, the beneficiaries’ claims resulting from the SBP are calculated on the first trading day following the last day of the waiting period. The current market price at that date (closing auction price of Deutsche Börse shares in electronic trading on the Frankfurt Stock Exchange) is multiplied by the number of stock options. Stock options are settled in cash.

Evaluation of the SBP

To determine the fair value of the subscription rights, the intrinsic value of the additional pro rata subscription rights is calculated, which also includes an expectation about future dividend payments.

Valuation of SBP shares

Tranche	Balance at 31 Dec 2023 Number	Deutsche Börse AG share price at 31 Dec 2023 €	Intrinsic value/ option at 31 Dec 2023 €	Fair value/ option at 31 Dec 2023 €	Settlement obligation €m	Current provision at 31 Dec 2023 €m	Non-current provision at 31 Dec 2023 €m
2019	0	186.50	165.95	165.95	0.0	0.0	0.0
2020	6,908	186.50	186.50	179.04	1.2	1.2	0.0
2021	9,458	186.50	186.50	131.70	1.3	0.0	1.3
2022	10,943	186.50	186.50	86.12	0.9	0.0	0.9
2023[1]	11,880	186.50	186.50	42.23	0.5	0.0	0.5
Total	**39,189**				**3.9**	**1.2**	**2.7**

1) Since the subscription rights for the 2023 tranche are only awarded in financial year 2024, the number disclosed as at the reporting date may change in financial year 2024.

Average price of the exercised and forfeited share options

Tranche	Average price of the exercised share options €	Average price of the forfeited share options €
2019	165.95	102.93
2020	174.89	112.83
2021	167.50	59.93
2022	155.20	n.a.

The stock options from the 2019 SBP tranche were exercised in the reporting period following the expiration of the waiting period. Shares of the SBP tranches 2020 to 2022 were paid to former employees as part of severance payments in the year under review.

The carrying amount of the provision for the SBP results from the measurement of the number of SBP stock options at the fair value of the closing auction price of Deutsche Börse shares in electronic trading at the Frankfurt Stock Exchange at the reporting date and its proportionate recognition over the waiting period.

Provisions for the SBP amounting to €3.9 million were recognised at the reporting date of 31 December 2023 (31 December 2022: €3.0 million). The total expense for SBP stock options in the reporting period amounted to €2.0 million (2022: €1.5 million).

Change in number of SBP shares allocated

	Balance at 31 Dec 2022	Additions/ (disposals) tranche 2019	Additions/ (disposals) tranche 2020	Additions/ (disposals) tranche 2021	Additions/ (disposals) tranche 2022	Additions/ (disposals) tranche 2023	Fully settled cash options	Options forfeited	Balance at 31 Dec 2023
To other senior executives	34,876	172	75	73	– 331	11,880	–6,614	–942	39,189
Total	**34,876**	**172**	**75**	**73**	**– 331**	**11,880**	**– 6,614**	**– 942**	**39,189**

Long-Term Sustainable Instrument (LSI) and Restricted Stock Units (RSU)

In 2014, Deutsche Börse Group introduced the Long-Term Sustainable Instrument (LSI) plan in order to provide share-based remuneration in line with regulatory requirements. This programme was extended in 2016 with the Restricted Stock Units (RSU) plan. The following disclosures relate to both plans.

Long-Term Sustainable Instrument (LSI)

The LSI remuneration model requires at least half of a part of the variable remuneration to be settled in cash and half in phantom shares of Deutsche Börse AG (LSI shares). All tranches will be settled in cash. A portion of the variable remuneration is paid in the subsequent year and another portion over a further period of three or four years. Moreover, a portion of the variable remuneration shall be converted into RSU, subject to a three-year retention period after grant and a one-year waiting period (RSU shares). Deutsche Börse Group thus measures the LSI shares as cash-settled share-based payment transactions. The options are measured using an option pricing model (fair value measurement). Any right to payment of a stock bonus only vests after the expiration of the one-year service period on which the plan is based, taking certain waiting periods into account.

The number of LSI and RSU shares for the 2017 tranche is calculated by dividing the proportionate LSI or RSU bonus, respectively, for the year in question by the average closing price of Deutsche Börse AG shares in the last month of a financial year. The number of LSI and RSU shares for the 2018-2023 tranches is based on the closing auction price of Deutsche Börse shares as at the disbursement date of the cash component of the respective tranche (cash bonus) in the following year or on the closing price as at the following trading day on the Frankfurt Stock Exchange. This results in individual LSI tranches for the LSI bonus, which have maturities of between one and five years. The RSU bonus is used as a basis for another four-year tranche. Payment of each tranche is made after a waiting period of one year. Neither remuneration system stipulates any condition of service. Following the expiry of the waiting period, both the LSI and the RSU shares of the 2017 tranche are measured on the basis of the average closing price of Deutsche Börse AG shares in the last month preceding the end of the waiting period. The LSI and RSU shares of the 2018-2023 tranches are measured at the closing auction price as at the first trading day in February of the year in which the holding period ends. In the reporting year LSI shares from the tranches 2017-2021 were disbursed with a disbursement price of €168.05 for the shares in the tranche 2017. The disbursement price for the tranches 2018-2021 was €166.35. The difference in payout share prices is caused by the nature of the specific terms and conditions for the respective tranches.

Restricted Stock Units (RSU)

Like the LSI plan, the RSU plan applies to risk takers within Deutsche Börse Group. RSU shares are settled in cash; Deutsche Börse Group thus measures the RSU shares as cash-settled share-based payment transactions. The options are measured using an option pricing model (fair value measurement). Any right to payment of a stock bonus only vests after the expiration of the one-year service period on which the plan is based, taking a three-year retention period and a one-year waiting period into account. No RSU shares were paid out in the reporting year.

Measurement of the LSI and the RSU

To determine the fair value of the subscription rights, the intrinsic value of the additional pro rata subscription rights is calculated, which also includes an expectation about future dividend payments.

Valuation of LSI and RSU shares

Tranche	Balance as at 31 Dec 2023 Number	Deutsche Börse AG share price as at 31 Dec 2023 €	Intrinsic value/ option as at 31 Dec 2023 €	Fair value/ option as at 31 Dec 2023 €	Settlement obli-gation €m	Current provi-sion as at 31 Dec 2023 €m	Non-current provision as at 31 Dec 2023 €m
2018	39,764	186.50	186.50	182.93-186.50	7.3	1.0	6.3
2019	32,408	186.50	186.50	172.57-186.50	5.9	0.8	5.1
2020	27,902	186.50	186.50	169.23-186.50	5.0	0.6	4.4
2021	34,062	186.50	186.50	165.97-186.50	6.0	0.7	5.4
2022	56,662	186.50	186.50	162.79-186.50	10.0	2.9	7.1
2023	54,654	186.50	186.50	162.79-186.50	9.5	0.0	9.5
Total	**245,452**				**43.6**	**5.9**	**37.7**

Provisions amounting to €43.6 million were recognised as at 31 December 2023 (31 December 2022: €34.1 million). The total expense for LSI/RSU stock options in the reporting period amounted to €13.9 million (31 December 2022: €11.3 million).

Change in number of LSI and RSU shares allocated

	Balance at 31 Dec 2022	Additions/ (Disposals) Tranche 2018	Additions/ (Disposals) Tranche 2019	Additions/ (Disposals) Tranche 2020	Additions/ (Disposals) Tranche 2021	Additions/ (Disposals) Tranche 2022	Additions/ Tranche 2023	Fully settled cash options	Balance at 31 Dec 2023
To other senior executives	219,609	–	–	–	–	– 2,173	54,654	– 26,638	245,452
Total	**219,609**	**–**	**–**	**–**	**–**	**– 2,173**	**54,654**	**– 26,638**	**245,452**

Performance Share Plan (PSP)

Performance Share Plan (PSP)

The PSP was launched in financial year 2016 for members of the Executive Board of Deutsche Börse AG as well as selected senior executives and employees of Deutsche Börse AG and of participating subsidiaries. The number of phantom PSP shares to be allocated is calculated based on the number of shares granted and the increase of net profit for the period attributable to Deutsche Börse AG shareholders, as well as on the relative performance of the total shareholder return (TSR) on Deutsche Börse AG's shares compared with the total shareholder return of the STOXX Europe 600 Financials Index constituents. The shares are subject to a performance period of five years. The subsequent payment of the stock bonus will be settled in cash.

The 100 per cent stock bonus target was calculated in euros for each Executive Board member. The 100 per cent stock bonus target for selected executives and employees of Deutsche Börse AG and participating subsidiaries is defined by the responsible decision-making bodies. Based on the PSP 100 per cent stock bonus target, the corresponding number of phantom shares for each beneficiary was calculated by dividing the stock bonus target by the average share price (Xetra closing price) of Deutsche Börse AG's shares in the last calendar month preceding the performance period. Any right to payment of a PSP stock bonus vested only at the end of a five-year performance period.

The final number of Performance Shares was calculated by multiplying the original number of Performance Shares with the level of overall target achievement. The PSP level of overall target achievement was based on two performance factors during the performance period: firstly, on the relative performance of the total shareholder return (TSR) on Deutsche Börse AG's shares compared with the total shareholder return of the STOXX Europe 600 Financials Index as the peer group; and secondly, on the increase of Deutsche Börse AG's net profit for the period attributable to shareholders of the parent company. The two performance factors contribute 50 per cent each to calculate overall target achievement. For the 2021 and 2022 tranches the overall target achievement depends on the performance against three different metrics over the performance period. The total shareholder return (TSR) for the Deutsche Börse AG share compared with the total shareholder return for the STOXX Europe 600 Financials Index accounts for 50 per cent. The annual growth rate for adjusted earnings per share over the performance period accounts for a further 25 per cent. The remaining 25 per cent are calculated by reference to performance against four equally weighted ESG targets.

The payout amount is calculated by multiplying the final number of performance shares with the average share price of Deutsche Börse AG's shares (Xetra closing price) in the last calendar month preceding the performance period, plus the total of dividend payments made during the performance period based on the final number of performance shares. In the reporting year shares from the 2018 PSP tranche were disbursed at a price of €182.30. Until the 2021 tranche, servicing and treatment will be in accordance with the cash settlement rules. Settlement is in cash and with the exception of the 2021-2023 tranches the transaction is measured and recognised as cash-settled share-based remuneration. Because of their specific contractual conditions the 2021-2023 tranches are treated as a settlement with equity instruments.

Measurement of the PSP

To determine the fair value of the subscription rights, the intrinsic value of the additional pro rata subscription rights is calculated, which also includes an expectation about future dividend payments.

Valuation parameters for PSP shares

		Tranche 2023	Tranche 2022	Tranche 2021	Tranche 2020	Tranche 2019	Tranche 2018	Tranche 2017
Term to		31 Dec 2027	31 Dec 2026	31 Dec 2025	31 Dec 2024	31 Dec 2023	31 Dec 2022	31 Dec 2021
Relative total shareholder return	%	100.0	100.0	100.0	100.0	155.0	250.0	235.0
Net profit for the period attributable to Deutsche Börse AG shareholders	%	n.a.	n.a.	n.a.	157.36-162.71	170.39	170.39	142.65-152.89
Growth rate Earnings per Share	%	150.0	150.0	150.0	n.a.	n.a.	n.a.	n.a.
ESG-Target Achievement	%	150.0	150.0	175.0	n.a.	n.a.	n.a.	n.a.

Valuation of PSP shares

Tranche	Balance as at 31 Dec 2023 Number	Deutsche Börse AG share price as at 31 Dec 2023 €	Intrinsic value/ option as at 31 Dec 2023 €	Fair value/ option as at 31 Dec 2023 €	Settlement obligation €m	Current provision as at 31 Dec 2023 €m	Non-current provision as at 31 Dec 2023 €m
2017	4,698	186.50	154.75	154.75	0.7	0.7	0.0
2018	35,867	186.50	182.30	182.30	6.5	6.5	0.0
2019	88,637	186.50	196.26	196.26	17.4	17.4	0.0
2020	49,503	186.50	186.50	159.00	8.1	0.0	8.1
2021[1]	48,362	186.50	186.50	82.23	4.0	0.0	0.0
2022[1]	47,365	186.50	186.50	58.72	2.8	0.0	0.0
2023[1]	41,313	186.50	186.50	32.56	1.4	0.0	0.0
Total	**315,745**				**40.8**	**24.7**	**8.1**

1) Since the 2021-2023 tranches are treated as being equity-settled, no provisions have been recognised for them. The above figures also include the shares of the members of the Executive Board.

Provisions for the PSP amounting to €32.7 million were recognised at the reporting date of 31 December 2023 (31 December 2022: €47.0 million). Of these provisions, €27.7 million were attributable to members of the Executive Board (2022: €22.8 million). The total expense for PSP options in the reporting period amounted to €11.3 million (2022: €17.0 million). Of that amount, an expense of €8.3 million was attributable to members of the Executive Board (2022: €13.1 million).

Change in number of PSP shares allocated

	Balance at 31 Dec 2022	Additions/ (disposals) Tranche 2018	Additions/ (disposals) Tranche 2019	Additions/ (disposals) Tranche 2020	Additions/ (disposals) Tranche 2021	Additions/ (disposals) Tranche 2022	Additions/ (disposals) Tranche 2023	Fully settled cash options	Balance at 31 Dec 2023
To the Executive Board[1]	318,124	–	724	234	–	3	31,346	– 94,043	256,388
To other senior executives	77,360	–	183	– 486	– 1,110	– 1,024	9,967	– 25,533	59,357
Total	**395,484**	**–**	**907**	**– 252**	**– 1,110**	**– 1,021**	**41,313**	**– 119,576**	**315,745**

1) Active and former members of the Executive Board

Granting of PSP-tranche 2023 for Executive Board members

The PSP tranche 2023 was awarded at the beginning of the 2023 financial year. The relevant allocation price for the PSP tranche 2023 was €168.05. The performance period for the PSP tranche 2023 ends on 31 December 2027. The individual target amounts, the allocation price, the number of phantom performance shares awarded and the fair value as at 31 December 2023 are shown for the individual Executive Board members below:

Granted PSP-tranche 2023 for Board members

Board member	Investment Target €	Grant share price €	Granted Performance Shares Number	Fair value/ option as at 31 Dec 2023 €
Theodor Weimer	1,365,000	168.05	8,123	330,614
Christoph Böhm	588,000	168.05	3,499	142,417
Thomas Book	542,334	168.05	3,228	131,380
Heike Eckert	542,334	168.05	3,228	131,380
Stephan Leithner	588,000	168.05	3,499	142,417
Gregor Pottmeyer	588,000	168.05	3,499	142,417
Total	**4,213,668**			**1,020,625**

Group Share Plan (GSP)

Employees of Deutsche Börse Group who are not members of the Executive Board or managing directors of Deutsche Börse Group companies have the opportunity to acquire shares of Deutsche Börse AG at a discount under the Group Share Plan (GSP). Under the GSP tranche for the year 2023, the participating employees could subscribe for up to 50 shares of the Company at a discount of 40 per cent and another 50 shares at a discount of 10 per cent. The acquired shares are subject to a lock-up period of two years.

The expense of this discount is recognised in the income statement at the grant date. In the reporting period, expenses totalling €7.4 million (2022: €6.3 million) were recognised in staff costs for the GSP.

Other material remuneration programmes in the context of acquisitions

Qontigo Management Incentive Programme (MIP)

An employee incentive programme was set up in the course of the acquisition for the senior management of the former Qontigo sub-group (index and analytics business of the Deutsche Börse Group). It grants a long-term remuneration component in the form of virtual shares in the former Qontigo sub-group. These are generally accounted for as sharebased payments. The remuneration payable to the beneficiaries is intended to reflect the economic development of the former Qontigo sub-group. The MIP contains a time-based and a performance-based component. The vesting period is three years, and under certain circumstances can be exercised early. It began when the transaction was completed. Due to a potential payout with cash by Group Deutsche Börse, the MIP is accounted for under the principles of a cash-settlement.

Valuation

The value of the virtual shares is determined using a Monte Carlo simulation on the respective balance sheet date, which appropriately reflects the contract-specific conditions. The underlying simulations depend on the underlying from which the payment is linked to the beneficiaries of the MIP. The enterprise value of the former Qontigo Group serves as the underlying. On the basis of the simulations carried out, a discounted average payment of the contractually agreed payment flows to the respective participants is calculated. The main valuation parameters include the enterprise value and the expected volatility of the former Qontigo Group as well as the expected term and the contract-specific payment profile. A pro rata addition of expenses over the vesting period is conducted in accordance with the criteria for a non-forfeiture of the programme.

ISS Employee Incentive Programme (EIP)

An employee incentive programme has been set up for selected managers at ISS, which enables a long-term remuneration component in the form of virtual shares in ISS. The programme is accounted for as share-based payments. The amounts awarded to the beneficiaries are intended to reflect the economic development of ISS. The EIP contains a time-based and a performance-based component. The programme will be settled in the first quarter 2024 with shares in Deutsche Börse AG and is accounted for according to the rules for equity settlement.

Valuation

The value of the virtual shares was calculated at the date of allocation to the beneficiaries, using a Black-Scholes model with contract-specific inputs. The main valuation parameters included the enterprise value and the expected volatility of ISS, as well as the expected term and the contract-specific payment profile. In line with the vesting criteria, the value of the award is recognised as an expense over the vesting period.

ISS STOXX Employee Incentive Programme

An employee incentive programme with market-standards conditions was set up for the senior management of the ISS STOXX sub-group. It grants a long-term remuneration component in the form of virtual shares and a virtual dividend right for the ISS STOXX sub-group. The programme enables the beneficiaries to participate in long-term valuation increases, so the accounting principles for share-based remuneration apply.

The vesting period is three years, and under certain circumstances can be exercised early. Grants to the programme beneficiaries were made in late 2023 and early 2024. Since the main contractual conditions were agreed with the beneficiaries in 2023 and the employees had already started their work, Deutsche Börse Group started recognising the corresponding expenses in Q3 2023.

Deutsche Börse Group has a unilateral option to settle the virtual shares with equity, so they are accounted for in accordance with the rules for equity settlement. The virtual dividend right is settled in cash, so this component is accounted for in accordance with the rules on cash settlement.

Valuation

The value of the virtual shares is calculated at the date of allocation to the beneficiaries, using a Black-Scholes model with contract-specific inputs. The main valuation parameters include the enterprise value and the expected volatility of ISS STOXX, as well as the expected term. A pro rata addition of expenses over the vesting period is conducted in accordance with the criteria for a non-forfeiture of the programme. The value of the virtual dividend right is measured at each reporting date using current market parameters.

SimCorp Employee Incentive Programme

Employee incentive programmes with market-standards conditions were set up for the senior management and employees of SimCorp, which are settled in cash. They pay a long-term remuneration component in the form of restricted stock units (RSU) with contingent claims during the vesting period. The programme enables the beneficiaries to participate in long-term valuation increases, so the accounting principles for share-based remuneration apply.

The vesting period is five years from the award date. The first allocations were made to the beneficiaries before Deutsche Börse Group acquired control of SimCorp.

Deutsche Börse Group has the option of changing and/or adjusting the terms of the incentive programme in agreement with the Executive Board of SimCorp on condition that any such changes and/or adjustments do not reduce the overall value of the restricted stock units.

Valuation

The value of the restricted stock units was adjusted on the basis of the transaction price reflecting the value of SimCorp at the time of the takeover by Deutsche Börse Group. In line with the vesting criteria, the value of the award is recognised as an expense over the vesting period.

19 Changes in other provisions

Other provisions

The individual categories of provisions changed as follows in the financial year 2023:

Changes in other provisions

€m	Interest on taxes	Restructuring plan	Other tax provision	Anticipated losses	Miscellaneous
Balance as at 1 Jan 2023	**84.5**	**5.7**	**46.3**	**8.3**	**34.4**
Changes in the basis of consolidation	0	0	0	1.2	2.3
Reclassification	1.9	– 1.0	0	0	0
Utilisation	– 61.5	0.1	– 21.9	– 1.3	2.0
Reversal	– 10.1	0	– 1.3	– 0.7	– 15.1
Additions	17.0	8.8	10.7	11.1	51.4
Currency translation	0	0	0	0	– 1.3
Interest	0	0	0	0	0
Balance as at 31 Dec 2023	**31.8**	**13.6**	**33.8**	**18.6**	**73.7**

Provisions are recognised when we have a present obligation as a result of a past event, it is probable that an outflow of resources embodying economic benefits will be required to settle the obligation and a reliable estimate can be made of the amount of the obligation. The amount of the provision corresponds to the best possible estimate of the outflow of resources required to fulfil the obligation as at the balance sheet date.

A provision is only recognised for restructuring when a detailed, formal restructuring plan has been adopted and those concerned have been given the reasonable impression that the restructuring measures will be implemented. This can be by starting to implement the plan or by announcing its key elements to those concerned.

20 Other current liabilities

Composition of other current liabilities

in €m	31 Dec 2023	31 Dec 2022
Other liabilities from CCP transactions (commodities)	721.5	2,133.5
Contract liability	202.9	172.0
Tax liabilities (excluding income taxes)	69.9	54.9
Prepaid income	22.4	6.0
Liabilities to employees	20.0	13.7
Social security liabilities	7.4	15.2
Liabilities to supervisory bodies	3.2	3.4
Miscellaneous	17.5	3.6
Total	**1,064.8**	**2,402.3**

The decline in other current liabilities results primarily from the decline in liabilities from CCP business. These liabilities are not part of the financial liabilities because the obligation does not consist of payment of cash but in physical delivery of commodities.

Other disclosures

21 Notes on the consolidated cash flow statement

Composition of other non-cash income

in €m	2023	2022
Subsequent measurement of non-derivative financial instruments	200.2	55.4
Subsequent measurement of derivatives	– 14.0	14.7
Equity method measurement	7.5	30.4
Gains on the disposal of subsidiaries and equity investments	0	– 13.0
Contract assets and liabilities	– 85.7	17.4
Total	**108.0**	**104.8**

Reconciliation to cash and cash equivalents

Cash and cash equivalents comprise cash and bank balances – to the extent that these do not result from reinvesting current liabilities from cash deposits by market participants – as well as receivables and liabilities from banking business with an original maturity of three months or less.

Reconciliation to cash and cash equivalents

in €m	31 Dec 2023	31 Dec 2022[1]
Restricted bank balances	53,669.4	93,538.3
Other cash and bank balances	1,655.1	1,275.6
Net position of financial instruments held by central counterparties	563.0	364.0
Current financial instruments measured at amortised cost	18,046.2	18,874.6
less financial instruments with an original maturity exceeding 3 months	– 1,657.7	– 2,485.4
Current financial liabilities measured at amortised cost	– 17,177.6	– 17,686.6
less financial instruments with an original maturity exceeding 3 months	1,258.0	1,514.2
Current liabilities from cash deposits by market participants	– 53,401.3	– 93,283.2
Cash and cash equivalents	**2,955.2**	**2,111.6**

1) Previous year adjusted, see note 3.

Changes in liabilities arising from financing activities

in €m	Bonds issued	Leasing liabilities	Commercial papers
Balance as at 1 Jan 2022	**3,636.7**	**486.7**	**801.0**
Cash flow from financing activities	479.3	– 75.9	– 741.0
Acquisition from business combinations	0	5.1	0
Additions from leases	0	69.2	0
Disposals from leases	0	– 18.4	0
Other and exchange rate differences	7.5	14.8	0
Balance as at 31 Dec 2022	**4,123.4**	**481.5**	**60.0**
Cash flow from financing activities	2,968.8	– 83.6	3.4
Acquisition from business combinations	0	34.9	0
Additions from leases	0	37.2	0
Disposals from leases	0	– 3.9	0
Other and exchange rate differences	3.9	3.3	1.5
Balance as at 31 Dec 2023	7,096.2	469.3	64.9

22 Earnings per share

Under IAS 33, earnings per share are calculated by dividing the net profit for the period attributable to Deutsche Börse AG shareholders (net income) by the weighted average number of shares outstanding.

In order to determine diluted earnings per share, potentially dilutive ordinary shares that may be acquired under the share-based payment programmes are added to the average number of shares.

In order to determine diluted earnings per share, all subscription rights for which a cash settlement has not been determined are assumed to be settled with equity instruments – regardless of actual accounting in accordance with IFRS 2.

All tranches of the Long-Term Sustainability Instrument (LSI) for which a choice between settlement in cash or equity instruments exists were settled in the year 2021. All current and future tranches may only be settled in cash. There are therefore no potentially dilutive ordinary shares from the Long-Term Sustainability Instrument.

As part of the employee incentive programmes at Institutional Shareholder Services Inc. as well as SimCorp A/S there are ongoing option rights, which had a small dilutive effect.

Calculation of earnings per share (basic and diluted)

	2023	2022
Number of shares outstanding at beginning of period	183,738,945	183,618,782
Number of shares outstanding at end of period	185,112,460	183,738,945
Weighted average number of shares outstanding	184,298,877	183,630,715
Number of potentially dilutive ordinary shares	290,191	354,805
Weighted average number of shares used to compute diluted earnings per share	184,589,068	183,985,520
Net profit for the period attributable to Deutsche Börse AG shareholders (€m)	1,724.0	1,494.4
Earnings per share (basic) (€)	9.35	8.14
Earnings per share (diluted) (€)	9.34	8.12

23 Segment reporting

Deutsche Börse divides its business into four segments: This structure is used for the internal Group controlling and forms the basis for the financial reporting. Detailed disclosures on the segment structure, which form part of these consolidated financial statements, can be found under the heading "Business operations and Group structure" in the section "Deutsche Börse: Fundamental information about the Group" in the combined management report.

Segment reporting

	Investment Management Solutions		Trading & Clearing		Fund Services		Securities Services		Group	
	2023	2022	2023	2022	2023	2022	2023	2022	2023	2022
Net revenue (€m)	863.2	651.7	2,262.8	2,187.1	439.9	375.9	1,510.7	1,122.9	5,076.6	4,337.6
Operating costs (€m)	– 581.1	– 383.2	– 914.6	– 876.3	– 209.8	– 171.5	– 412.8	– 391.2	– 2,118.3	– 1,822.2
Result from financial investments	– 6.1	– 7.0	1.2	20.0	– 3.4	– 0.6	– 5.7	– 2.2	– 14.0	10.2
thereof result of the equity method measurement of entities	0	0	14.8	10.1	– 4.6	– 0.6	– 6.6	– 2.7	3.6	6.8
EBITDA (€m)	276.0	261.5	1,349.4	1,330.8	226.7	203.8	1,092.2	729.5	2,944.3	2,525.6
EBITDA margin (%)	32	40	60	61	52	54	72	65	58	58
Depreciation, amortization and impairment losses (€m)	– 128.4	– 103.7	– 165.8	– 134.6	– 45.8	– 44.0	– 78.5	– 73.3	– 418.5	– 355.6
EBIT (€m)	147.6	157.8	1,183.6	1,196.2	180.9	159.8	1,013.7	656.2	2,525.8	2,170.0
Capital expenditure[1] (€m)	44.4	35.1	115.6	159.1	34.4	38.1	69.5	91.2	263.9	323.5
Employees (as at 31 December)	6,628	3,835	4,171	3,918	1,369	1,162	2,334	2,163	14,502	11,078

1) Excluding investments from business combinations

The net revenue includes revenue generated through external parties as well as through intercompany transactions. The effect of intercompany revenue is eliminated (in net revenue) at Group level, however, as the revenue generated within the Group by a segment has the same revenue-reducing effect in the respective segment. For an overview of intercompany revenue see note 4. Services between segments are offset on the basis of measured amounts or fixed prices.

Our business model – and that of all our segments – is focused on an internationally operating participant base and pricing does not differ depending on the customer's location. From a price, margin and risk perspective, this means it does not matter whether sales revenue is generated from German or international participants.

The risks and returns from the activities of the subsidiaries operating within the economic environment of the European Monetary Union (EMU) do not differ significantly from each other on the basis of the factors to be considered in identifying information on geographical regions under IFRS 8. We have therefore identified the following regions: Euro area, other Europe, America and Asia-Pacific.

Sales revenue is allocated to the individual regions according to the customer's domicile, while investments and non-current assets are allocated according to the company's domicile and employees according to their location.

As described above, the analysis of sales is based on the direct customer's billing address. This means e.g. that sales to an American investor trading a product with an Asian underlying via a European clearing member are classified as European sales.

Information on geographical regions

	Sales revenue[1]		Investments[2]		Non-financial non-current assets[3, 4]		Number of employees	
in €m	2023	2022	2023	2022	2023	2022	2023	2022
Euro zone	2,715.6	2,543.2	211.7	281.1	4,478.8	4,396.2	6,655	5,702
Rest of Europe	1,466.9	1,315.0	25.2	8.7	5,376.9	1,367.9	3,514	1,984
America	719.7	640.3	27.0	32.8	3,307.3	3,552.5	1,552	1,273
Asia-Pacific	320.6	290.0	0	0.9	35.7	36.1	2,781	2,119
Total of all regions	**5,222.8**	**4,788.5**	**263.9**	**323.5**	**13,198.7**	**9,352.7**	**14,502**	**11,078**
Consolidation of internal net revenue	– 89.6	– 96.2	0	0	0	0	0	0
Group	**5,133.2**	**4,692.3**	**263.9**	**323.5**	**13,198.7**	**9,352.7**	**14,502**	**11,078**

1) Including countries in which more than 10 per cent of sales revenue was generated: Germany (2023: €1,084.0 million; 2022: €1,054.6 million), United Kingdom (2023: €916.2 million; 2022: €883.3 million) and United States (2023: €654.0 million; 2022: €582.3 million).
2) Excluding goodwill and right-of-use assets from leasing.
3) Including countries in which more than 10 per cent of assets are held: Denmark (2023: €3,989.7 million; 2022: €0.2 million), Germany (2023: €3,787.9 million; 2022: €3,701.1 million), United States (2023: €3,306.0 million; 2022: €3,552.5 million) and Switzerland (2023: €1,357.6 million; 2022: €1,334.6 million).
4) These include intangible assets, property, plant and equipment as well as investments in associates and joint ventures.

24 Financial risk management

Detailed qualitative disclosures on financial instruments in line with IFRS 7.33, which form part of these consolidated financial statements, such as the type and extent of the risks arising from the financial instruments, as well as the objectives, strategies and processes of managing the risks, can be found under the headings "Risk management approach", "Organisational structure and reporting lines for risk management" and "Centrally coordinated risk management process" in the "Risk report" section of the combined management report.

Financial risks mainly arise in the form of credit risks and to a lesser extent in the form of market price risks. They are quantified by reference to the economic capital concept (for detailed disclosures, see the section "Financial risk"). Required economic capital is assessed on a 99.9 per cent confidence level for a one-year holding period. It is compared with the Group's liable equity capital so as to test the Group's ability to absorb extreme and unexpected losses. Required economic capital (REC) for financial risk is calculated at the end of each month and amounted to €600.0 million as at 31 December 2023.

We evaluate our risk position continuously. In the view of the Executive Board, no threat to the continued existence of the Group can be identified at this time.

Credit risk

Credit risks at DBG arise from trade receivables and contract assets, fixed income securities held at amortised cost, receivables from money market business, including reverse repos, overdraft facilities from the securities settlement business, receivables from the CCP business, cash and other bank balances. Further credit risks exist for fund interests and convertible bonds at fair value through profit or loss, for financial instruments of the central counterparties and derivative financial investments. Fundamentally and unless otherwise stated, the maximum risk exposure is the carrying amount shown in the consolidated statement of financial position.

Cash investments

Clearstream receives cash deposits from its customers in various currencies, whereby Eurex Clearing AG receives cash collateral, mainly in EUR and CHF, and European Commodity Clearing AG mainly in EUR. These units invest the funds received in accordance with the treasury policy, which gives rise to a potential credit risk.

We mitigate such risks either – to the extent possible – by investing short-term funds on a secured basis, e.g. via reverse repurchase agreements, or by depositing them with central banks.

Eligible collateral for reverse repurchase agreements mainly consists of highly liquid financial instruments with a minimum rating of AA– (Standard & Poor's/Fitch) or Aa3 (Moody's) issued or guaranteed by governments or supranational institutions.

Counterparty credit risk is monitored on the basis of an internal rating system. Unsecured cash investments are permitted only with counterparties with investment grade ratings within the framework of defined counterparty credit limits. An investment grade rating in this context means an internal rating of at least D, which corresponds to an external Fitch rating of at least BBB.

The carrying amount of reverse repurchase agreements as at 31 December 2023 was €9,424.2 million (2022: €6,805.2 million) and is shown in the items "Restricted bank balances" and "Financial assets measured at amortised cost". The fair value of securities received as collateral under reverse repurchase agreements was €9,614.5 million (2022: €7,144.9 million).

Clearstream Banking S.A. and Eurex Clearing AG are entitled to pledge the eligible securities received to their central banks in order to make use of the central banks' monetary policy instruments.

Neither Clearstream Banking S.A nor Eurex Clearing AG had pledged securities to central banks as at 31 December 2023 (2022: Clearstream Banking S.A €451.3 million and Eurex Clearing AG €0.0 million).

In addition, Clearstream Banking S.A., Clearstream Banking Frankfurt AG and Eurex Clearing AG used forex swaps in the context of their cash investments.

Loans for settling securities transactions

Clearstream grants customers intraday technical overdraft facilities to maximise settlement efficiency. Lending takes place on a secured basis and the individual borrowing participants must provide full collateral for their credit limits in line with the EU regulation. These credit limits can be revoked at the discretion of the Clearstream sub-group. As at 31 December 2023 they came to a total of €175.3 billion. €7.1 billion of the total is unsecured and only relates to credit lines granted in special exceptional cases to selected central banks and multilateral development banks, partly on the basis of the borrower's credit rating and partly on a zero-risk weighting according to Regulation (EU) No. 575/2013 (CRR) and after approval by the Executive Board of the Clearstream sub-group.

Actual outstandings at the end of each business day generally represent a small fraction of the facilities and amounted to €392.7 million as at 31 December 2023 (2022: €131.6 million). The portfolio of deposited collateral is not directly attributed to any utilisation, but is determined by the scope of the entire business relationship and the limits granted.

In addition, Clearstream guarantees the risks arising from the Automated Securities Fails Financing programme that it offers its clients, in which Clearstream Banking S.A. acts as an intermediary between the lender and the borrower. This risk is covered by pledged collateral on the borrower's account. As at 31 December 2023 the outstanding guarantees under this programme amounted to €521.7 million (2022: €1,385.2 million). The securities pledged in connection with these loans amounted to €550.7 million (2022: €1,731.5 million).

Trade receivables

The maximum credit risk for the item trade receivables is €1,840.5 million as at 31 December 2023 (2022: €2,295.7 million). Trading, settlement and custody fees are generally collected without delay by direct debit. Fees for other services, such as the provision of data and information, are settled mainly by transfer. Trade receivables are analysed using an expected credit loss model based on the simplified approach as outlined in IFRS 9. To measure the expected credit loss, trade receivables and contract assets have been grouped based on the days past due. The trade receivables share the main risk characteristics. The expected loss amount has been determined by applying the lifetime expected loss approach. The expected loss rates are based on the payment profiles over a period of five years and the loss profile experienced over that period.

Loss allowances for trade receivables as at 31 December 2023

in €m	Not more than 30 days past due	Not more than 60 days past due	Not more than 90 days past due	Not more than 120 days past due	Not more than 360 days past due	More than 360 days past due	Insolvent	Total
Expected loss rate	0%	0%	0.4%	0.4%	2.3%	99.8%	100%	
Trade receivables	97.2	22.6	7.9	4.7	13.7	5.3	2.7	154.0
Loss allowance	0	0	0	0	0.3	5.3	2.7	8.3

Loss allowances for trade receivables as at 31 December 2022

in €m	Not more than 30 days past due	Not more than 60 days past due	Not more than 90 days past due	Not more than 120 days past due	Not more than 360 days past due	More than 360 days past due	Insolvent	Total
Expected loss rate	0.0%	0.0%	0.2%	0.9%	2.1%	98.5%	100%	
Trade receivables	92.7	14.8	8.9	2.8	12.5	3.8	2.4	137.9
Loss allowance	0	0	0	0	0.3	3.6	2.4	6.3

Trade receivables are written off when there is no reasonable expectation of recovery. The following criteria are used for the assessment of derecognition:

- Insolvency proceedings are not started for want of assets.
- Insolvency proceedings have not resulted in any payment for a period of three years, and there is no indication that any amount will be received going forward.

In the reporting year, as in the previous year there were no significant write-offs due to customer defaults (2022: nil).

Contract assets

The maximum credit risk for the item contract assets was €375.5 million as at 31 December 2023 (2022: nil). Impairments of €3.0 million were recognised on contract assets as at 31 December 2023. No contract assets were recognised as at 31 December 2022. Contract assets relate to rights to consideration from customers for software licences under subscription agreements with future payments, if this right depends on future performance by us. Contract assets from contracts with customers are measured at amortised cost less expected credit losses. Contract assets come within the scope of the IFRS 9 impairment testing rules. The simplified approach is used and the expected credit loss over the entire term is estimated.

Debt securities

The maximum credit risk for the item debt securities was €1,975.7 million as at 31 December 2023 (2022: €2,305.3 million). All debt securities are considered to have low default risk and the loss allowance recognised during the period was therefore limited to twelve months' expected losses. The Group considers listed bonds to have a low credit risk if they have an investment grade credit rating from an external rating agency.

Development of the loss allowance

Development of the loss allowance

	Debt securities	Trade receivables	Trade receivables	Loans from the securities settlement business[1]	
in €m	Stage 1	Stage 1/2	Stage 3	Stage 3	Total
Closing loss allowance as at 1 January 2022	**0.4**	**0.8**	**7.9**	**1.7**	**10.8**
Increase from business combinations	0	0	– 0.1	0	– 0.1
Increase in the allowance recognised in profit or loss during the period	0.1	0	0.7	0	0.8
Decrease in the allowance recognised in profit or loss during the period	– 0.1	– 0.5	– 2.6	– 0.2	– 3.4
Closing loss allowance as at 31 December 2022	**0.4**	**0.3**	**6.0**	**1.5**	**8.2**
Increase from business combinations	0	0.4	0	0	0.4
Increase in the allowance recognised in profit or loss during the period	0.1	0.1	3.3	0.8	4.3
Decrease in the allowance recognised in profit or loss during the period	– 0.0	– 0.1	– 1.7	0	– 1.8
Closing loss allowance as at 31 December 2023	**0.4**	**0.8**	**7.6**	**2.3**	**11.0**

1) Loss allowances for loans from the securities settlement business were reported as part of trade payables in previous years. This resulted in a reclassification to the item "Other financial assets measured at amortised cost" in the amount of € 1.5 million.

Financial instruments of the central counterparties

The maximum credit risk for financial instruments of the central counterparties as at 31 December 2023 was €100,991.0 million (2022: €155,339.2 million) and is based on the net value of all margin requirements for transactions closed on the reporting date and collateral for the default fund. This amount represents the risk-based view of Eurex Clearing AG and European Commodity Clearing AG, while the carrying amount of the "financial instruments held by central counterparties" item in the balance sheet shows the gross amount of the open trades according to IAS 32. To safeguard the Group's central counterparties against the risk of default by a clearing member, the clearing conditions require the clearing members to deposit margins in the form of cash or securities on a daily basis or an intraday basis in the amount stipulated by the respective clearing house. The amount of collateral deposited for the financial instruments of the central counterparties was €122,728.0 million as at 31 December 2023 (2022: €182,104.6 million). This amount represents the collateral value of cash and securities collateral deposited for margins, covering the net value of all margin and default fund requirements

Additional security mechanisms of the Group's central counterparties are described in detail in the section "Risk report".

Credit risk concentrations

Our business model and the resulting business relationships mean that credit risk is concentrated in the financial services sector. Credit limits for counterparties prevent any excessive concentration of credit risks on individual counterparties. Concentrations of collateral are also monitored.

Management of credit risk concentration, including collateral concentration, and so-called large exposures, is conducted in compliance with applicable regulatory requirements such as those arising from, among others, articles 387–410 of Regulation (EU) 575/2013 (Capital Requirements Regulation, CRR), article 47 paragraph 8 of Regulation (EU) 648/2012 (European Market Infrastructure Regulation, EMIR) and respectively applicable national requirements (see also the disclosures on capital management under the heading "Regulatory capital requirements and regulatory capital ratios" in the Risk management section of the combined management report). Requirements of concentration risks arising from Regulation (EU) 909/2014 (Central Securities Depository Regulation, CSDR) have been implemented as part of Deutsche Börse Group's affiliated CSD recognised in under article 16 CSDR.

The required economic capital (based on the so-called "Value at Risk" (VaR) with a confidence level of 99.9 per cent) for credit risk is calculated monthly for each day and amounted to €457.0 million as at 31 December 2023 (2022: €430.0 million).

We also apply additional methods in order to detect credit concentration risks. We analyse the impact of a default by our two largest counterparties with unsecured commitments and stressed recovery parameters. In addition, analyses are carried out for the Group's top 5 and top 10 counterparties, based on the risk-weighted commitments of the individual counterparties. All the concentration metrics have dedicated early warning thresholds and limits and are part of the quarterly risk reporting to the Executive Board. As in the previous year, no material adverse credit concentrations were detected in 2023.

Market risk

Market risk arises from changes in interest rates, foreign-exchange rates and other market prices. Deutsche Börse Group is generally only affected to a limited extent by market risk.

The economic capital required for market price risks (based on the Value at Risk (VaR) with a confidence level of 99.9 per cent) is calculated at the end of each month. As of 31 December 2023 the economic capital for market price risks was €143.0 million (2022: €114.0 million).

In the 2023 financial year, no impairment losses (2022: €1.0 million) were recognised in profit or loss for entities accounted for using the equity method that are not included in the VaR for market risk.

Interest rate risk

Changes in market interest rates may affect Deutsche Börse Group's net income for the period attributable to Deutsche Börse AG shareholders. This risk arises whenever interest terms of financial assets and liabilities are different.

Interest-rate-sensitive assets include the Group's money market and investment portfolios, while interest rate sensitive liabilities mainly consist of short-term debt instruments. Interest rate risk from long-term liabilities of Deutsche Börse AG is mitigated through issuance of fixed-coupon bonds.

In line with our risk strategy, we may use financial instruments to hedge existing or highly probable interest rate exposures. For this purpose, interest rate swaps, as well as swaptions, might be used. Our treasury policy requires the critical parameters of the hedging instruments to match the hedged items.

Deutsche Börse Group issued three fixed rate bonds with a total nominal value of €3 billion in 2023 in connection with the takeover of SimCorp. To hedge the long-term financing against unexpected interest rate increases, three forward starting deal contingent interest rate swaps with a nominal value of €2 billion were taken out in May 2023. These swaps were dissolved when the fixed interest bonds were issued in September 2023. Cash flow hedge accounting was applied to this hedging. Details of Deutsche Börse Group's outstanding bonds can be found in the "Financial position" section of the combined management report.

Cash received as deposits from market participants is invested mainly via short-term reverse repos and in the form of overnight deposits at central banks, limiting the risk of a negative impact due to a changed interest rate environment. Negative interest rates resulting from reinvestments of these cash deposits are passed on to the respective Clearstream customers after applying an additional margin. For Eurex Clearing AG, interest rates on cash collateral are in principle calculated based on a predefined market benchmark rate per currency after deducting an additional spread per currency. In exceptional cases such as market disruption, Eurex Clearing AG reserves the right to calculate interest rates on cash collateral based on the recognised interest rate.

Group entities may furthermore invest their own capital and part of customer cash balances in high-quality liquid bonds.

The risk from interest-bearing assets and liabilities is monitored every business day and systematically limited. The system consists of a combined limit metric (CLM) that covers both liquidity and interest rate risk. The interest rate risk limits determine the acceptable maximum loss caused by a hypothetical adverse yield curve shift.

In this way, the cash flow risk arising from potential interest rate changes was hedged. Cash flow hedge accounting was applied to this hedging.

Foreign-exchange rate risk

Measuring and managing foreign-exchange risk is important for reducing our exposure to exchange rate movements. The three main types of foreign-exchange risk that we are exposed to are cash flow-, translation- and transaction-related foreign-exchange risk. Cash flow risk reflects the risk of fluctuations in the present value of future operating cash flows from foreign-exchange movements. Translation risk comprises effects from the valuation to our assets and liabilities in foreign currencies. Finally, transaction risk is closely related to cash flow risk; it may arise through changes in the structure of asset and liabilities in foreign currencies.

We operate internationally and are, to a limited extent, exposed to foreign-exchange risk, primarily in US$, Fr., £ and Kč. Exchange rate fluctuations may affect our profit margins and the value of assets and liabilities denominated in a currency that is not the functional currency of the relevant Group entity. The respective currency risks arise mainly from operating income and expenses denominated in a currency other than the functional currency, partly from that portion of the Clearstream segment's sales revenue and net interest income from treasury activities in banking and similar business that is directly or indirectly in US$.

Currency mismatches are avoided to the maximum extent possible. All types of foreign exchange risk are measured regularly and monitored at Group level. Limits are set for the cash flow and currency translation risks that affect our gains and losses. Deutsche Börse Group's treasury policy defines risk limits which take into account historic foreign-exchange rate fluctuations. Any exposure exceeding those limits must be hedged. Foreign-exchange exposures below the defined limits may also be hedged. Management of foreign-exchange risks is in principle based on the Group level. Hedging may take place on a single entity level if foreign-exchange risk threatens the viability of the single entity.

To eliminate foreign-exchange risks we use financial instruments to hedge existing or highly probable forecast transactions. The Group may use foreign-exchange forwards, foreign-exchange options as well as cross-currency swaps to hedge the exposure to foreign-exchange risk. Under the Group's policy, the critical terms of forwards and options must align with the hedged items.

Clearstream Banking S.A. entered into foreign-exchange forwards in 2023 to hedge part of the risk from the result of treasury activities in banking and similar business in US$. In addition, the Group uses foreign exchange derivatives to hedge foreign exchange risks in connection with internal cash pooling and loans.

Other market risks

Market risk also arises from investments in bonds, investments in funds and futures within the framework of contractual trust arrangements (CTAs) and from the Clearstream Pension Fund in Luxembourg. For the CTAs, the investment is protected by a predefined floor, which reduces the risk of extreme losses for Deutsche Börse Group. In addition, there are equity price risks arising from strategic equity investments.

Liquidity risk

For us, liquidity risk may arise from potential difficulties in renewing maturing financing, such as commercial paper, issued bonds as well as bilateral and syndicated credit facilities. Financing arrangements required for unexpected events may also result in a liquidity risk. Most of our cash investments are short-term to ensure that liquidity is available, should such a financing need arise. Both Eurex Clearing AG and Clearstream can invest stable customer credit balances in secured money market products (for up to one year for Eurex Clearing and six months for Clearstream) or in investment grade securities with a remaining term to maturity of less than five years for Eurex Clearing and Clearstream, subject to strict monitoring of mismatching and interest rate limits. Term investments can be transacted via reverse repurchase agreements against highly liquid collateral. For refinancing purposes, Eurex Clearing AG and Clearstream Banking S.A. can pledge eligible securities with their respective central banks. In terms of the maturities of the cash spreads received from customers and its corresponding investments, Eurex Clearing is almost perfectly matched.

The companies of Deutsche Börse Group have the following credit lines at their disposal, which were not recognised as of the balance sheet date.

Contractually agreed credit lines

Company	Purpose of credit line	Currency	Amount at 31 Dec 2023 m	Amount at 31 Dec 2022 m
Deutsche Börse AG	Working capital[1)]	€	600.0	600.0
Eurex Clearing AG	Settlement	€	900.0	900.0
	Settlement	Fr.	200.0	200.0
	Settlement[2)]	US$	300.0	300.0
Clearstream Banking S.A.	Working capital[1)]	€	750.0	750.0
	Settlement[2)]	€	4,375.0	4,225.0
	Settlement[2)]	US$	2,950.0	3,200.0
	Settlement[2)]	£	0	350.0
Clearstream Banking AG	Settlement	€	200.0	200.0
European Energy Exchange AG	Working capital	€	22.0	22.0
European Commodity Clearing AG	Settlement	€	140.0	140.0
Axioma Inc.	Working capital	US$	1.9	1.7
SimCorp A/S	Settlement	DKK	266.3	0.0

1) €500.0 million of Deutsche Börse AG's working capital credit lines is a sub-credit line of Clearstream Banking S.A.'s €750.0 million working capital credit line.
2) Including committed foreign exchange swap lines and committed repo lines.

Clearstream Banking S.A. has a bank guarantee (letter of credit) in favour of Euroclear Bank S.A./N.V. issued by an international consortium to secure daily deliveries of securities between Euroclear Bank S.A./N.V. and Clearstream Banking S.A. As at 31 December 2023 this guarantee came to US$ 3.0 billion (2022: US$3.0 billion). Euroclear Bank S.A./N.V. has also issued a guarantee in favour of Clearstream Banking S.A. amounting to US$ 3.0 billion (2022: US$3.0 billion).

A commercial paper programme offers Deutsche Börse AG and subsidiaries an opportunity for flexible, short-term financing, involving a total facility of €3.5 billion in various currencies. We had issued commercial paper with a nominal volume of €1,142.1 million as at 31 December (2022: €566.0 million)

In 2023, after the successful acquisition of SimCorp, Standard & Poor's downgraded Deutsche Börse AG's long-term issuer credit rating to AA–. Deutsche Börse AG's commercial paper programme also had the highest short-term rating of A-1+. The AA rating of Clearstream Banking S.A. was confirmed with a stable outlook by the rating agencies Fitch and S&P Global Ratings (S&P) in 2023. S&P also rated Clearstream Banking AG as AA in November 2023. For further details on the rating of Deutsche Börse Group, see section "Financial position" section in the combined management report.

Maturity analysis of financial instruments (1)

€m	Contractual maturity						
	Sight	Not more than 3 months	More than 3 months but not more than 1 year	More than 1 year but not more than 5 years	Over 5 years	Reconciliation to carrying amount	Carrying amount
31 Dec 2023							
Non-derivative financial liabilities							
Non-current financial liabilities measured at amortised cost	0	7.4	149.9	3,667.1	5,048.8	– 1,389.1	7,484.0
thereof lease liabilities	0	0	0	186.2	198.1	0	384.3
Non-current financial liabilities at fair value through profit or loss	0	0	0	0.3	0	0	0.3
Trade payables	2.4	1,511.3	0.4	0.0	0	0	1,514.2
Current financial liabilities measured at amortised cost	15,335.3	1,587.1	248.7	7.3	0.0	– 0.9	17,177.6
thereof lease liabilities	0	21.8	63.2	0	0	0	85.0
Current financial liabilities at fair value through profit or loss	0	0	0.1	0	0	0	0.1
Cash deposits by market participants	15,605.7	37,190.9	604.7	0	0	0	53,401.3
Total non-derivative financial liabilities (gross)	**30,943.4**	**40,296.7**	**1,003.8**	**3,674.7**	**5,048.8**	**– 1,390.1**	**79,577.4**
Derivatives and financial instruments held by central counterparties							
Financial instruments and derivatives held by central counterparties	47,582.0	70,925.7	18,834.2	7,078.3	589.3	0	145,009.5
less financial assets and derivatives held by central counterparties	– 48,145.0	– 70,925.7	– 18,834.2	– 7,078.3	– 589.3	0	– 145,572.5
Cash inflow – derivatives and hedges							
Cash flow hedges	0	35.9	313.1	0	0		
Fair value hedges	0	0	0	0	0		
Derivatives held for trading	1,168.6	2,835.0	0	0	0		
Cash outflow – derivatives and hedges							
Cash flow hedges	0	– 37.2	– 304.7	0	0		
Fair value hedges	0	0	0	0	0		
Derivatives held for trading	– 1,168.3	– 2,843.7	0	0	0		
Total	**– 562.7**	**– 10.1**	**8.3**	**0**	**0**		

Maturity analysis of financial instruments (2)

€m 31 Dec 2022[1]	Contractual maturity Sight	Not more than 3 months	More than 3 months but not more than 1 year	More than 1 year but not more than 5 years	Over 5 years	Reconciliation to carrying amount	Carrying amount
Non-derivative financial liabilities							
Non-current financial liabilities measured at amortised cost	0	7.4	34.6	706.5	3,450.3	336.1	4,535.0
thereof lease liabilities	0	0	0	203.9	253.5	– 46.7	410.7
Non-current financial liabilities at fair value through profit or loss	0	0	0	6.1	0	0	6.1
Trade payables	0.1	2,039.7	0.1	0	0	0	2,039.8
Current financial liabilities measured at amortised cost	15,710.3	1,657.1	122.1	0	0	– 6.5	17,482.8
thereof lease liabilities	0	19.1	58.2	0	0	– 6.5	70.8
Current financial liabilities at fair value through profit or loss	0	0.3	0	0	0	0	0.3
Cash deposits by market participants	0	92,606.4	676.7	0	0	0	93,283.1
Total non-derivative financial liabilities (gross)	**15,710.3**	**96,310.8**	**833.4**	**712.6**	**3,450.3**	**329.6**	**117,347.1**
Derivatives and financial instruments held by central counterparties							
Financial instruments and derivatives held by central counterparties	81,408.6	37,670.2	10,489.9	8,350.5	728.0	0	138,647.2
less financial assets and derivatives held by central counterparties	– 81,772.6	– 37,670.2	– 10,489.9	– 8,350.5	– 728.0	0	– 139,011.2
Cash inflow – derivatives and hedges							
Cash flow hedges	0	0	0	194.0	0		
Fair value hedges	0	0	0	0	0		
Derivatives held for trading	284.0	4,444.8	1,255.9	0	0		
Cash outflow – derivatives and hedges							
Cash flow hedges	0	– 36.5	– 109.6	– 225.9	0		
Fair value hedges	0	0	0	0	0		
Derivatives held for trading	– 285.6	– 4,506.7	– 1,324.2	0	0		
Total derivatives and hedges	**– 365.6**	**– 98.4**	**– 177.9**	**– 31.9**	**0**		

1) Previous year adjusted, see note 3.

25 Financial liabilities and other risks

Legal risks

The companies of Deutsche Börse Group are exposed to litigation. Such litigation may result in payments by entities in the Group. If it is more likely than not that an outflow of resources will occur, a provision will be recognised based on an estimate of the most probable amount necessary to settle the obligation if such amount is reasonably estimable. The management of the entity affected must assess whether the possible obligation results from a past event, as well as evaluate the probability of a cash outflow and estimate its amount.

We recognise provisions for possible losses only if there is a present obligation arising from a past event that is likely to result in an outflow of resources and if the Group can reliably estimate the amount of the obligation (see also note 19). Contingent liabilities may result from present obligations and from possible obligations arising from events in the past. In order to identify the litigation for which the possibility of a loss is more than unlikely, as well as how the possible loss is estimated, Deutsche Börse Group considers a large number of factors, including the nature of the claim and the facts on which it is based, the jurisdiction and course of the individual proceedings, the experience of the Group, prior settlement talks (to the extent that they have already taken place) as well as expert opinions and evaluations of legal advisers.

Losses also may arise from legal risks which are not highly probable, so that no provisions have been recognised. If the event is not completely improbable, the legal risks may have to be recognised as contingent liabilities. As neither the timing of these contingent liabilities nor the amount of any payment can be estimated reliably, any quantitative disclosure would not be a useful guide to possible future losses. For this reason, no figure is shown for contingent liabilities.

The main legal disputes that have been classified as contingent liabilities as at 31 December 2023 and for which consequently no provisions have been recognised as at 31 December 2023 are described below.

Litigation involving Clearstream Banking S.A. in connection with the Central Bank of Iran

Clearstream Banking S.A. is involved in different legal proceedings in Luxembourg and the U.S. in connection with the Iranian central bank, Bank Markazi. On the one hand of this, different plaintiffs groups – each of which have obtained U.S. judgements against Iran and/or Bank Markazi – are seeking turnover of assets that Clearstream Banking S.A. is holding as custodian in Luxembourg and that are attributed to Bank Markazi. Several of these plaintiffs groups also raise direct claims for damages against Clearstream Banking S.A. On the other hand, Bank Markazi is suing, among others, Clearstream Banking S.A. in Luxembourg in connection with assets that currently or in the past were held by Clearstream Banking S.A. as custodian.

On the basis of a binding and enforceable U.S. judgement in 2013, assets in an amount of approx. USD 1.9 billion were already turned over to a plaintiffs group in a U.S. proceeding (“Peterson I”) to which Bank Markazi also was a party. Currently, the following proceedings that were initiated by the mentioned plaintiffs groups and that primarily target assets attributed to Bank Markazi are ongoing:

- "Peterson II" plaintiffs group: On 30 December 2013, plaintiffs filed a complaint in the U.S. against Clearstream Banking S.A. and other parties seeking turnover of certain assets that Clearstream Banking S.A. holds as a custodian in Luxembourg and that are attributed to Bank Markazi. The proceedings since then had advanced to the U.S. Supreme Court but were then remanded to the district court. On 22 March 2023, the district court awarded judgement to the plaintiffs for turnover of approximately USD 1.7 billion that are attributed to Bank Markazi and held in custody at Clearstream Banking S.A. in Luxembourg in a client account. Clearstream Banking S.A. appealed against the decision.
- "Havlish" plaintiffs group: On 14 October 2016, plaintiffs filed a complaint in the U.S. against Clearstream Banking S.A. and other parties. Besides the request for turnover of certain assets that Clearstream Banking S.A. holds as a custodian in Luxembourg, the complaint also asserted direct damage claims against Clearstream Banking S.A. and other defendants in the amount of up to approx. USD 6.6 billion (plus punitive damages and interest). On 12 October 2020, an amended complaint was filed in this case, which added further plaintiffs and which in turn asserted additional damages of approx. USD 3.3 billion (plus punitive damages and interest) against Clearstream Banking S.A. and the other defendants.
- "Levin" plaintiffs group: On 26 December 2018, plaintiffs filed a complaint in the U.S. against Clearstream Banking S.A. and other parties. Besides the request for turnover of certain assets that Clearstream Banking S.A. holds as a custodian in Luxembourg, the complaint also asserted direct damage claims against Clearstream Banking S.A. and other defendants in the amount of up to approx. USD 29 million (plus punitive damages and interest). The plaintiffs withdrew their complaint effective as of 24 April 2023.
- "Heiser" plaintiffs group: On 4 December 2019, plaintiffs from a previous case filed a new complaint in the U.S. against Clearstream Banking S.A. targeting turnover of certain assets that Clearstream Banking S.A. holds as a custodian in Luxembourg.
- "Ofisi" plaintiffs group: On 26 August 2020, plaintiffs filed a complaint in the U.S. against Clearstream Banking S.A. and other parties. Besides the request for turnover of certain assets that Clearstream Banking S.A. holds as a custodian in Luxembourg, the complaint also asserts direct damage claims against Clearstream Banking S.A. and other defendants in the amount of up to approx. USD 8.7 billion (plus punitive damages and interest).
- On 24 November 2020, plaintiffs from the abovementioned Havlish case also sued Clearstream Banking S.A. and other parties in Luxembourg. The complaint, among others, asserts direct damage claims against Clearstream Banking S.A. and other defendants in the amount of up to approx. USD 5.5 billion (plus interest).
- "Acosta/Beer/Greenbaum/Kirschenbaum" plaintiffs group: On 28 February 2022, plaintiffs filed new complaints in the U.S. against Clearstream Banking S.A. targeting turnover of certain assets that Clearstream Banking S.A. holds as a custodian in Luxembourg.

In connection with assets concerning Bank Markazi, Bank Markazi on 17 January 2018 filed a complaint in Luxembourg court naming Clearstream Banking S.A. and Banca UBAE S.p.A. as defendants. The complaint primarily seeks the restitution of assets totalling approximately USD 4.9 billion (plus interest), which the complaint alleges are held on accounts of Banca UBAE S.p.A. and Bank Markazi with Clearstream Banking S.A. Alternatively, Bank Markazi seeks damages in the same amount.

In another proceeding, on 30 April 2021, a Luxembourg first instance court at the request of Bank Markazi issued a declaratory judgement against Clearstream Banking S.A. in connection with, amongst others, the abovementioned Peterson II proceedings pending in the U.S. The first instance decision of 30 April 2021 subjects the transfer of assets attributed to Bank Markazi based on a U.S. decision to the requirement of prior judicial recognition in Luxembourg, violation of which is punishable by a fine of €10 million per violation. Clearstream Banking S.A. has filed an appeal against the decision.

On 15 June 2018, Banca UBAE S.p.A. filed a complaint against Clearstream Banking S.A. in Luxembourg court. This complaint is a recourse action related to the abovementioned complaint filed by Bank Markazi against Clearstream Banking S.A. and Banca UBAE S.p.A. and asks that Banca UBAE S.p.A. be indemnified and held harmless by Clearstream Banking S.A. in the event that Banca UBAE S.p.A. loses the legal dispute brought by Bank Markazi and is ordered by the court to pay damages to Bank Markazi.

Independent of whether Clearstream Banking S.A. should be required to turn over assets attributed to Bank Markazi in the U.S., the Executive Board of Clearstream Banking S.A. does not think that claims for damages raised against Clearstream Banking S.A. in Luxembourg or in the U.S. will be successful. Based on this, as of 31 December 2023 and unchanged from the previous year, no provisions were made in connection with the aforementioned matters.

Further litigations and proceedings

Litigations

Starting on 16 July 2010, the insolvency administrators of Fairfield Sentry Ltd. And Fairfield Sigma Ltd., two funds domiciled on the British Virgin Islands, filed complaints in the U.S. Bankruptcy Court for the Southern District of New York, asserting claims against more than 300 financial institutions for restitution of amounts paid to investors in the funds for redemption of units prior to December 2008. On 14 January 2011, the funds insolvency administrators filed litigation against Clearstream Banking S.A. for the restitution of US$13.5 million in payments made for redemption of fund units, which the funds made to investors via the settlement system of Clearstream Banking S.A. The proceedings, which were suspended for several years, are ongoing.

A buyer of an MBB Clean Energy AG (MBB) bond, which is held in custody by Clearstream Banking AG and was listed on the Frankfurt Stock Exchange, filed a lawsuit at a Dutch court concerning claims for damages in the amount of €33 million against Clearstream Banking AG, Deutsche Börse AG and other parties. The lawsuit was dismissed at first instance in October 2020; the plaintiff filed an appeal against the judgement.

On 23 July 2021, Clearstream Banking AG was served with a lawsuit that Air Berlin PLC i.L. had announced by way of an ad hoc announcement on 25 June 2021. The insolvency administrator in connection with the assets of Air Berlin PLC i.L. claims the payment of approximately €497.8 million from Clearstream Banking AG as personally liable partner of Air Berlin PLC i.L. due to Brexit, and seeks declaratory relief that Clearstream Banking AG is liable for all debts which have not already been approved to the insolvency table in the course of the insolvency proceedings concerning the assets of Air Berlin PLC.

As informed by the competent court on 28 March 2023, the lawsuit served on Clearstream Banking AG on 24 January 2022 naming Clearstream Banking AG and two other parties as jointly and severally liable defendants for damages in the amount of around €216 million (plus interest) and for a declaration of the defendants' liability for future damages, was withdrawn by the plaintiff.

In the context of sanctions imposed on Russia, Clearstream Banking S.A. has frozen assets of customers in Luxembourg in accordance with applicable law. A number of lawsuits have been brought against Clearstream Banking S.A. in Russian courts targeting turnover or restitution of frozen assets. The total value claimed from Clearstream Banking S.A. in these proceedings amounts to approximately €74 million. It cannot be ruled out that further lawsuits concerning frozen assets may be filed, which could also include recourses against assets held by Clearstream Banking S.A. in Russia or elsewhere.

The Executive board is not currently aware of any significant change in the Group's risk situation.

Proceedings

On 2 April 2014, Clearstream Banking S.A. was informed that the United States Attorney for the Southern District of New York has opened a grand jury investigation against Clearstream Banking S.A. due to Clearstream Banking S.A.'s conduct with respect to Iran and other countries subject to U.S. sanction laws. Clearstream Banking S.A. is cooperating with the U.S. attorney.

In September 2017, Clearstream Banking AG and Clearstream Banking S.A. were made aware that the Public Prosecutor's Office in Cologne had initiated proceedings for tax evasion against an employee of Clearstream Banking AG for his alleged involvement in the settlement of transactions of market participants over the dividend date (cum/ex transactions). On 22 January 2018, the Public Prosecutor's Office in Cologne addressed to Clearstream Banking AG a notification of hearing Clearstream Banking AG and Clearstream Banking S.A. as potential secondary participants. Starting on 27 August 2019, together with other supporting authorities, the Public Prosecutor's Office in Cologne conducted searches of the offices of Clearstream Banking AG, Clearstream Banking S.A., as well as other Deutsche Börse Group companies and sites. In the course of these measures, Deutsche Börse Group entities were made aware that the Public Prosecutor's Office in Cologne has extended the group of suspects to include current and former employees as well as executive board members of Deutsche Börse Group companies. In 2020 and again in 2022, Deutsche Börse Group became aware of further extensions of the group of suspects. Due to the still early stage of the proceedings, it is still not possible to predict timing, scope or consequences of a potential decision. The companies concerned are cooperating with the competent authorities. They do not expect that they could be successfully held liable.

Tax risks

Due to its business activities in various countries, Deutsche Börse Group is exposed to tax risks. A process has been developed to recognise and evaluate these risks, which are initially recognised based on their probability of occurrence. These risks are then measured on the basis of their expected value. A tax liability is recognised in the event that it is more probable than not that the risks will occur. We continuously review whether the conditions for recognising corresponding tax liabilities are met.

Following the completion of the tax inspections for the years 2006 to 2008 we see the Group exposed to risks resulting from (i) corrections to input VAT deductions in accordance with the letters from the Federal Ministry of Finance of 3 May 2021 and 23 June 2022 (concerning the VAT treatment of services by exchange operators), (ii) the disallowance of tax-free income and intra-Group funding and (iii) the disallowance of provisions for stock option programmes. Full provision has been made in the balance sheet for any tax and interest back-payments that may result and the corresponding appeals have been lodged. We assume that the tax authorities will at least query the points (i) and (ii) mentioned above for the years from 2009 onwards for which the tax assessments are not yet definitive.

26 Corporate governance

On 7 December 2023 the Executive and Supervisory Boards issued the latest version of the declaration of compliance in accordance with section 161 of the Aktiengesetz (AktG, German Stock Corporation Act) and made it permanently available to shareholders on the company's website.

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27 Related party disclosures

Related parties as defined by IAS 24 are members of the executive bodies of Deutsche Börse AG and their close family members, as well as the companies classified as associates of Deutsche Börse AG, investors and investees and companies that are controlled or significantly influenced by members of the executive bodies.

Business relationships with related parties

The following table shows transactions entered into within the scope of business relationships with non-consolidated companies of Deutsche Börse AG during the 2023 financial year. All transactions took place on standard market terms.

Transactions with related parties

in €m	Amount of the transactions: revenue		Amount of the transactions: expenses		Outstanding balances: receivables		Outstanding balances: liabilities	
	2023	2022	2023	2022	31 Dec 2023	31 Dec 2022	31 Dec 2023	31 Dec 2022
Associates	14.8	14.3	28.0	29.1	1.4	1.1	0.1	2.8
Total sum of business transactions	**14.8**	**14.3**	**28.0**	**29.1**	**1.4**	**1.1**	**0.1**	**2.8**

Business relationships with key management personnel

Key management personnel are persons who directly or indirectly have authority and responsibility for planning, directing and controlling the company's activities. The Group only defines the members of the Executive Board and Supervisory Board of Deutsche Börse AG who were active in the reporting period as key management personnel for the purposes of IAS 24. In the reporting year and the previous year, no material transactions took place with key management personnel.

Executive Board

In the reporting year the fixed and variable remuneration of the members of the Executive Board, including non-cash benefits granted in the financial year, amounted to €30.2 million (2022: €28.5 million). During the year under review, expenses of €8.3 million (2022: €13.1 million) were recognised in connection with share-based payments to Executive Board members.

The actuarial present value of the pension obligations to Executive Board members was €17.9 million as at 31 December 2023 (2022: €14.5 million). Expenses of €2.0 million (2022: €2.5 million) were recognised as additions to pension provisions.

Former members of the Executive Board or their surviving dependents

The remuneration paid to former members of the Executive Board or their surviving dependents amounted to €3.2 million in 2023 (2022: €6.5 million). The actuarial present value of the pension was €62.8 million as at 31 December 2023 (2022: €58.4 million).

Termination benefits

There were no changes in the composition of the Executive Board of Deutsche Börse AG in 2023, so no expenses were incurred (2022: zero).

Supervisory Board

The aggregate remuneration paid to members of the Supervisory Board in the reporting year was €2.7 million (2022: €2.6 million).

In financial year 2023 the employee representatives on Deutsche Börse AG's Supervisory Board received remuneration (excluding Supervisory Board remuneration) amounting to €0.9 million (2022: €0.8 million). The total consists of the fixed and variable salary components and pension expenses for those employee representatives.

28 Employees

Employees

	2023	2022
Average number of employees during the year	12,187	10,675
Employed at the reporting date	14,502	11,078
Employees (average annual FTEs)	11,656	10,143

Of the average number of employees during the year, 30 (2022: 29) were managing directors (not including the Executive Board), 731 (2022: 650) were other senior managers and 11,425 (2022: 9,996) were employees.

Including part-time staff there were 11,656 full-time equivalents (FTE) on average during the year (2022: 10,143). Please also refer to the section "Employees" in the combined management report.

29 Decision-making bodies

The members of the company's decision-making bodies are listed in the chapters "The Executive Board" and "The Supervisory Board" of this annual report.

30 Events after the end of the reporting period

There were no significant events after the end of the reporting period.

31 Date of approval for publication

Deutsche Börse AG's Executive Board approved the consolidated financial statements for submission to the Supervisory Board on 5 March 2024. The Supervisory Board is responsible for examining the consolidated financial statements and stating whether it endorses them.

32 Disclosures on material non-controlling interests

Material non-controlling interests

	European Energy Exchange Group Leipzig, Germany		ISS STOXX Group Eschborn, Germany	
	31 Dec 2023	31 Dec 2022	31 Dec 2023	31 Dec 2022
Attributable to non-controlling interests:				.
Non-controlling interest (%)	24.9	24.9	19.7	n.a.
Net profit for the period (€m)	55.6	30.9	21.5	n.a.
Equity (€m)	233.1	182.4	1,987.9	n.a.
Dividend payments (€m)	5.5	5.5	0	n.a.
Assets (€m)	18,597.0	42,091.6	3,538.5	n.a.
Liabilities (€m)	17,660.7	41,359.0	926.2	n.a.
Profit/(loss) (€m)	223.5	124.0	109.0	n.a.
Other comprehensive income (€m)	7.1	6.3	– 105.3	n.a.
Comprehensive income (€m)	230.6	130.3	3.7	n.a.
Cashflows (€m)	93.1	86.7	30.3	n.a.

33 Disclosures on associates

Non-material associates

in €m	31 Dec 2023	31 Dec 2022
Book value of non-material associates	114.5	111.5
Profit after tax	3.7[1]	7.9[1]
Comprehensive income	3.7	7.9

1) Disclosures are based on preliminary and unaudited figures which may be adjusted subsequently.

Investments in associates and joint ventures are measured at cost on initial recognition and accounted for using the equity method upon subsequent measurement. Where Deutsche Börse Group's share of the voting rights in a company amounts to less than 20 per cent, our significant influence is exercised through the Group's representation on the supervisory board or the board of directors.

34 List of shareholdings

Deutsche Börse AG's equity interests in subsidiaries, associates and joint ventures as at 31 December 2023 included in the consolidated financial statements are presented in the following tables. There were no joint ventures as at the reporting date.

Consolidated subsidiaries

Company	Domicile	Equity interest as at 31 Dec 2023 direct/(indirect) %
360 Treasury Systems AG	Frankfurt am Main, Germany	100.00
360 Trading Networks Inc.	New York, USA	(100.00)
360 Trading Networks Limited	Dubai, United Arab Emirates (UAE)	(100.00)
360 Trading Networks Sdn Bhd	Kuala Lumpur, Malaysia	(100.00)
360 Trading Networks UK Limited	London, Great Britain	(100.00)
360T Asia Pacific Pte. Ltd.	Singapore, Singapore	(100.00)
360TGTX Inc.	New York, USA	(100.00)
Finbird GmbH	Frankfurt am Main, Germany	(100.00)
ThreeSixty Trading Networks (India) Pte. Ltd.	Mumbai, India	(100.00)
CF Asset Holding AG	Baar, Switzerland	100.00
Clearstream Fund Centre AG	Zurich, Switzerland	100.00
Clearstream Fund Centre (Hong Kong) Limited	Hong Kong, Hong Kong	(100.00)
Clearstream Fund Centre Holding S.A.	Luxembourg, Luxembourg	(100.00)
Clearstream Fund Centre S.A.	Luxembourg, Luxembourg	(100.00)
Clearstream Australia Limited	Sydney, Australia	(100.00)
Clearstream Australia Nominees Pty Ltd. (dormant)	Sydney, Australia	(100.00)
Clearstream Global Securities Services Limited	Cork, Ireland	(100.00)
Clearstream International S.A.	Luxembourg, Luxembourg	(100.00)
LuxCSD S.A.	Luxembourg, Luxembourg	(100.00)
Clearstream Nominees Limited	London, Great Britain	(100.00)
Clearstream Operations Prague s.r.o.	Prague, Czech Republic	(100.00)
Clearstream Services S.A.	Luxembourg, Luxembourg	(100.00)
Clearstream Holding AG	Frankfurt am Main, Germany	100.00

Consolidated subsidiaries

Company	Domicile	Equity interest as at 31 Dec 2023 direct/(indirect) %
Clearstream Banking AG	Frankfurt am Main, Germany	(100.00)
Clearstream Banking S.A.	Luxembourg, Luxembourg	(100.00)
Clearstream London Ltd.	London, Great Britain	(100.00)
Crypto Finance AG	Zurich, Switzerland	91.94
Crypto Finance (Deutschland) GmbH	Frankfurt am Main, Germany	(91.94)
Crypto Finance (Asset Management) AG	Zurich, Switzerland	(91.94)
DB1 Ventures GmbH	Frankfurt am Main, Germany	100.00
Deutsche Boerse Market Data + Services Singapore Pte. Ltd.	Singapore, Singapore	100.00
Deutsche Boerse Systems Inc.	Chicago, USA	100.00
Centana Growth Partners, LLC	New York, USA	(100.00)
Bryant Sands Partners, LLC	Delaware, USA	(100.00)
Bryant Sands Partners II, LLC	Delaware, USA	(100.00)
Quantitative Brokers LLC	New York, USA	(72.60)
Quantitative Brokers UK Limited	Hounslow, Great Britain	(72.60)
Quantitative Brokers Australia Pty Ltd.	Sydney, Australia	(72.60)
Quantitative Brokers Singapore Pte Ltd. (dormant)	Singapore, Singapore	(72.60)
Quantitative Brokers Software India Private Limited	Chennai, India	(72.24)
U.S. Exchange, L.L.C. (dormant)	Wilmington, USA	(100.00)
Deutsche Börse Digital Exchange GmbH	Frankfurt am Main, Germany	100.00
Deutsche Börse Photography Foundation gGmbH	Frankfurt am Main, Germany	100.00
Deutsche Börse Services s.r.o.	Prague, Czech Republic	100.00
Eurex Frankfurt AG	Frankfurt am Main, Germany	100.00
Eurex Clearing AG	Frankfurt am Main, Germany	(100.00)
Eurex Repo GmbH	Frankfurt am Main, Germany	(100.00)
Eurex Securities Transactions Services GmbH (dormant)	Frankfurt am Main, Germany	(100.00)
Eurex Global Derivatives AG	Zug, Switzerland	100.00
Eurex Services GmbH	Frankfurt am Main, Germany	100.00
European Energy Exchange AG	Leipzig, Germany	75.05
EEX Asia Pte. Limited	Singapore, Singapore	(75.05)

Consolidated subsidiaries

Company	Domicile	Equity interest as at 31 Dec 2023 direct/(indirect) %
EEX Australia Pty Ltd.	Sydney, Australia	(75.05)
Lacima Group Pty Ltd.	Sydney, Australia	(75.05)
Lacima Group (US), Inc.	Delaware, USA	(75.05)
LG UK PTY LTD	Sydney, Australia	(75.05)
Lacima Workbench Pty Ltd.	Sydney, Australia	(75.05)
EEX Link GmbH	Leipzig, Germany	(75.05)
European Commodity Clearing AG	Leipzig, Germany	(75.05)
European Commodity Clearing Luxembourg S.à r.l.	Luxembourg, Luxembourg	(75.05)
Grexel Systems oy	Helsinki, Finland	(75.05)
KB Tech Ltd.	Tunbridge Wells, Great Britain	(75.05)
Nodal Exchange Holdings, LLC	Tysons Corner, USA	(75.05)
Nodal Exchange, LLC	Tysons Corner, USA	(75.05)
Nodal Clear, LLC	Tysons Corner, USA	(75.05)
EEX CEGH Gas Exchange Services GmbH	Vienna, Austria	(38.27)
EPEX SPOT SE	Paris, France	(38.27)
EPEX Netherlands B.V.	Amsterdam, Netherlands	(38.27)
EPEX SPOT Schweiz AG	Berne, Switzerland	(38.27)
UAB GET Baltic	Vilnius, Lithuania	(49.53)
Power Exchange Central Europe a.s.	Prague, Czech Republic	(50.03)
Power Exchange Central Europe Poland sp.z.o.o.	Warsaw, Poland	(50.03)
FundsDLT S.A.	Belvaux, Luxembourg	100.00
ISS STOXX GmbH	Eschborn, Germany	80.31
ISS HoldCo Inc.	Rockville, USA	(80.31)
Institutional Shareholder Services Inc.	Rockville, USA	(80.31)
Asset International, Inc.	Rockville, USA	(80.31)
Asset International Australia Pty Ltd.	Melbourne, Australia	(80.31)
Rainmaker Information Pty Limited	Sydney, Australia	(80.31)
Data Management & Integrity Systems Pty Ltd. (dormant)	Sydney, Australia	(80.31)
Financial Standard Pty Ltd. (dormant)	Sydney, Australia	(80.31)

Consolidated subsidiaries

Company	Domicile	Equity interest as at 31 Dec 2023 direct/(indirect) %
Asset International Deutschland GmbH	Haar, Germany	(80.31)
FWW Fundservices GmbH	Haar, Germany	(80.31)
FWW Media GmbH	Haar, Germany	(80.31)
Intelligent Financial Systems Limited	London, Great Britain	(80.31)
Discovery Data, Inc.	Rockville, USA	(80.31)
Institutional Shareholder Services (Australia) Pty. Ltd.	Sydney, Australia	(80.31)
Institutional Shareholder Services (Hong Kong) Limited	Hong Kong, Hong Kong	(80.31)
Institutional Shareholder Services Canada Inc.	Toronto, Canada	(80.31)
Institutional Shareholder Services Europe S.A.	Brussels, Belgium	(80.31)
Institutional Shareholder Services France S.A.S.	Paris, France	(80.31)
Institutional Shareholder Services Switzerland AG	Zug, Switzerland	(80.31)
Institutional Shareholder Services Germany AG	Munich, Germany	(80.31)
Institutional Shareholder Services India Private Limited	Mumbai, India	(80.31)
Institutional Shareholder Services K.K.	Tokyo, Japan	(80.31)
Institutional Shareholder Services Philippines Inc.	Manila, Philippines	(80.31)
Institutional Shareholder Services (Singapore) Private Limited	Singapore, Singapore	(80.31)
ISS Corporate Solutions, Inc.	Rockville, USA	(80.31)
ISS Europe Limited	London, Great Britain	(80.31)
ISS-Ethix AB	Stockholm, Sweden	(80.31)
Institutional Shareholder Services UK Limited	London, Great Britain	(80.31)
Securities Class Action Services, LLC	Rockville, USA	(80.31)
ISS STOXX Index GmbH	Eschborn, Germany	(80.31)
Stoxx Ltd.	Zug, Switzerland	(80.31)
INDEX PROXXY Ltd.	London, Great Britain	(80.31)
KNEIP Communication S.A.	Luxembourg, Luxembourg	100.00
KNEIP Asia Ltd.	Hong Kong, Hong Kong	(100.00)
KNEIP Communication GmbH	Frankfurt am Main, Germany	(100.00)
Fundlook S.à.r.l.	Luxembourg, Luxembourg	(100.00)
Dataglide Ltd.	London, Great Britain	(100.00)

Consolidated subsidiaries

Company	Domicile	Equity interest as at 31 Dec 2023 direct/(indirect) %
SimCorp A/S	Copenhagen, Denmark	100.00
Axioma Inc.	New York, USA	(100.00)
Axioma (CH) GmbH	Vernier, Switzerland	(100.00)
Axioma (HK) Ltd	Hong Kong, Hong Kong	(100.00)
Axioma (UK) Ltd	London, Great Britain	(100.00)
Axioma Argentina S.A.U.	Buenos Aires, Argentina	(100.00)
Axioma Asia Pte. Ltd	Singapore, Singapore	(100.00)
Axioma Deutschland GmbH	Frankfurt am Main, Germany	(100.00)
Axioma Japan G.K.	Tokyo, Japan	(100.00)
Axioma Ltd.	Sydney, Australia	(100.00)
Axioma S.A.S.U	Paris, France	(100.00)
Qontigo Inc. (dormant)	Wilmington, USA	(100.00)
SimCorp sp z.o.o.	Warsaw, Poland	(100.00)
SimCorp Japan KK	Tokyo, Japan	(100.00)
SimCorp France S.A.S.	Paris, France	(100.00)
SimCorp Schweiz AG	Zurich, Switzerland	(100.00)
SimCorp Norge AS	Oslo, Norway	(100.00)
SimCorp Iberia S.L. (Spain)	Barcelona, Spain	(100.00)
SimCorp Ukraine LLC	Kyiv, Ukraine	(100.00)
SimCorp Österreich GmbH	Vienna, Austria	(100.00)
SimCorp Luxembourg S.à.r.l.	Luxembourg, Luxembourg	(100.00)
SimCorp Gain Switzerland GmbH	Zurich, Switzerland	(100.00)
SimCorp Gain Austria GmbH	Vienna, Austria	(100.00)
SimCorp Ltd. (UK)	London, Great Britain	(100.00)
SimCorp Canada Inc.	Toronto, Canada	(100.00)
SimCorp GmbH (Germany)	Bad Homburg, Germany	(100.00)
SimCorp Hong Kong Ltd.	Hong Kong, Hong Kong	(100.00)
SimCorp Italiana S.r.l	Milan, Italy	(100.00)
SimCorp Philippines Inc.	Manila, Philippines	(100.00)

Consolidated subsidiaries

Company	Domicile	Equity interest as at 31 Dec 2023 direct/(indirect) %
SimCorp Advanced for Information Technology	Riyadh, Saudi Arabia	(100.00)
SCIM SDN. BHD.	Kuala Lumpur, Malaysia	(100.00)
SimCorp Singapore Pte. Ltd.	Singapore, Singapore	(100.00)
SimCorp USA Inc.	New York, USA	(100.00)
SimCorp Sverige AB	Stockholm, Sweden	(100.00)
SimCorp India LLP	Noida, India	(100.00)
SimCorp Coric Ltd. (UK)	London,Great Britain	(100.00)
SimCorp Coric Inc.	Boston, USA	(100.00)
SimCorp Asia Pty. Ltd.	Sydney, Australia	(100.00)
SimCorp Benelux SA/NV	Brussels Belgium	(100.00)

Associates

Company	Domicile	Equity interest as at 31 Dec 2023 direct/(indirect) %
360X AG	Frankfurt am Main, Germany	48.30
ADEX SKUPINA holding družba d.o.o.	Ljubljana, Slovenia	(12.76)
Artega Investment Administration Pty Limited	Sydney, Australia	(18.55)
BrainTrade Gesellschaft für Börsensysteme mbH	Frankfurt am Main, Germany	(28.57)
China Europe International Exchange AG	Frankfurt am Main, Germany	(40.00)
Deutsche Börse Commodities GmbH	Frankfurt am Main, Germany	16.20
Dyalog Ltd	Hampshire, Great Britain	(22.98)
East Med. Energy Exchange Ltd.	Giv'atajim, Israel	(30.02)
Forge Europe GmbH	Berlin, Germany	40.00
GlobalDairyTrade Holdings Ltd.	Auckland, New Zealand	(25.01)
HQLAx S.à r.l.	Luxembourg, Luxembourg	30.49
N5 ENERGIA E SERVICOS DE TECNOLOGIA LTDA.	Sao Paulo, Brazil	(37.52)
Opus Nebula Limited	Berkhamsted, Great Britain	(23.18)
Origin Primary Limited	London, Great Britain	20.00
q-bility GmbH	Berlin, Germany	(15.01)
R5FX Ltd	London, Great Britain	15.65
SEEPEX a.d.	Belgrade, Serbia	(12.76)
SPARK Commodities Ltd.	Singapore, Singapore	(18.76)
Tradegate AG Wertpapierhandelsbank	Berlin, Germany	19.99
Tradegate Exchange GmbH	Berlin, Germany	42.84

Frankfurt/Main, 5 March 2024

Deutsche Börse Aktiengesellschaft

The Executive Board

Theodor Weimer

Christoph Böhm

Thomas Book

Heike Eckert

Stephan Leithner

Gregor Pottmeyer

Responsibility statement by the Executive Board

To the best of our knowledge, and in accordance with the applicable reporting principles, the consolidated financial statements give a true and fair view of the assets, liabilities, financial position and profit or loss of the Group, and the combined management report includes a fair review of the development and performance of the business and the position of the Group, together with a description of the principal opportunities and risks associated with the expected development of the Group.

Frankfurt/Main, 5. March 2024

Deutsche Börse Aktiengesellschaft

The Executive Board

Theodor Weimer | Christoph Böhm | Thomas Book

Heike Eckert | Stephan Leithner | Gregor Pottmeyer

Independent Auditor’s Report

To Deutsche Börse Aktiengesellschaft, Frankfurt am Main

Report on the audit of the consolidated financial statements and of the group management report

Audit Opinions

We have audited the consolidated financial statements of Deutsche Börse Aktiengesellschaft, Frankfurt am Main, and its subsidiaries (the Group), which comprise the consolidated statement of financial position as at 31 December 2023, and the consolidated statement of comprehensive income, consolidated statement of profit or loss, consolidated statement of changes in equity and consolidated statement of cash flows for the financial year from 1 January to 31 December 2023, and notes to the consolidated financial statements, including material accounting policy information. In addition, we have audited the group management report of Deutsche Börse Aktiengesellschaft, which is combined with the Company’s management report, including the non-financial statement to comply with §§ [Articles] 289b to 289e HGB [Handelsgesetzbuch: German Commercial Code] and with §§ 315b to 315c HGB included in section „Nichtfinanzielle Erklärung“ for the financial year from 1 January to 31 December 2023. In accordance with the German legal requirements, we have not audited the content of the statement on corporate governance pursuant to § 289f HGB and § 315d HGB.

In our opinion, on the basis of the knowledge obtained in the audit,

- the accompanying consolidated financial statements comply, in all material respects, with the IFRSs as adopted by the EU and the additional requirements of German commercial law pursuant to § 315e Abs. [paragraph] 1 HGB and, in compliance with these requirements, give a true and fair view of the assets, liabilities, and financial position of the Group as at 31 December 2023, and of its financial performance for the financial year from 1 January to 31 December 2023,

- the accompanying group management report (excluding the non-financial statement) as a whole provides an appropriate view of the Group’s position. In all material respects, this group management report is consistent with the consolidated financial statements, complies with German legal requirements and appropriately presents the opportunities and risks of future development; we do not express an audit opinion on the statement on corporate governance referred to above and

- the non-financial statement included in section “Nichtfinanzielle Erklärung“ of the group management report is prepared, in all material respects, in accordance with the applicable German legal and European requirements as well as with the specifying criteria disclosed by the Group’s executive directors.

Pursuant to § 322 Abs. 3 Satz [sentence] 1 HGB, we declare that our audit has not led to any reservations relating to the legal compliance of the consolidated financial statements and of the group management report.

Basis for the Audit Opinions

We conducted our audit of the consolidated financial statements and of the group management report in accordance with § 317 HGB and the EU Audit Regulation (No. 537/2014, referred to subsequently as "EU Audit Regulation") in compliance with German Generally Accepted Standards for Financial Statement Audits promulgated by the Institut der Wirtschaftsprüfer [Institute of Public Auditors in Germany] (IDW). Our responsibilities under those requirements and principles are further described in the "Auditor's Responsibilities for the Audit of the Consolidated Financial Statements and of the Group Management Report" section of our auditor's report. We are independent of the group entities in accordance with the requirements of European law and German commercial and professional law, and we have fulfilled our other German professional responsibilities in accordance with these requirements. In addition, in accordance with Article 10 (2) point (f) of the EU Audit Regulation, we declare that we have not provided non-audit services prohibited under Article 5 (1) of the EU Audit Regulation. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinions on the consolidated financial statements, on the group management report and on the non-financial statement included in the group management report.

Key Audit Matters in the Audit of the Consolidated Financial Statements

Key audit matters are those matters that, in our professional judgment, were of most significance in our audit of the consolidated financial statements for the financial year from 1 January to 31 December 2023. These matters were addressed in the context of our audit of the consolidated financial statements as a whole, and in forming our audit opinion thereon; we do not provide a separate audit opinion on these matters.

In our view, the matters of most significance in our audit were as follows:

❶ Recoverability of goodwill and other intangible assets

❷ Accounting for the acquisition of SimCorp A/S

❸ Assessment of certain legal risks

Our presentation of these key audit matters has been structured in each case as follows:

① Matter and issue

② Audit approach and findings

③ Reference to further information

Hereinafter we present the key audit matters:

❶ Recoverability of goodwill and other intangible assets

① Goodwill and other intangible assets with definite and indefinite useful lives totalling € 11,248.6 million (116.4 % of Group equity) are reported under the balance sheet item „Intangible assets" in the company's consolidated financial statements. The other intangible assets relate in particular to stock exchange licences, brand names and customer relationships. Goodwill and other intangible assets with an indefinite useful life are tested for impairment once a year or on an ad hoc basis, while other intangible assets with a definite useful life are tested for impairment on an ad hoc basis by the company in order to identify any need for impairment. As part of the impairment test, the carrying amount of the respective (groups of) cash-generating units (including their carrying amount for the goodwill test) is compared with the recoverable amount. The recoverable amount is generally determined on the basis of the fair value less costs to sell. The measurement is generally based on the present value of future cash flows of the respective cash-generating units or groups of cash-generating units. The present values are determined using discounted cash flow models. The Group‘s approved medium-term planning forms the starting point, which is extrapolated using assumptions about long-term growth rates. Expectations about future market developments and assumptions about the development of macroeconomic factors are also taken into account. Discounting is carried out using the weighted average cost of capital of the respective (groups of) cash-generating units.

As a result of the impairment test, an impairment requirement totalling € 24.6 million was identified.

The result of this valuation is highly dependent on the estimates of the executive directors with regard to the future cash flows of the respective (groups of) cash-generating units, the discount rate used, the growth rate and other assumptions and is therefore subject to considerable uncertainty. Against this background and due to the complexity of the valuation, this matter was of particular significance in the context of our audit.

② As part of our audit, we first analysed the methodology used to perform the impairment test. In a risk-oriented selection, with the involvement of our valuation specialists, we compared the future cash flows used in the calculation with the Group‘s approved medium-term planning and additional planning documents for the respective (groups of) cash-generating units in order to assess the appropriateness of these plans, in particular by analysing the key planning assumptions, comparing the plans with analyst estimates and, in certain cases, performing plan-actual and plan-plan analyses. In addition, we assessed the appropriate consideration of the costs of Group functions - where taken into account in the models - and the appropriateness of the growth assumptions after the forecast period and the assumed weighted average cost of capital. In addition, we assessed the company‘s valuation by comparing the implied multiples with market multiples. In order to take account of the existing forecast uncertainties, we reviewed the sensitivity analyses prepared by the company. Where there was a need for impairment as at the balance sheet date, we verified the appropriate recognition of the impairment losses.

The valuation methods, parameters and assumptions applied by the legal representatives are in line with our expectations and are also within what we consider to be reasonable ranges.

③ The company‘s disclosures on the impairment test for goodwill and other intangible assets are contained in section „10 Intangible assets“ of the notes to the consolidated financial statements.

❷ Accounting for the acquisition of SimCorp A/S

① Deutsche Börse Aktiengesellschaft acquired the majority of shares in the software service provider SimCorp A/S, Copenhagen, Denmark, („SimCorp") by way of a public takeover bid with effect from 29 September 2023. Following further share purchases and the implementation of a squeeze-out under stock corporation law, the company held 100% of the shares in SimCorp as at the balance sheet date.

The acquisition was recognised as a business combination in accordance with IFRS 3 using the acquisition method. As part of the purchase price allocation, the identifiable assets and assumed liabilities of the acquired company were recognised at fair value. The purchase price allocation had not yet been finalised as at the reporting date, as it was not yet possible to conclusively determine the tax items and intangible assets in particular. The comparison of the consideration transferred with the acquired assets and liabilities resulted in provisional goodwill of € 2,335.6 million.

Due to the estimation uncertainties in the measurement of the assets and liabilities as well as the identified intangible assets as part of the purchase price allocation and the overall material impact of the business combination on the Group's net assets, financial position and results of operations, this matter was of particular significance in the context of our audit.

② As part of our audit of the acquisition of SimCorp, we first inspected and analysed the contractual agreements and reconciled the purchase price determined as consideration for the acquired business operations with the evidence provided to us. Based on this, we assessed the company's approach to measuring the identifiable assets and liabilities at their fair values at the acquisition date. Among other things, we analysed the models underlying the valuations as well as the valuation parameters and assumptions applied with the assistance of valuation specialists.

Furthermore, we analysed the adjustment of the groups of cash-generating units at whose level goodwill is monitored, which was carried out as part of the SimCorp acquisition. In addition, we assessed the disclosures required by IFRS 3.

Overall, we were able to satisfy ourselves that the accounting treatment of the business combination was appropriate, that the estimates and assumptions made by the executive directors were reasonable and adequately substantiated and that the relevant disclosures in the notes were made in accordance with IFRS 3.

③ The company's disclosures on the acquisition are contained in section „02 Consolidation principles" of the notes to the consolidated financial statements.

❸ Assessment of certain legal risks

① Deutsche Börse Aktiengesellschaft and its affiliated companies are exposed to certain legal risks. These certain legal risks include legal disputes of Clearstream Banking S.A., Luxembourg, in connection with the Central Bank of Iran, in which Clearstream Banking S.A. is exposed to claims for restitution and damages against the Central Bank of Iran in the amount of USD 4.9 billion (plus interest) and claims by other groups of plaintiffs, a claim by the insolvency administrator of Air Berlin PLC i.L. against Clearstream Banking AG for payment of around €498 million and an investigation relating to securities transactions by market participants over the dividend record date (cum-ex transactions). The assessment of whether and, if so, to what extent a provision is required to cover the risk is characterised by a high degree of uncertainty. Deutsche Börse Group recognises provisions when a present obligation arises from a past event that is likely to result in an outflow of resources and the amount can be reliably estimated. No provisions were recognised for the above-mentioned legal risks in the consolidated financial statements as at 31 December 2023, as the executive directors do not consider an outflow of funds to be probable.

In our view, the above-mentioned legal risks are of particular significance for our audit due to their legal complexity, the considerable uncertainties regarding their further development and their potential impact on the net assets, financial position and results of operations.

② As part of our audit, we inspected the underlying documents relating to the above-mentioned legal disputes and proceedings and analysed the legal assessments of Deutsche Börse Group. With the knowledge that there is an increased risk of misstatements in the financial reporting in the event of uncertainties and that the decisions of the executive directors have a direct impact on the Group‘s results, we evaluated the executive directors‘ judgements with the assistance of specialists. In addition, we held regular discussions with the legal departments of the companies in order to understand current developments and the reasons that led to the corresponding assessments of the outcome of the proceedings. The development of the specific legal risks, including the assessments of the legal representatives with regard to the possible outcomes of the proceedings, was made available to us in writing by the legal departments. In addition, we obtained external lawyers‘ confirmations as at the balance sheet date and analysed legal opinions from external lawyers.

The estimates made by the legal representatives regarding the aforementioned matters and their presentation in the consolidated financial statements are adequately substantiated and documented.

③ The company‘s disclosures on the material legal risks are presented in the section „25 Financial commitments and other risks“ in the notes to the consolidated financial statements.

Other Information

The executive directors are responsible for the other information. The other information comprises the statement on corporate governance pursuant to § 289f HGB and § 315d HGB as an unaudited part of the group management report.

The other information comprises further

- the remuneration report pursuant to § 162 AktG [Aktiengesetz: German Stock Corporation Act], for which the supervisory board is also responsible

- all remaining parts of the annual report – excluding cross-references to external information – with the exception of the audited consolidated financial statements, the audited group management report and our auditor’s report

Our audit opinions on the consolidated financial statements, on the group management report and on the non-financial statement included in the group management report do not cover the other information, and consequently we do not express an audit opinion or any other form of assurance conclusion thereon.

In connection with our audit, our responsibility is to read the other information mentioned above and, in so doing, to consider whether the other information

- is materially inconsistent with the consolidated financial statements, with the group management report disclosures audited in terms of content or with our knowledge obtained in the audit, or

- otherwise appears to be materially misstated.

Responsibilities of the Executive Directors and the Supervisory Board for the Consolidated Financial Statements and the Group Management Report

The executive directors are responsible for the preparation of the consolidated financial statements that comply, in all material respects, with IFRSs as adopted by the EU and the additional requirements of German commercial law pursuant to § 315e Abs. 1 HGB and that the consolidated financial statements, in compliance with these requirements, give a true and fair view of the assets, liabilities, financial position, and financial performance of the Group. In addition, the executive directors are responsible for such internal control as they have determined necessary to enable the preparation of consolidated financial statements that are free from material misstatement, whether due to fraud (i.e., fraudulent financial reporting and misappropriation of assets) or error.

In preparing the consolidated financial statements, the executive directors are responsible for assessing the Group's ability to continue as a going concern. They also have the responsibility for disclosing, as applicable, matters related to going concern. In addition, they are responsible for financial reporting based on the going concern basis of accounting unless there is an intention to liquidate the Group or to cease operations, or there is no realistic alternative but to do so.

Furthermore, the executive directors are responsible for the preparation of the group management report that, as a whole, provides an appropriate view of the Group's position and is, in all material respects, consistent with the consolidated financial statements, complies with German legal requirements, and appropriately presents the opportunities and risks of future development. In addition, the executive directors are responsible for such arrangements and measures (systems) as they have considered necessary to enable the preparation of a group management report that is in accordance with the applicable German legal requirements, and to be able to provide sufficient appropriate evidence for the assertions in the group management report.

The executive directors are also responsible for the preparation of the non-financial statement included in the group management report in accordance with the applicable German legal and European requirements as well as with the specifying criteria disclosed by the Group's executive directors. Furthermore, the executive directors are responsible for such arrangements and measures (systems) as they have considered necessary to enable the preparation of a non-financial statement that is free from material misstatement, whether due to fraud (i.e., fraudulent reporting in the non-financial statement) or error.

The applicable requirements contain wording and terms that are subject to considerable interpretation uncertainties and for which authoritative comprehensive interpretations have not yet been published. Accordingly, the executive directors have disclosed their interpretations of such wording and terms in section „About this report“ of the non-financial statement. The executive directors are responsible for the defensibility of these interpretations. As such wording and terms may be interpreted differently by regulators or courts, the legal conformity of these interpretations is uncertain.

The supervisory board is responsible for overseeing the Group's financial reporting process for the preparation of the consolidated financial statements, of the group management report as well as of the non-financial statement included in the group management report.

Auditor's Responsibilities for the Audit of the Consolidated Financial Statements and of the Group Management Report

Our objectives are to obtain reasonable assurance about whether the consolidated financial statements as a whole are free from material misstatement, whether due to fraud or error, and whether the group management report as a whole provides an appropriate view of the Group's position and, in all material respects, is consistent with the consolidated financial statements and the knowledge obtained in the audit, complies with the German legal requirements and appropriately presents the opportunities and risks of future development, and whether the non-financial statement has been prepared, in all material respects, in accordance with the applicable German legal and European requirements and with the specifying criteria disclosed by the Company's executive directors, as well as to issue an auditor's report that includes our audit opinions on the consolidated financial statements, on the group management report and on the non-financial statement.

Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with § 317 HGB and the EU Audit Regulation and in compliance with German Generally Accepted Standards for Financial Statement Audits promulgated by the Institut der Wirtschaftsprüfer (IDW) will always detect a material misstatement. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these consolidated financial statements and this group management report.

We exercise professional judgment and maintain professional skepticism throughout the audit. We also:

- Identify and assess the risks of material misstatement of the consolidated financial statements and of the group management report, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our audit opinions. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal controls.

- Obtain an understanding of internal control relevant to the audit of the consolidated financial statements and of arrangements and measures (systems) relevant to the audit of the group management report and of the non-financial statement included in the group management report in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an audit opinion on the effectiveness of these systems.

- Evaluate the appropriateness of accounting policies used by the executive directors and the reasonableness of estimates made by the executive directors and related disclosures.

- Conclude on the appropriateness of the executive directors' use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Group's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in the auditor's report to the related disclosures in the consolidated financial statements and in the group management report or, if such disclosures are inadequate, to modify our respective audit opinions. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the Group to cease to be able to continue as a going concern.

- Evaluate the overall presentation, structure and content of the consolidated financial statements, including the disclosures, and whether the consolidated financial statements present the underlying transactions and events in a manner that the consolidated financial statements give a true and fair view of the assets, liabilities, financial position and financial performance of the Group in compliance with IFRSs as adopted by the EU and the additional requirements of German commercial law pursuant to § 315e Abs. 1 HGB.

- Obtain sufficient appropriate audit evidence regarding the financial information of the entities or business activities within the Group to express audit opinions on the consolidated financial statements and on the group management report. We are responsible for the direction, supervision and performance of the group audit. We remain solely responsible for our audit opinions.

- Evaluate the consistency of the group management report with the consolidated financial statements, its conformity with German law, and the view of the Group's position it provides.

- Perform audit procedures on the prospective information presented by the executive directors in the group management report. On the basis of sufficient appropriate audit evidence we evaluate, in particular, the significant assumptions used by the executive directors as a basis for the prospective information, and evaluate the proper derivation of the prospective information from these assumptions. We do not express a separate audit opinion on the prospective information and on the assumptions used as a basis. There is a substantial unavoidable risk that future events will differ materially from the prospective information.

- Evaluate the suitability of the criteria presented by the executive directors in the non-financial statement as a whole. As explained in the description of the responsibilities of the executive directors, the executive directors have interpreted the wording and terms contained in the relevant regulations; the legal conformity of these interpretations is subject to inherent uncertainties mentioned in this description. Those inherent uncertainties in the interpretation apply to our audit accordingly.

We communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

We also provide those charged with governance with a statement that we have complied with the relevant independence requirements, and communicate with them all relationships and other matters that may reasonably be thought to bear on our independence, and where applicable, actions taken to eliminate threats or safeguards applied.

From the matters communicated with those charged with governance, we determine those matters that were of most significance in the audit of the consolidated financial statements of the current period and are therefore the key audit matters. We describe these matters in our auditor's report unless law or regulation precludes public disclosure about the matter.

Other legal and regulatory requirements

Report on the Assurance on the Electronic Rendering of the Consolidated Financial Statements and the Group Management Report Prepared for Publication Purposes in Accordance with § 317 Abs. 3a HGB

Assurance Opinion

We have performed assurance work in accordance with § 317 Abs. 3a HGB to obtain reasonable assurance as to whether the rendering of the consolidated financial statements and the group management report (hereinafter the "ESEF documents") contained in the electronic file "deutscheboerseag-2023-12-31-de.zip" and prepared for publication purposes complies in all material respects with the requirements of § 328 Abs. 1 HGB for the electronic reporting format ("ESEF format"). In accordance with German legal requirements, this assurance work extends only to the conversion of the information contained in the consolidated financial statements and the group management report into the ESEF format and therefore relates neither to the information contained within these renderings nor to any other information contained in the electronic file identified above.

In our opinion, the rendering of the consolidated financial statements and the group management report contained in the electronic file identified above and prepared for publication purposes complies in all material respects with the requirements of § 328 Abs. 1 HGB for the electronic reporting format. Beyond this assurance opinion and our audit opinion on the accompanying consolidated financial statements and the accompanying group management report for the financial year from 1 January to 31 December 2023 contained in the „Report on the Audit of the Consolidated Financial Statements and on the Group Management Report" above, we do not express any assurance opinion on the information contained within these renderings or on the other information contained in the electronic file identified above.

Basis for the Assurance Opinion

We conducted our assurance work on the rendering of the consolidated financial statements and the group management report contained in the electronic file identified above in accordance with § 317 Abs. 3a HGB and the IDW Assurance Standard: Assurance Work on the Electronic Rendering, of Financial Statements and Management Reports, Prepared for Publication Purposes in Accordance with § 317 Abs. 3a HGB (IDW AsS 410 (06.2022)) and the International Standard on Assurance Engagements 3000 (Revised). Our responsibility in accordance therewith is further described in the „Group Auditor's Responsibilities for the Assurance Work on the ESEF Documents" section. Our audit firm applies the IDW Standard on Quality Management: Requirements for Quality Management in the Audit Firm (IDW QMS 1 (09.2022)).

Responsibilities of the Executive Directors and the Supervisory Board for the ESEF Documents

The executive directors of the Company are responsible for the preparation of the ESEF documents including the electronic rendering of the consolidated financial statements and the group management report in accordance with § 328 Abs. 1 Satz 4 Nr. [number] 1 HGB and for the tagging of the consolidated financial statements in accordance with § 328 Abs. 1 Satz 4 Nr. 2 HGB.

In addition, the executive directors of the Company are responsible for such internal control as they have considered necessary to enable the preparation of ESEF documents that are free from material non-compliance with the requirements of § 328 Abs. 1 HGB for the electronic reporting format, whether due to fraud or error.

The supervisory board is responsible for overseeing the process for preparing the ESEF documents as part of the financial reporting process.

Group Auditor's Responsibilities for the Assurance Work on the ESEF Documents

Our objective is to obtain reasonable assurance about whether the ESEF documents are free from material non-compliance with the requirements of § 328 Abs. 1 HGB, whether due to fraud or error. We exercise professional judgment and maintain professional skepticism throughout the assurance work. We also:

- Identify and assess the risks of material non-compliance with the requirements of § 328 Abs. 1 HGB, whether due to fraud or error, design and perform assurance procedures responsive to those risks, and obtain assurance evidence that is sufficient and appropriate to provide a basis for our assurance opinion.

- Obtain an understanding of internal control relevant to the assurance work on the ESEF documents in order to design assurance procedures that are appropriate in the circumstances, but not for the purpose of expressing an assurance opinion on the effectiveness of these controls.

- Evaluate the technical validity of the ESEF documents, i.e., whether the electronic file containing the ESEF documents meets the requirements of the Delegated Regulation (EU) 2019/815 in the version in force at the date of the consolidated financial statements on the technical specification for this electronic file.

- Evaluate whether the ESEF documents provide an XHTML rendering with content equivalent to the audited consolidated financial statements and to the audited group management report.

- Evaluate whether the tagging of the ESEF documents with Inline XBRL technology (iXBRL) in accordance with the requirements of Articles 4 and 6 of the Delegated Regulation (EU) 2019/815, in the version in force at the date of the consolidated financial statements, enables an appropriate and complete machine-readable XBRL copy of the XHTML rendering.

Further Information pursuant to Article 10 of the EU Audit Regulation

We were elected as group auditor by the annual general meeting on 16 May 2023. We were engaged by the supervisory board on 14 September 2023. We have been the group auditor of the Deutsche Börse Aktiengesellschaft, Frankfurt am Main, without interruption since the financial year 2021.

We declare that the audit opinions expressed in this auditor's report are consistent with the additional report to the audit committee pursuant to Article 11 of the EU Audit Regulation (long-form audit report).

Reference to an other matter – use of the auditor's report

Our auditor's report must always be read together with the audited consolidated financial statements and the audited group management report as well as the assured ESEF documents. The consolidated financial statements and the group management report converted to the ESEF format – including the versions to be filed in the company register – are merely electronic renderings of the audited consolidated financial statements and the audited group management report and do not take their place. In particular, the "Report on the Assurance on the Electronic Rendering of the Consolidated Financial Statements and the Group Management Report Prepared for Publication Purposes in Accordance with § 317 Abs. 3a HGB" and our assurance opinion contained therein are to be used solely together with the assured ESEF documents made available in electronic form.

German public auditor responsible for the engagement

The German Public Auditor responsible for the engagement is Dr. Michael Rönnberg.

Frankfurt am Main, 6 March 2024

PricewaterhouseCoopers GmbH
Wirtschaftsprüfungsgesellschaft

Marc Billeb	**Dr Michael Rönnberg**
Certified Public Auditor	Certified Public Auditor