



DEUTSCHE BÖRSE
GROUP

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ANNUAL REPORT 2019

Excerpt: Risk report



Risk Report

Deutsche Börse Group includes the following entities which are regulated as credit institutions: Clearstream Banking S.A. and Clearstream Banking AG (hereinafter referred to as “Clearstream”, including Clearstream Holding AG), as well as Eurex Clearing AG. Furthermore, Eurex Clearing AG and European Commodity Clearing AG are authorised as central counterparties (CCPs) and are subject to the requirements of the European Market Infrastructure Regulation (EMIR). In addition, other Group companies hold different licences to provide regulated activities in the financial services sector. As such, these entities are subject to comprehensive statutory requirements, inter alia on risk management (for further information on the regulated entities, please refer to [note 15 to the consolidated financial statements](#)). Over and above the statutory requirements, including the EU directives (CRD IV and MiFID II) and their implementation into national law, other regulations worth mentioning include primarily EU regulations (CRR and EMIR), the national requirements of the Minimum Requirements for Risk Management (MaRisk) issued by the Federal Financial Supervisory Authority (Bundesanstalt für Finanzdienstleistungsaufsicht, BaFin), and circular 12/552 issued by the Financial Supervisory Authority of Luxembourg (Commission de Surveillance du Secteur Financier, CSSF). In this context, significant parts of the risk management are defined in the scope of the so-called second pillar of the Basel III regime for a number of the Group’s companies. Moreover, national regulations implementing the EU Banking Recovery and Resolution Directive (BRRD) apply to Clearstream and Eurex Clearing AG regarding the establishment of recovery plans. Deutsche Börse Group follows international standards in its risk management and applies these also without or beyond such statutory requirements.

The highest regulatory standards within the Group are applicable to Eurex Clearing AG and Clearstream, given their regulation as credit institutions. Considering this and their economic importance, this risk report focuses on these subsidiaries in particular.

Risk strategy and risk management

Deutsche Börse Group’s risk strategy is aligned with its business model and company strategy. The Group provides the infrastructure for reliable and secure capital markets, assists constructively in their regulation and plays a leading role in all of the areas in which it does business. Deutsche Börse Group’s risk strategy is based on three core principles:

1. Risk limitation – protecting the company against liquidation and ensuring its continuing operation

“Capital exhaustion should not occur more than once in 5,000 years and an operating loss must not be generated more than once every hundred years.” This means that one goal is to ensure a minimum probability of 99.98 per cent that the total capital will not be lost within the next twelve months. Another objective is to guarantee for a probability of 99.0 per cent or more that Deutsche Börse will at least break even, expressed in terms of its EBITDA. In other words, this principle establishes how much risk the Group must be able to withstand while also determining its risk appetite.

2. Support for growth in the various business segments

“Risk management supports the business units in developing their business”. With this principle, the Group promotes its growth strategy. As such, risks are identified, and clearly communicated. This principle includes risk from organic growth, M&A activities and the use of transformational technology. The aim is to make well-founded strategic decisions within the boundaries of the defined risk appetite.

3. Appropriate risk/return ratio

“The return on equity should exceed the cost of equity.” Deutsche Börse Group has set itself the goal of ensuring that risk and return should be reasonably balanced, both for specific business areas in general and for individual regions, products and customers.

Internal risk management is based on the Group-wide detection and management of risk, which is focused on its risk appetite, see the chart [“Interlocking business strategy and risk strategy”](#). Deutsche Börse AG’s Executive Board has overall responsibility, and defines the framework for risk management throughout the Group. Under these Group-wide risk management requirements, each business segment and each regulated company is responsible for managing its own risk.

Interlocking business strategy and risk strategy



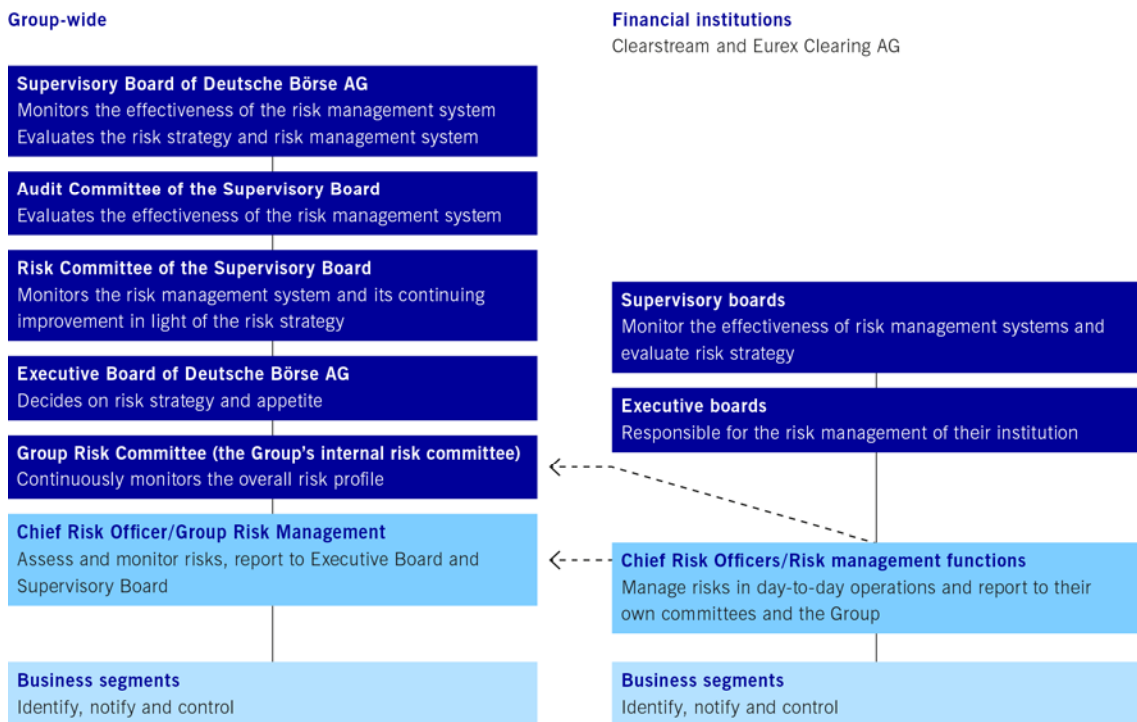
Implementation in the Group’s organisational structure and workflow

The risk strategy applies to the entire Deutsche Börse Group. Risk management functions, processes and responsibilities are binding for all Group 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. The Executive Board is responsible for risk management overall, whereas within the individual companies it is the responsibility of the management. The boards and committees given below receive regular information on risk situation.

Supervisory Board of Deutsche Börse AG assesses and monitors the effectiveness of the risk management system and its continuing development. The Supervisory Board has delegated the regular evaluation of the appropriateness and the effectiveness of the risk management system to the Audit Committee. In addition, the Risk Committee examines the risk strategy and risk appetite on an annual basis.

Deutsche Börse AG's Executive Board determines the Group-wide risk strategy and 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. The Executive Board of Deutsche Börse AG also determines what parameters are used to assess risks, how risk capital is allocated and what procedures apply. It ensures that the requirements for the risk strategy and risk appetite are met.

Risk management – organisational structure and reporting lines



The Group Risk Committee (GRC) reviews the risk position of the Group at least on a quarterly basis and involves the Executive Board in all decisive questions. The GRC is an internal Group committee, chaired by the Chief Financial Officer.

Group Risk Management (GRM), headed by the CRO, prepares the proposals for the corresponding risk strategy, risk appetite, the approaches and methods for monitoring risk, capital allocation and procedures. GRM continuously analyses and evaluates risks and produces quantitative and qualitative reports. These are submitted six times a year to the GRC, once a month to the Executive Board, once a quarter to the Risk Committee of the Supervisory Board and twice a year to the Supervisory Board. Likewise, the CRO reports to the Audit Committee on the appropriateness and effectiveness of the risk

management system on an annual basis. This system ensures that the responsible bodies can regularly check whether the defined risk limits are being adhered to consistently. In addition, GRM recommends risk management measures.

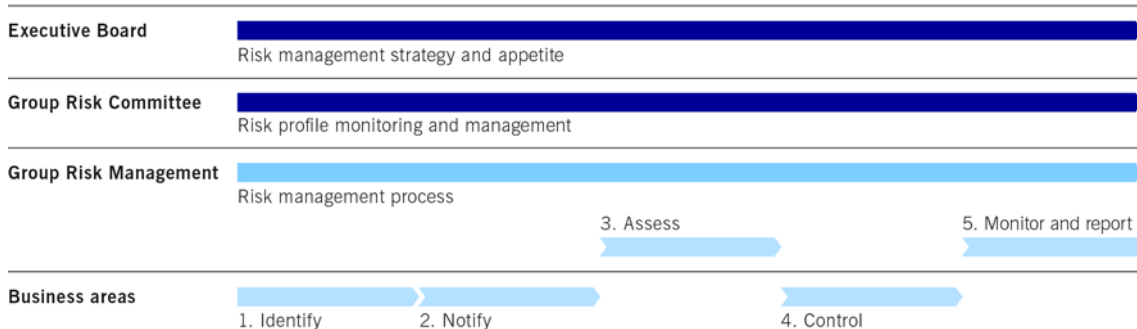
The Group’s regulated subsidiaries act in the same way, always ensuring that they meet the requirements of the Group. In particular, they adhere to the risk appetite framework allocated to them by Deutsche Börse Group. The relevant supervisory boards and their committees are involved in the process, as are the executive boards and the corresponding risk management functions. Clearstream and Eurex Clearing AG implement customised versions of this risk strategy, using parameters and reporting formats that are compatible with the overarching Group-wide structure. In general, the management of the respective subsidiary bears the responsibility for its risk management and risk appetite; appropriateness and the effectiveness is evaluated by the respective supervisory board.

Centrally coordinated risk management – a five-stage process

Risk management is implemented in a five-stage process. The objective is to identify all potential losses in good time, to record them centrally and to evaluate them in quantitative terms as far as possible; if necessary, management measures must then be recommended and their implementation monitored (see the [“The five-stage risk management system” chart](#)): The first stage identifies the risks and the possible causes of losses or operational hitches. In the second stage, the business areas regularly – or immediately, in urgent cases – report to GRM the risks that they have identified and quantified. In the third stage, GRM assesses the risk exposure, while in the fourth stage, the business areas manage the risks by avoiding, mitigating or transferring them, or by actively accepting them. The fifth and final stage involves, for example, 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 monthly and quarterly reports, GRM compiles ad hoc reports for members of the executive and supervisory boards. The risk management functions at Clearstream and Eurex Clearing AG submit reports to the respective executive boards and supervisory boards. As an independent unit, Internal Audit reviews the risk controlling functions.

The five-stage risk management system

Responsibility



Approaches and methods for risk monitoring

Deutsche Börse Group uses quantitative and qualitative approaches and methods for risk monitoring, with the objective of providing as complete a picture as possible of its risk situation at all times. To this end, the Group continuously reviews internal events with regard to their risk properties, whilst also considering regional as well as global developments. The Group is 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.

Existing risks

Deutsche Börse Group employs a range of tools to evaluate and monitor operational, financial and business risk on a continuous basis, applying the liquidation principle and the going-concern principle, to quantify and aggregate risks. The value at risk (VaR) model is the main tool used for quantification. The purpose of the VaR model is to determine the amount of capital – given a confidence interval defined ex ante – required to cover potential losses incurred within twelve months. Moreover, so-called stress tests are carried out in order to simulate extreme, yet plausible, events and their impact upon the Group's risk-bearing capacity. Another approach to risk monitoring, which serves as an early warning system for quantified and non-quantifiable in-house risks, is complementary risk metrics. These risk metrics are based on IT and security risks, potential losses, credit, liquidity and business risks.

1. Liquidation principle: what risk can the capital cover?

The required economic capital (REC) is calculated in accordance with the liquidation principle. The first part of Principle 1 of its risk strategy specifies that Deutsche Börse Group should not exhaust its risk-bearing capacity in more than 0.02 per cent of all years. For Clearstream and Eurex Clearing AG, REC calculated in this manner also complies with the requirements of the second pillar of Basel III. Deutsche Börse Group determines its risk-bearing capacity on the basis of its reported equity in accordance with International Financial Reporting Standards (IFRSs). Clearstream and Eurex Clearing AG determine their risk-bearing capacity on the basis of their regulatory capital (for details, see [note 15 to the consolidated financial statements](#)).

For management purposes, GRM regularly determines the ratio of the REC to the risk-bearing capacity. This indicator is known as the utilisation of risk-bearing capacity and it answers a key risk management question: how much risk can the Group afford and what risk is it currently exposed to? The ratio of REC to risk-bearing capacity remained within the stipulated maximum risk throughout the reporting period. If this were not the case, the Group would in a worst-case scenario exhaust its entire risk-bearing capacity and would have to be liquidated ("gone concern").

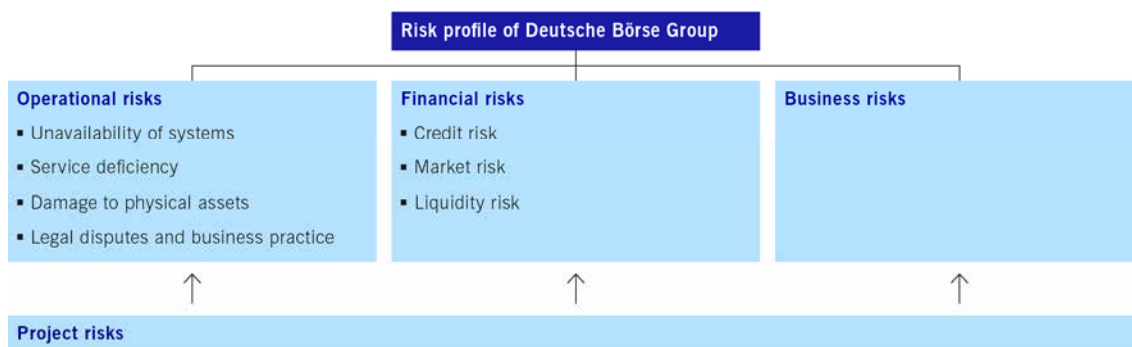
2. Going-concern principle: what risks can be absorbed by earnings?

Deutsche Börse Group employs the going-concern principle that assumes an orderly continuation of the Group in the event of a crisis, and uses earnings at risk ("EaR") as an indicator. This indicator corresponds to the second part of Principle 1 of the Group's risk strategy, i.e. that an operating loss equal to the earnings before interest, tax, depreciation and amortisation (EBITDA) may occur no more than once in a hundred years. In other words, there should be a probability of 99.0 per cent or more that Deutsche Börse should at least break even (profit for the period expressed in terms of EBITDA). Under the going-concern principle, EaR determined in this way is compared with the Group's risk appetite – which is, in turn, measured in terms of projected EBITDA.

3. Regulatory capital requirements

Clearstream and Eurex Clearing AG must calculate their capital requirements for various risk types (see the [“Deutsche Börse Group’s risk profile”](#) chart) in line with the Pillar I requirements under Basel III. In addition, Eurex Clearing AG must fulfil EMIR capital requirements while Clearstream Banking AG has to comply with CSDR capital requirements as authorisation as CSD was granted by BaFin in January 2020. Clearstream Banking S.A. is currently applying for authorisation according to CSDR. Clearstream and Eurex Clearing AG use a standardised approach for analysing and evaluating credit and market risk.

Deutsche Börse Group’s risk profile



The two institutions have adopted different approaches regarding operational risk: Clearstream has used the considerably more complex advanced measurement approach (AMA) for this in all business units since 2008. This means that it meets the regulatory capital requirements for operational risk set out in the EU’s Capital Requirements Regulation (CRR). The model is also employed for REC calculations and was fundamentally revised and improved during 2016. According to the method – which has been approved and is regularly audited by BaFin – the required capital is allocated to the regulated entities. In contrast, Eurex Clearing AG employs the basic indicator approach in order to calculate regulatory capital requirements (for details, see [note 15 to the consolidated financial statements](#)).

4. Stress tests

Stress tests are being carried out in order to simulate extreme (yet plausible) events for all material types of risk. Using and calculating both hypothetical as well as historical scenarios, this stress test simulates the occurrence of extreme losses, or an accumulation of large losses, within a single year. Similarly, inverse stress tests are also carried out, which analyse which loss scenarios would exceed the risk-bearing capacity.

5. Risk metrics

Risk metrics are used to quantify the exposure to the most important internal risks against set limits. They are complementary to the VaR approach and serve to monitor other factors as well as non-quantifiable risks. Any breach of these 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 requisite risk mitigation processes.

Emerging risks

With regard to risk management, Deutsche Börse Group pursues a sustainable, long-term strategy by also evaluating risks beyond a twelve-month horizon. For this purpose, the Group has 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. Risk maps classify risks by their probability of occurring and by their financial impact, should they materialise. A review process of Environment Social Governance (ESG) aspects is also carried out as part of the Group Risk Committee.

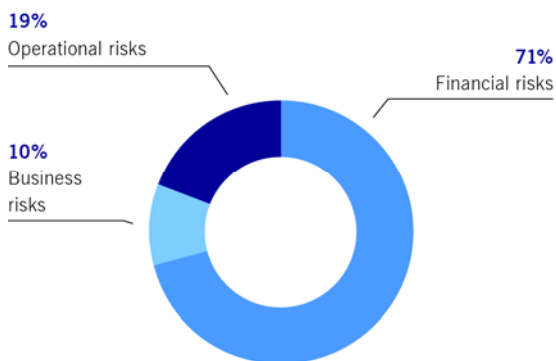
Risk description

The following section describes the types of risk that Deutsche Börse Group generally has to manage and presents the risks it actually faces. It also explains the measures that Deutsche Börse Group uses to attempt to prevent loss events, and to minimise their financial effects.

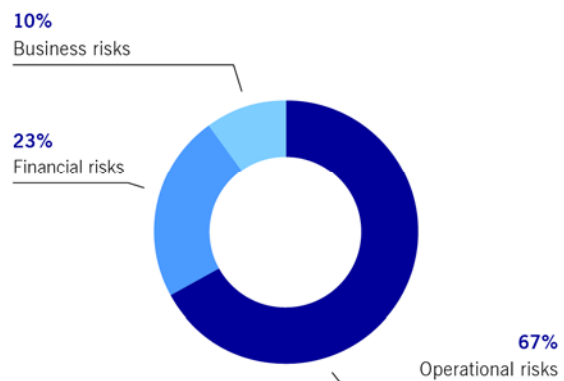
Risk profile

The risk profile of Deutsche Börse Group differs fundamentally from those of other financial services providers. Deutsche Börse Group differentiates between the three standard types of risk: operational risk, financial risk and business risk. Project risk also exists but the Group does not specifically quantify these as their impact is already reflected in the three risk types. The majority of risks are of an operational nature (see the charts below: “Required economic capital for German universal banks by risk type” and “Required economic capital for Deutsche Börse Group by risk type”).

Required economic capital for German universal banks by risk type



Required economic capital for Deutsche Börse Group by risk type



Operational risk greater than financial and business risk

Utilisation of risk-bearing capacity in the liquidation principle and of risk appetite in the going-concern principle are used as internal management indicators throughout Deutsche Börse Group (see the [“Approaches and methods for risk monitoring”](#) section for an explanation of these terms). In addition to the financial and operational risk already mentioned, business risk is also identified and assessed. This relates in particular to potential threats to revenue such as price pressure or loss in market share as well as cost risks. Under the liquidation principle, financial risk amounts to only approximately 23 per cent of Deutsche Börse Group’s total risk, while business risk represents 10 per cent of the total. This makes the third typical risk type all the more important for Deutsche Börse Group: at 67 per cent, operational

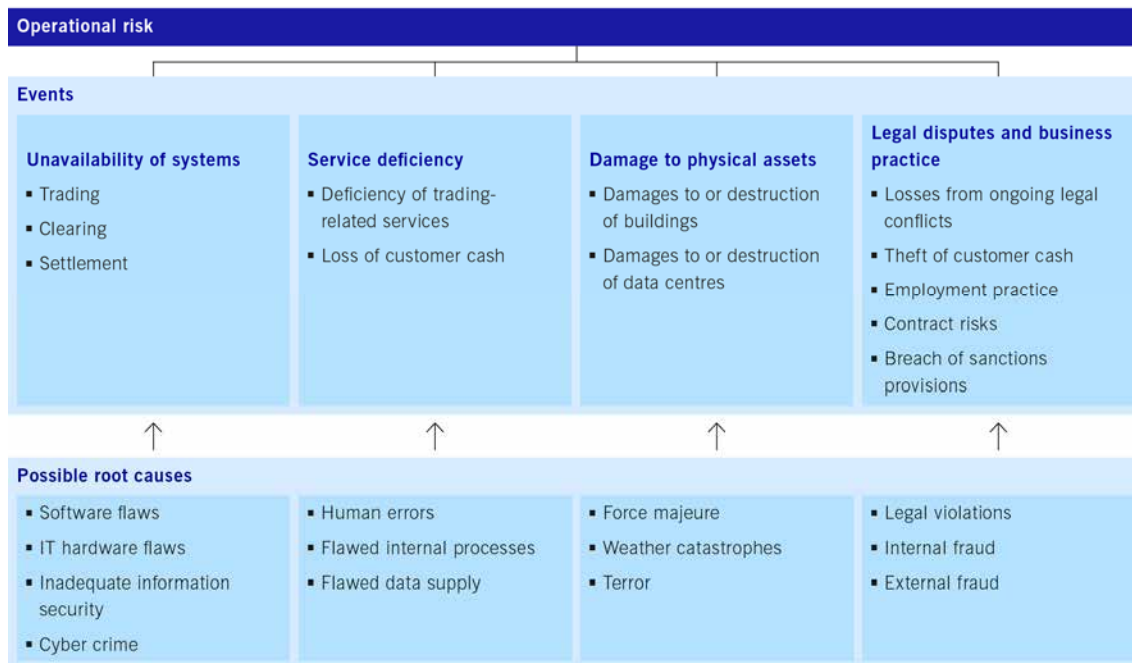
risk accounts for two-thirds of the REC. Information on the additional capital requirements of other subsidiaries is provided in [note 15 to the consolidated financial statements](#).

The three risk types applicable to Deutsche Börse Group are described in detail below, in the order of their importance.

Operational risk

For Deutsche Börse Group, operational risks comprise the unavailability of systems, service deficiency, damage to physical assets as well as legal disputes and business practice (see the [chart below: “Operational risk at Deutsche Börse Group”](#)). Human resources risks are quantified just like other operational risks. The share of operational risk of the REC was 67 per cent as at 31 December 2019.

Operational risk at Deutsche Börse Group



Unavailability of systems

Operational resources such as the Xetra® and T7® trading systems are essential for the services offered by Deutsche Börse Group. They should never fail in order to ensure that market participants can trade securities or derivatives at any time and without delay. The Group therefore calculates the availability of these systems as an important risk indicator. In line with the Group’s risk strategy, the business areas are responsible for monitoring the indicators.

The longer the downtime for one of these systems, the larger the potential loss. An outage could be caused by software or hardware issues, or in unlikely cases, the availability of the systems could be affected by acts of cyber crime or terrorist attack. In the past, only limited failures have occurred both with Xetra and with T7 and its predecessor system. In practice, there has never been a system failure lasting longer than one day. Deutsche Börse Group has taken a number of measures to further minimise the risk of failure lasting an entire day or longer, for example the redundancy of the network infrastructure.

In general, availability risk represents the largest operational risk for Deutsche Börse Group and is therefore subject to regular tests that simulate not only what happens when its own systems fail but also when suppliers fail to deliver.

Service deficiency

Risks can also arise if a service provided to a customer is inadequate and this leads to complaints or legal disputes. One example would be errors in the settlement of securities transactions due to defective products and processes or mistakes in manual entries. A second example are handling errors in the collateral liquidation process in the event of the default of a large clearing customer. Such errors have not occurred to date in the rare case of a failure. The related processes are tested at least annually.

Other sources of error may be attributable to suppliers or to product defects; mistakes that may lead to the loss of client assets or mistakes in accounting processes must also be considered. The Group registers all complaints and formal objections as a key indicator of deficient processing risk.

Damage to physical assets

Natural disasters, accidents, terrorism or sabotage are other operational risks that could, for example, cause the destruction of, or severe damage to, a data centre or office building. Business Continuity Management and Physical Security measures aim at averting significant financial damage (see the [chart Business Continuity Management](#)).

Legal disputes and business practice

Losses can also result from ongoing legal proceedings. These can occur if Deutsche Börse Group breaches laws or other requirements, enters into inadequate contractual agreements or fails to monitor and observe case law to a sufficient degree. Legal risk also includes losses due to fraud and labour law issues. This could entail, for example, losses resulting from insufficient anti-money laundering controls or breaches of competition law or of banking secrecy. Such operational risks can also arise if government sanctions are not observed, e.g. in case of conflicting laws of different jurisdictions, or in the event of breaches of other governmental or overarching regulations.

In its [2012 corporate report](#), Deutsche Börse Group informed about the class action Peterson vs Clearstream Banking S.A., the first Peterson proceeding, targeting turnover of certain customer positions held in Clearstream Banking S.A.'s securities omnibus account with its US depository bank, Citibank NA, and asserting direct claims against Clearstream Banking S.A. for damages of US\$250.0 million. The matter was settled between Clearstream Banking S.A. and the plaintiffs and the direct claims against Clearstream Banking S.A. were abandoned.

In July 2013, the US court ordered turnover of the customer positions to the plaintiffs, ruling that these were owned by Bank Markazi, the Iranian central bank. Bank Markazi appealed, and the decision was affirmed on 9 July 2014 by the Second Circuit Court of Appeals and later by the US Supreme Court on 20 April 2016. Once distribution of the funds to the plaintiffs is complete, a related case, Heiser vs Clearstream Banking S.A., also seeking turnover of the same assets, should also be dismissed.

On 30 December 2013, a number of US plaintiffs from the first Peterson case, as well as other plaintiffs, filed a complaint targeting restitution of certain assets that Clearstream Banking S.A. holds as a custodian in Luxembourg. In 2014, the defendants in this action, including Clearstream Banking S.A., moved to dismiss the case. On 19 February 2015, the US court issued a decision granting the defendants' motions and dismissing the lawsuit. The plaintiffs lodged an appeal against this ruling at the competent appeals court (Second Circuit Court of Appeals), which on 21 November 2017 confirmed large portions of the decision of the trial court. The appellate court referred the case back to the court of first instance regarding another aspect, asking the court to assess whether the assets held in Luxembourg are subject to execution in the USA. Clearstream Banking S.A. filed a petition against this ruling with the US Supreme Court on 8 May 2018. The US Supreme Court decided on 13 January 2020 to refer the second Peterson case back to the appeals court for consideration in the light of new US legislation.

On 14 October 2016, a number of US plaintiffs filed a complaint naming Clearstream Banking S.A. and other entities as defendants. The complaint in this proceeding, Havlish vs Clearstream Banking S.A. is based on similar assets and allegations as in the Peterson proceedings. The complaint seeks turnover of certain assets that Clearstream Banking S.A. holds as a custodian in Luxembourg. The complaint also asserts direct claims against Clearstream Banking S.A. and other defendants and purports to seek damages of up to approximately US\$6.6 billion plus punitive damages and interest. The proceedings have been suspended due to the pending complaint to the US Supreme Court in the second Peterson case.

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 US sanction laws. Clearstream Banking S.A. is cooperating with the US attorney.

In the context of the ongoing disputes regarding assets of Bank Markazi, Clearstream Banking S.A. was served with a complaint of Bank Markazi on 17 January 2018 naming Banca UBAE S.p.A. and Clearstream Banking S.A. as defendants. The complaint filed before the Luxembourg courts primarily seeks the restitution of assets of Bank Markazi which the complaint alleges are held on accounts of Banca UBAE S.p.A. and Bank Markazi with Clearstream Banking S.A. totalling approximately US\$4.9 billion plus interest. Alternatively, Bank Markazi seeks damages to the same amount. The assets sought include assets to the amount of approximately US\$1.9 billion that were turned over to US plaintiffs pursuant to a 2013 binding and enforceable US court order in a proceeding to which Bank Markazi was a party. The claim also addresses customer assets of approximately US\$2 billion, which include assets that are held at Clearstream Banking S.A. and which are currently subject to US and Luxembourg litigation brought by US plaintiffs, and further addresses assets that were previously transferred out of Clearstream Banking S.A. to Banca UBAE S.p.A.

On 15 June 2018, Banca UBAE S.p.A. filed a complaint against Clearstream Banking S.A. in front of the Luxembourg courts. This complaint is a recourse action related to the 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.

On 26 December 2018, two US plaintiffs filed a complaint naming Clearstream Banking S.A. and other entities as defendants. The plaintiffs hold claims against Iran and Iranian authorities and persons amounting to approximately US\$28.8 million. The complaint in this case (Levin vs. Clearstream Banking S.A.) is based on similar assets and allegations as in the second Peterson case, and the Havlish case. The complaint seeks turnover of certain assets that Clearstream Banking S.A. holds as a custodian in Luxembourg. The complaint also asserts direct claims against Clearstream Banking S.A. and other defendants and purports to seek damages of up to approximately US\$28.8 million, plus punitive damages and interest. The proceedings have been suspended due to the pending second Peterson case.

On 4 December 2019, several US plaintiffs from the aforementioned Heiser vs Clearstream Banking S.A. case filed a new complaint naming Clearstream Banking S.A. and other entities as defendants. The plaintiffs hold claims against Iran and Iranian authorities and persons in excess of US\$500.0 million, and are seeking turnover of Iranian assets. Also these proceedings will be suspended with a view to the further development of the second Peterson case.

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 US 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 a court claim 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, is ongoing.

Legal disputes have arisen regarding a bond issued by MBB Clean Energy AG (MBB), which is held in custody by Clearstream Banking AG. MBB issued the first tranche of the bond in April 2013 and the second tranche of the bond in December 2013. The global certificates for the two tranches were delivered to Clearstream Banking AG by the paying agent of the issuer. The legal disputes relate to the non-payment of the bond and the purported lack of validity of the bond. Clearstream Banking AG's role in the context of the purported lack of validity of the MBB bond is primarily to safekeep the global certificate as national central securities depository. Insolvency proceedings have meanwhile been opened in respect of the issuer, MBB.

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 against Clearstream Banking AG, Deutsche Börse AG and other partners.

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 (Nebenbeteiligte). 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 accused persons to include further current and former employees of Deutsche Börse Group companies. Due to the early stage of the proceedings, it is not possible to predict timing, scope or consequences of a potential decision. The affected companies are cooperating with the competent authorities. The concerned entities do not expect that they could be successfully held liable.

In November 2018, a customer of a trading participant of the Frankfurt Stock Exchange filed a lawsuit at the District Court (Landgericht) of Frankfurt/Main against Deutsche Börse AG. The plaintiff is claiming damages of approximately €2.6 million from Deutsche Börse AG. The alleged damages are said to have arisen (1) on 7 July 2016, from Deutsche Börse AG's publication of an inaccurate ex-dividend date relating to a financial instrument via the Xetra system and (2) due to the fact that a client of the plaintiff relied on this inaccurate information to conclude transactions.

On 19 December 2018, the German Federal Financial Supervisory Authority (Bundesanstalt für Finanzdienstleistungsaufsicht, BaFin) sent Deutsche Börse AG a formal hearing notification in a penalty proceeding, which refers to the allegation of a supposed lack of self-liberation or, alternatively, an allegedly omitted ad hoc announcement. Specifically, in the search for a successor for Carsten Kengeter, Deutsche Börse AG had omitted to qualify as a price-relevant intermediate step the fact that a few days before the appointment of Theodor Weimer in November 2017, two suitable and interested CEO candidates had been identified and a decision about the appointment was planned. Even after consulting with external experts, Deutsche Börse AG believes this allegation is unfounded.

Despite the ongoing proceedings described before, the Executive Board is not aware of any material changes to the Group's risk situation.

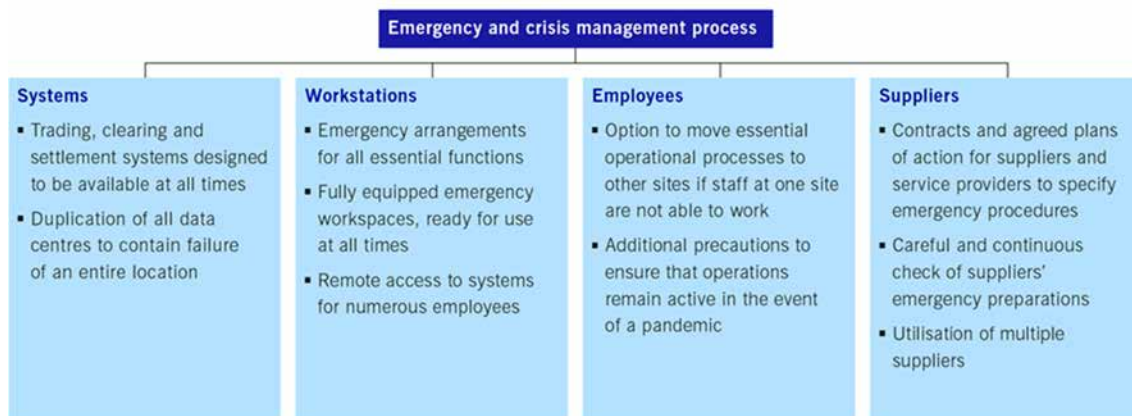
Measures to mitigate operational risk

Deutsche Börse Group takes specific measures to reduce its operational risk. Among them are emergency and contingency plans, insurance policies, measures concerning information security and the physical safety of employees and buildings as well compliance rules and procedures.

Emergency and contingency plans

It is essential for Deutsche Börse Group to provide its products and services as reliably as possible. The Group has to maintain its business operations and safeguard against emergencies, failures and crises. If its 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. As a result, Deutsche Börse Group has set up a system of emergency and crisis plans covering the entire Group (business continuity management, BCM). This covers all processes designed to ensure continuity of operations in the event of a crisis and significantly reduces unavailability risk. Measures include precautions relating to all important resources (systems, workstations, employees, suppliers), including the redundant design of essential IT systems and the technical infrastructure, as well as emergency measures designed to mitigate the unavailability of employees or workspaces in core functions at all important locations. This includes unavailability due to pandemic based events, like the recent "Coronavirus" outbreak. This situation is being handled in accordance to the Deutsche Börse Group Incident and Crisis Management Process. Precautionary measures are centrally coordinated to ensure continuity of Deutsche Börse Group's critical operations as well as employees' health and safety. Back-up locations are subject to regular tests and remote access is also available. Examples of such precautions are listed in the [☒ "Business continuity management" chart](#).

Business continuity management



Preparations for emergencies and crises

The Group has introduced and tested a management process for emergencies and crises that enables it 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 segments have appointed emergency managers to act as central contacts and take responsibility during emergencies and crises. The emergency managers inform the Executive Board or raise the alarm with them in the case of severe incidents. In the event of a crisis, the Executive Board member responsible for the affected business area acts as the crisis manager or delegates this role. The emergency and contingency plans are tested regularly by realistically simulating critical situations. Such tests are generally carried out unannounced. The test results are evaluated based on the following criteria:

- Functionally effective: the measures must be technically successful.
- Executable: the employees must be familiar with the emergency procedure and be able to execute it.
- Timely: emergency measures must ensure that operations restart within the intended time period, namely the recovery time objective (RTO).

Information Security

Attacks on information technology systems and their data – especially due to cyber crime – represent operational risks for Deutsche Börse Group, which is continuously confronted with rising threats in this respect, as are other financial services providers and the entire sector. Unauthorised access, change and loss of information, as well as non-availability of information and services, may all arise as a result of these attacks (such as phishing, DDoS and ransomware attacks). It is worth noting that there was no successful attack on Deutsche Börse Group's core systems in 2019.

In order to maintain the Group's integrity as a transaction services provider, and in order to mitigate and control the risks, Deutsche Börse is continuously implementing measures to increase information security. The aim is to proactively boost the robustness of procedures, applications and technologies against cyber crime in such a way that they are adjusted to the threatening situation and regulatory requirements at an early stage. The foundation for this is formed by a set of core processes together with specific control measures based on the established international information security standards ISO/IEC 27000.

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 adherence to) security standards, within the scope of product and application development.

The Group operates a situation centre (Computer Emergency Response Team, CERT), which detects and assesses threats from cyber crime at an early stage, and coordinates risk mitigation measures in cooperation with the business units.

Group Information Security operates an Group-wide programme designed to raise staff awareness for the responsible handling of information, and to improve staff conduct in this aspect. All in all, Deutsche Börse Group's security approach includes overall measures in accordance with ISO 27000 covering both the development phase and the operational phase.

Furthermore, Deutsche Börse Group has been a full member of national associations (Cyber Security Sharing and Analytics, CSSA), trade associations (World Federation of Exchanges) and international networks (Financial Services Information Sharing and Analysis Center, FS-ISAC) which contribute significantly towards a forward-looking stance vis-à-vis cyber threats, and the development of strategies to fend off such threats.

Physical security

Deutsche Börse Group places great importance on physical security issues due to the constantly changing global security risks and threats. Corporate Security has developed an integral security concept to protect the company, its employees and values from internal and external attacks and threats – in a proactive as well as reactive manner. Analysts are continuously assessing the security situation at Deutsche Börse Group's locations and are in close contact with authorities (Federal Criminal Police Office – BKA, Federal Office for the Protection of the Constitution – BfV, etc.), security services providers, and security departments of other companies. Multi-level security processes and controls ensure physical safety at the Group's locations. Physical access to buildings and values is monitored permanently; it is based on the access principle of 'least privilege' (need-to-have basis). Penetration tests, inter alia, are carried out on a regular basis to verify the efficiency and effectiveness (as well as the quality) of the security processes at the locations.

In an increasingly competitive global market environment, access to know-how and confidential company information bears the potential of a major financial advantage to outsiders or competitors. Deutsche Börse applies state-of-the-art technology to prevent its knowledge from being obtained illegally, e.g. through wiretapping.

Furthermore, Corporate Security is tasked with providing support to employees while they are travelling or on foreign assignment, i.e. protecting them from risks in the areas of crime, civil unrest, terrorism and natural disasters. In this context, a worldwide travel security programme was established which guarantees a risk assessment before, during and after travelling, supported by a travel-tracking system and a central 24/7 emergency telephone number.

Insurance policies

Operational risks that Deutsche Börse Group cannot or does not wish to bear itself are transferred to insurance companies, if this is possible at a reasonable price. The insurance policies are checked individually and are approved by Deutsche Börse AG's Chief Financial Officer.

Compliance

Compliance at Deutsche Börse is responsible for supporting the individual legal entities in ensuring that regulatory requirements are observed and generally protecting the Group against financial and non-financial risks, such as reputational damage in the markets it serves, in cooperation with supervisory authorities, or the general public. Whilst endowed with appropriate autonomy from the business units, Group Compliance nonetheless fulfils its mandate as an enabler of business, to allow the former to focus on the clients and markets the Group wishes to serve. Compliance has to take the necessary steps to systematically and pre-emptively mitigate compliance risks. This requires the identification of compliance risks, and a risk-based assessment of appropriate measures.

Deutsche Börse Group pursues an enterprise-wide approach to its Compliance function, ensuring that applicable laws and regulatory requirements are followed with respect to individual legal entities. Under applicable law, the Compliance functions of the individual legal entities report to the respective member of the Executive Board responsible for Compliance. Moreover, the Compliance functions and their staff report directly to the Group Chief Compliance Officer via a uniform reporting structure. Wherever possible, Deutsche Börse Group's compliance follows a synergistic and holistic approach by applying Group-wide compliance regulations and standards, with the objective of ensuring that the related concepts are spread throughout the Group.

Deutsche Börse Group's Compliance function has been consistently strengthened over recent years. During the course of 2019, the Group significantly increased its Compliance personnel in major offices around the world, with the objective of coordinating and enhancing the strength of the individual legal entities' Compliance function as well as the alignment between Compliance officers, control functions of individual business segments and other control functions as required by supervisory bodies. This close alignment strengthened the second line of defence. In order to be able to act pre-emptively and to mitigate the compliance risks referred to above, the Group continues to invest into the acquisition and further development of IT tools. This provides a validated data inventory, which enables the Group to consistently and appropriately respond to compliance risks. In 2019, the focus continued on standardising and digitalising compliance processes with an impact on relevant business units. Deutsche Börse Group also improved its due diligence procedures with respect to clients, market participants, counterparties and business partners.

Group Compliance continuously promotes regulatory-compliant and ethically impeccable conduct, as well as integrity amongst all Deutsche Börse Group employees. For instance, staff have been sensitised to (and enhanced emphasis been placed on) compliance-relevant aspects throughout the respective business units and within Deutsche Börse Group's regulatorily required control functions. The code of business conduct encompasses the aforementioned activities and sets a holistic basis for a regulatory environment for Deutsche Börse Group.

Over the last few years, Deutsche Börse Group has devoted itself to the development of market-leading compliance standards. The Group promotes and reflects these standards across its entire product-related value creation chain, particularly from the perspective of a leading global provider of financial markets infrastructure. Deutsche Börse AG decided to align its compliance management system with the globally recognised ISO 19600 standard. This was a crucial next step, designed to exploit Group-wide synergies and to move beyond the scope of regulatory requirements. These efforts will be continued in 2020. A special focus lies on compliance monitoring and controls, on the basis of a Group-wide procedural approach.

Financial risk

Deutsche Börse Group classifies its financial risk into credit, market and liquidity risk (see the “Financial risk at Deutsche Börse Group” chart below). At Group level, these risks account for about 23 per cent of the REC (this information only includes credit and market risk; liquidity risk is not quantified as part of the REC; see [note 23 to the consolidated financial statements](#)). They primarily apply to the Group’s credit institutions. As a result, the following explanation focuses on Clearstream and Eurex Clearing AG.

The assets and liabilities relating to the financial instruments held by central counterparties balance each other out.

Financial risk at Deutsche Börse Group



Credit risk

Credit risk and counterparty default risks describe the danger that a counterparty might not meet its contractual obligations, or not meet them in full. Measurement criteria include the degree to which the credit line has been utilised, the collateral deposited and concentration risk. Although Clearstream and Eurex Clearing AG often have short-term exposures against counterparties totalling several billion euros overall, these are generally secured by collateral deposited by the market participants. Moreover, the Group regularly evaluates the reliability of its emergency plans at Clearstream and Eurex Clearing AG in the event of client defaults, and the resulting credit risk.

Furthermore, Clearstream Banking S.A. is exposed to credit risk arising from its strategic securities lending transactions (ASLplus). Only selected banks act as borrowers. All borrowing transactions are fully collateralised and only selected bonds with a high credit rating are permitted for use as collateral.

Clearstream grants loans to its clients in order to make the securities settlement more efficient. This type of credit business is, however, fundamentally different from the classic lending business. On the one hand, credit is extended solely for less than a day, and it is generally collateralised and granted to clients with high creditworthiness on the other. Furthermore, the credit lines granted can be revoked at any time.

Under its terms and conditions, Eurex Clearing AG only enters into transactions with its 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. As a central counterparty, it steps in between

transactional counterparties. Through offsetting mutual claims and requiring clearing members to post collateral, Eurex Clearing AG mitigates the credit risk exposure.

To date, no default by a client with a secured credit line has resulted in financial losses. Deutsche Börse Group therefore views the probability that one of its customers could become insolvent, and that this could lead to losses for the Group as low.

Credit risk can also arise from cash investments. The Treasury department is responsible here, and has Group-wide authority. Treasury largely makes collateralised investments of funds belonging to Group companies as well as Clearstream and Eurex Clearing AG customers. To date, a counterparty default has not led to a loss for the Group.

Clearstream and Eurex Clearing AG run stress tests to analyse scenarios, such as the default of their largest counterparty. The figures determined in this way are compared with the limits defined as part of the companies' risk-bearing capacity. In addition, the impact of several clearing counterparties defaulting at the same time is calculated for Eurex Clearing AG. A special stress test examines Clearstream Banking S.A.'s credit risk exposure from the settlement procedure with Euroclear. Moreover, inverse stress tests are run to determine the number of counterparties that would have to default for losses to exceed the risk cover amount. Risks identified in the course of stress tests carried out during the 2019 financial year were analysed further, and corresponding risk-reduction measures initiated, e.g. reducing credit risks through diversification.

Deutsche Börse Group generally tracks a variety of risk indicators in addition to its risk measures (REC, EaR and the credit risk stress tests performed). These include the extent to which individual clients utilise their credit lines, and credit concentrations.

Reducing credit risk

Clearstream and Eurex Clearing AG assess the creditworthiness of potential customers or counterparties to an investment before entering into a business relationship with them. The companies do this in the same way: they determine the size of individual customers' credit lines based on requirements and regular creditworthiness checks, which they supplement with ad hoc analyses if necessary. They define haircuts collateral depending on the risk involved, and continually review their appropriateness.

Given the size and volatility of its clients' liabilities, Eurex Clearing AG has developed a leading-edge collateral management system, which is described in detail in the following section.

Safety for the participants and the clearing house

Each clearing member must prove that it has liable capital (or, in the case of funds, assets under management) equal to at least the amounts that Eurex Clearing AG has defined for the different markets. The amount of liable capital (or assets under management) for which evidence must be provided depends on the risk. To mitigate Eurex Clearing AG's risk that clearing members might default before settling open transactions, members are obliged to deposit collateral in the form of cash or securities (margins) on a daily basis and, if required, to meet additional intraday margin calls.

Eurex Clearing AG only permits securities with a high credit quality and liquidity to be used as collateral. Internal valuations and external ratings are used to determine the credit quality. On the basis of these consolidated ratings, only collateral that is classified at least as investment grade is permitted. The limits for bank bonds are raised to at least "A–" due to the potential wrong-way risks. The admission criteria are reviewed continually and market risk is covered by haircuts with a confidence level of at least 99.9 per cent. Hence, securities of issuers with lesser credit quality are subject to higher haircuts than those applied to securities with higher credit quality. Eligible collateral that no longer meets the high credit

rating requirements at a later point in time (e.g. due to a new consolidated rating) is excluded. Risk inputs are checked monthly and the safety margins are recalculated daily for each security. In addition, a minimum safety margin applies to all securities.

Margins are calculated separately for clearing member accounts and client accounts. Gains and losses resulting from intraday changes to the value of financial instruments are either settled in cash by the counterparties (variation margin) or deposited with Eurex Clearing AG as collateral by the seller due to the change in the equivalent value of the item (premium margin). In the case of bond, repo or equity transactions, the margin is collected from either the buyer or the seller (current liquidating margin), depending on how the transaction price performs compared to the current value of the financial instruments. The purpose of these margins is to offset gains and losses.

In addition, Eurex Clearing AG uses additional collateral to protect itself in the case of default by a clearing member against any risk that the value of the positions in the member's account will deteriorate in the period before the account is settled. This additional collateral is known as the additional margin. The target confidence level here is at least 99.0 per cent (with a minimum two-day holding period) for exchange-traded transactions, or 99.5 per cent (with a five-day holding period) for OTC transactions. Eurex Clearing AG checks daily whether the margins match the requested confidence level: initial margin is currently calculated using the legacy risk-based - margining method, and the new - Eurex Clearing - Prisma method, which is already available for all derivative contracts traded. The new method takes the clearing member's entire portfolio – as well as historical and stress scenarios – into account when calculating margin requirements. The objective is to cover market fluctuations for the entire liquidation period until the account is settled. At present, the risk-based - margining method is still used for cash market products and physical deliveries, as well as for securities lending and repo transactions.

In addition to the margins for current transactions, each clearing member contributes to a default fund, with the contributions based on its individual risk profile. This fund is jointly liable for the financial consequences of a default by a clearing member to the extent that this cannot be covered by the member's individual margin, and its own and Eurex Clearing AG's contributions to the default fund. Eurex Clearing AG uses daily stress tests to check whether its default fund is adequate enough to absorb a default of its two largest clearing members. This involves subjecting all current transactions and their collateral to market price fluctuations at a confidence level of at least 99.9 per cent. In order to be able to determine potential losses in excess of a clearing member's individual margins, the impact on the default fund of a potential default is simulated. Eurex Clearing AG has defined limits which, when exceeded, trigger an immediate adjustment to the size of the default fund if necessary. The following lines of defence are available in case a clearing member is unable to meet its obligations to Eurex Clearing AG due to a delay in performance or a default:

- First, Eurex Clearing AG may net the relevant clearing member's outstanding positions and transactions and/or close them – in terms of the risk involved – by entering into appropriate back-to-back transactions, or settle them in cash. Clients' segregation models are taken into account accordingly.
- Any potential shortfall that might be incurred in connection with such a closing or cash settlement, as well as the associated costs, would be covered in the first instance by the collateral provided by the clearing member concerned. As at 31 December 2019, collateral amounting to €57,697 million had been provided for the benefit of Eurex Clearing AG (after haircuts).
- After this, the relevant clearing member's contribution to the default fund would be used to cover the open amount. Contributions ranged from €1 million to €236.7 million as at 31 December 2019.
- Any remaining shortfall would initially be covered by a contribution to the default fund by Eurex Clearing AG. Eurex Clearing AG's contribution amounted to €200.0 million as at 31 December 2019.
- Only then would the other clearing members' contributions to the default fund be used proportionately. As at 31 December 2019, aggregate default fund contribution requirements for all clearing members of Eurex Clearing AG amounted to €3,630 million. After the contributions have been used in full, Eurex Clearing AG can request additional contributions from each clearing member, which can be at most twice as high as their original default fund contributions. In parallel to these additional contributions, Eurex Clearing AG provides additional funds of up to €300.0 million, provided via a Letter of Comfort from Deutsche Börse AG (see below). These additional funds will be used together with the additional clearing member contributions, on a pro-rata basis.
- Next, the portion of Eurex Clearing AG's equity which exceeds the minimum regulatory equity would be realised.
- Finally, the remaining minimum regulatory equity of Eurex Clearing AG would be drawn upon.
- Deutsche Börse AG has issued a letter of comfort in favour of Eurex Clearing AG. With this letter of comfort, Deutsche Börse AG commits to provide the funds to Eurex Clearing AG required to fulfil its duties – including the duty to provide additional funds of up to €300.0 million, as mentioned before. The maximum amount to be provided under the Letter of Comfort amounts to €600.0 million, including payments already made. Third parties are not entitled to any rights under the Letter of Comfort.

In the event of default by a clearing member, Eurex Clearing AG carries out a Default Management Process (DMP), with the objective of closing out all positions assumed as a result of the default. Within the scope of the DMP, any costs incurred in connection with such close-out are covered using collateral from Eurex Clearing's lines of defence. Essentially, within the DMP framework, products which share similar risk characteristics are assigned to liquidation groups that are liquidated using the same process. Within a liquidation group, Eurex Clearing AG will balance its position by transferring defaulted positions to other clearing members, either via an auction or by way of bilateral independent sales. Potential claims against Eurex Clearing AG, arising from the settlement of positions assumed from the defaulted clearing members, are covered by the collateral from the multiple lines of defence. Whenever necessary, these collateral items are disposed on in the market by way of bilateral independent sales, in order to cover the outstanding claims from the settlement of the open positions. The DMP will therefore not only contribute to the security and integrity of capital markets, but will also protect non-defaulted clearing members from any negative effects resulting from the default.

In the past, the DMP of Eurex Clearing AG has been used four times, involving the defaults of Gontard & MetallBank (2002), Lehman Brothers (2008), MF Global (2011), and Maple Bank (2016).

In all of the cases mentioned above, the funds pledged as collateral by the defaulted clearing member were sufficient to cover losses incurred upon closing out positions – in fact, a significant portion of resources was returned to the defaulted clearing member.

Deutsche Börse Group reduces its risk when investing funds belonging to Group companies and client funds by distributing investments across multiple counterparties, all with a high credit quality, by defining investment limits for each counterparty and by investing funds primarily in the short term and in collateralised 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. Since extending its licence as an investment and credit institution under the Kreditwesengesetz (German Banking Act), Eurex Clearing AG can also use the permanent facilities at Deutsche Bundesbank and the Swiss National Bank; it is thus in a position to manage the largest part of client funds in a central bank environment.

Investment losses on currencies for which Eurex Clearing AG has no access to the respective central banks will be borne, on a pro-rata basis, by Eurex Clearing AG and by those clearing members active in the currency where losses were incurred. The maximum amount which each clearing member will have to contribute in this manner is the total amount such clearing member has pledged with Eurex Clearing AG as cash collateral in this currency. The maximum amount to be borne by Eurex Clearing AG is €50 million.

Market risk

Market risk include risks of a detrimental development of interest rates, exchange rates or other market prices. Deutsche Börse Group measures these risks using Monte - Carlo simulations based on historical price data, as well as corresponding stress tests.

Clearstream and Eurex Clearing AG invest parts of their equity in securities with the highest credit quality. The majority of these securities have a variable interest rate, interest rate risk is low. The Group avoids open currency positions whenever possible. Furthermore, market risk could result from Deutsche Börse Group's ring-fenced pension plan assets (Contractual Trust Arrangement (CTA), Clearstream's pension fund in Luxembourg). The Group reduced its risk of extreme losses by deciding to invest a predominant proportion of the CTA on the basis of a value preservation mechanism.

Liquidity risk

Liquidity risk arises if a Deutsche Börse Group company is unable to meet its daily payment obligations or if it can only do so at a higher refinancing cost. Operational liquidity requirements are met primarily internally by retaining funds generated with a view towards maintaining sufficient liquidity in order to be able to meet all of the Group's payment obligations when due. An intra-Group cash pool is used to pool surplus cash from subsidiaries on a Deutsche Börse AG level, as far as regulatory and legal provisions allow. Liquid funds are invested in the short term in order to ensure that they are available. Short-term investments are also largely secured by liquid bonds from first-class issuers. Deutsche Börse AG has access to short-term external sources of financing, such as agreed credit lines with individual banks or consortia, and a commercial paper programme. In recent years, Deutsche Börse AG has leveraged its access to the capital markets to issue corporate bonds in order to meet its structural financing needs.

Since Clearstream's investment strategy aims to be able to repay customer deposits at all times, liquidity limits are set carefully. In addition, extensive sources of financing are available at all times, such as ongoing access to the liquidity facilities at Deutsche Bundesbank and Banque centrale du Luxembourg.

Due to its role as a central counterparty, Eurex Clearing AG has strict liquidity guidelines and its investment policy is correspondingly conservative. Regular analyses ensure the appropriateness of the liquidity guidelines. In addition, Eurex Clearing AG can use Deutsche Bundesbank's permanent facilities.

Deutsche Börse Group can also be exposed to liquidity risk in case of a customer default. If a clearing member of Eurex Clearing AG defaults, its member position is liquidated. If a Clearstream customer defaults, the – generally collateralised and intraday – credit line granted to increase settlement efficiency would be called, and the collateral provided by the client could then be liquidated. A decline in market liquidity, following a market disruption, would increase Deutsche Börse Group's liquidity risk exposure. By means of stress tests, Clearstream and Eurex Clearing AG calculate for each day of the month – and report on a monthly basis – the liquidity needs that would result if the two largest counterparties were to default, and maintain sufficient liquidity in order to cover the liquidity needs determined. Potential risks that are identified in the course of stress tests are analysed and corresponding risk-reduction measures initiated. During the 2019 reporting year, Eurex Clearing AG and Clearstream continuously held sufficient liquidity to fulfil both regulatory requirements as well as the liquidity needs determined through stress tests.

Business risk

Business risk reflects the fact that the Group depends on macroeconomic and geopolitical developments and is influenced by other external events, such as changes in the competitive environment or regulatory initiatives. It therefore expresses the risks associated with the Group's business environment and sector. It also includes business strategy risk, i.e. the impact of risks on the business strategy and possible adjustments to it. These business risks are represented as variance analyses of planned and actual EBITDA, and are monitored constantly by the divisions. They account for about 10 per cent of the Group's REC. Business risk may result in revenues lagging budget projections or in costs being higher.

Business risk includes the risk that competitors, such as the exchanges Euronext, Singapore Exchange (SGX), ICE Futures Europe and Mercado Español de Futuros Financieros (MEFF), as operators of derivatives markets, might increase their market shares on the European trading markets (both on- and off-exchange).

Additional business risk may arise from regulatory requirements, or from the geopolitical or economic environment – for example, in the event of an intra-Europe crisis affecting monetary union, the impact of negative interest rates or a tariff conflict, having adverse effects on trading activity.

The introduction of a binding carbon dioxide price also represents a potential business risk. Germany's federal government is currently revising its climate policy, with a price tag for carbon dioxide likely to be a key instrument. The integration of the financial sector in this respect – or expansion of the European Union Emissions Trading System (EU ETS) – is possible and would represent an additional cost factor for the Group. The EU index regulation, which is aimed at higher ESG transparency requirements, also represents a potential business risk for the Group. Such a regulation could limit the innovative power of the Group's ESG products, thus reducing the company's long-term success.

The orderly exit of the United Kingdom from the European Union (Brexit) on 31 January 2020 allows for a transition period up to the end of 2020, which may be extended once by up to two years. EU law shall apply in and for the UK during the transition period although the UK will have no co-determination right in the EU institutions. The UK will also remain a part of the EU single market and the EU customs union in this time. The EU and the UK are expected to negotiate a free trade agreement during the transition period. The risk of an unregulated Brexit from January 2021 onwards remains if an agreement cannot be reached within this timeframe. Brexit was subject to continuous analyses with regard to the risk for customers, products and business continuity.

Deutsche Börse Group launched three initiatives aimed at reducing these risks: (1) The Brexit readiness project, which is responsible for coordinating all of Deutsche Börse Group's divisions to retain their access to the markets, (2) the transition team, which will support UK customers through the Brexit process and any adjustments that need to be made, to continue to have access to Deutsche Börse Group and its divisions and (3) the Eurex Clearing partnership programme, which supports an EU-27 alternative for euro clearing. Deutsche Börse Group remains well prepared for Brexit. All divisions have submitted the necessary applications with the British authorities and the customers are well prepared for transferring their activities in full to a unit of the Group located inside EU-27.

The EU-based liquidity pool for Eurex Clearing AG's euro swaps is also growing substantially, so that euro clearing can continue to be offered competitively in Frankfurt, regardless of political developments.

The introduction of a financial transaction tax, which continues to be supported by some European states, might have a negative impact upon Deutsche Börse Group's business activities. Likewise, a sustained period of weak trading activity on the market following a significant downturn on the equity markets (whatever the reasons), for example, also represents a risk to the Group.

Overall assessment of the risk situation by the Executive Board

Deutsche Börse AG's Executive Board is responsible for risk management throughout the Group and regularly reviews the entire Group's risk situation. The Executive Board of Deutsche Börse AG confirms the effectiveness of the risk management system.

Summary

The risk profile of Deutsche Börse Group did not change significantly in the 2019 financial year. Deutsche Börse Group's risks were covered by sufficient risk-bearing capacity at all times, i.e. the allocated risk appetite limits were complied with.

As at 31 December 2019, the Group's REC amounted to €2,696 million, a 5 per cent increase year-on-year (31 December 2018: €2,573 million). REC was covered by sufficient aggregate risk-bearing capacity at all times during the 2019 financial year. EaR amounted to €1,103 million as at 31 December 2019, of which €750 million was attributable to operational risk, €152 million to financial risk, and €201 million to business risk.

Outlook

Deutsche Börse Group continually assesses its risk situation. Based on the calculated REC in stress tests and based on the risk management system, Deutsche Börse AG's Executive Board concludes that the available risk cover amount is sufficient. Furthermore, it cannot identify any risk that would endanger the Group's existence as a going concern.

The Group is determined to further strengthen and expand its Group-wide risk management and internal control system (ICS) in 2020 too, by means of, for example, methodological improvement in the ICS and closer integration of the control functions.

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