

Principles for financial
market infrastructures
Disclosure framework
Committee on
Payments and Market
Infrastructures
(CPMI)

Status as at 31 December 2022

Responding institution: Clearstream Banking S.A.

Jurisdiction(s) in which the FMI operates: Luxembourg

Authorities regulating, supervising or overseeing the FMI: Commission de Surveillance du Secteur Financier (CSSF) and Banque Centrale du Luxembourg (BcL)

Date of this disclosure: 31 December 2022

This disclosure can also be found at www.clearstream.com

For further information, please contact: marketquestionnaires@clearstream.com

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Preface

General background on the FMI

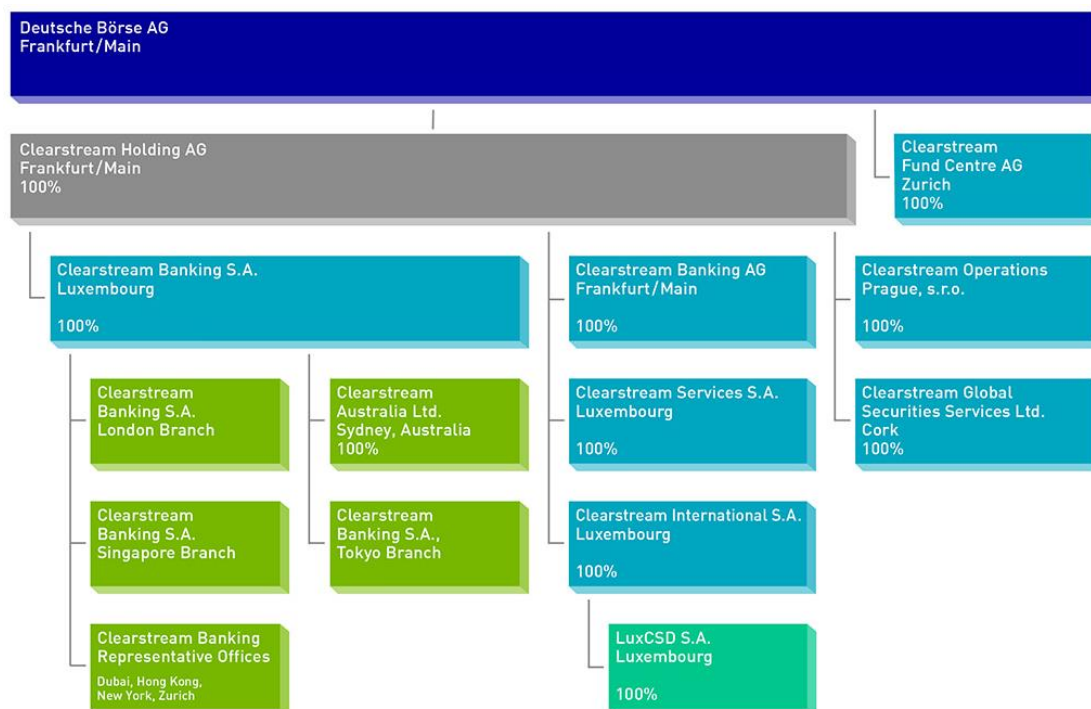
General description of the FMI and the markets it serves

Clearstream is an important player in the securities services industry with consistently high credit ratings. As an international central securities depository (ICSD) based in Luxembourg, CBL provides post-trade infrastructure and securities services for the international market and domestic markets worldwide.

Clearstream offers access to a large number of securities markets across the globe, providing direct and secure access to domestic liquidity pools and the international market. As the demand for access to new markets and instruments develops, the company will continue to expand its global network and to deliver market access solutions that meet the customers' needs.

General organisation of the FMI

Shareholding structure of Clearstream group as at 31 December 2022



Clearstream Holding AG acts as a holding company for all companies of Clearstream group¹ (hereinafter "Clearstream"). The ICSD Clearstream Banking S.A. (CBL) and the German CSD Clearstream Banking AG (CBF) are highly integrated into the structure of Clearstream within Deutsche Börse Group.

Governance structure of CBL

CBL is governed by a two-tier board structure. This approach features a clear separation between the powers of the Supervisory Board, which monitors and advises the Executive Board, and the Executive Board itself, which carries out day-to-day business. As at 31 December 2022, the company's Supervisory and Executive Boards stand as follows:

- Supervisory Board: Stephan Leithner (Chairperson), Gregor Pottmeyer (Vice-Chairperson), Oliver Engels, Stephanie Eckermann, Wolfgang Gaertner, Marie-Jeanne Chevremont
- Executive Board: Philip Brown (Chief Executive Officer), João Amaral, Anne-Pascale Malrechauffe, Denis Schloremberg, Guido Wille, Alain Courbebaisse.

Executive summary

Clearstream Banking S.A. (CBL) is an international central securities depository within the meaning of Article 2 (1) number 1 of Regulation (EU) No 909/2014 of the European Parliament and of the Council of 23 July 2014 on improving securities settlement in the European Union and on central securities depositories (hereinafter "Central Securities Depositories Regulation" or "CSDR"), and a leading European post-trade services provider with approximately 1,200 customers in 110 countries, including 75+ central banks and supranational institutions. CBL offers settlement and asset services, global securities financing, investment fund services, as well as various cash management services. The company contributes to the safety and efficiency of financial markets and provides its customers and providers with an exhaustive suite of connectivity.

CBL discloses information about its governance structure publicly via the [Company Governance](#) section of its website. Information disclosed in this section includes:

- The company's [operational structure](#),
- The company's [shareholding structure](#),
- The names and titles of the members of its [Supervisory Board](#),
- The names and titles of the members of its [Executive Board](#),
- The roles and functioning of Clearstream [group committees](#).

Clearstream has a multifarious array of stakeholders:

¹ Except for LuxCSD which is held indirectly via Clearstream International S.A.

- Stakeholders to whom Clearstream provides a service to, i.e. issuers, issuer agents and customers;
- Stakeholders who provide a service to Clearstream, i.e. CSDs, ICSDs, Transfer Agents and Order Handling Agents;
- Stakeholders involved in the formation of the legislative and regulatory framework in which Clearstream operates, i.e. Clearstream’s regulator, market associations;
- Stakeholders with a direct influence on Clearstream’s equity, i.e. parent company and end investors.

As a licensed credit institution in Luxembourg, CBL is supervised by CSSF and shall comply with the financial, legal, regulatory and statutory reporting banking requirements as specified, among others, in the law of the financial sector of April 1993 (as amended). As a securities settlement system (SSS) in which Banque centrale du Luxembourg (BcL) participates, CBL is supervised by BcL and must report according to and comply with rules and recommendations by BcL. CBL has been authorised under CSDR in April 2021. Such authorisation has been granted by CSSF and includes an authorisation covering the core and non-banking type ancillary services (Art. 16 CSDR), banking services (Art. 54 CSDR) and an interoperable link with Euroclear Bank NV/SA (“Bridge”, Art. 19 CSDR). Further details on the services covered can be found in the [ESMA register of CSDs](#).

Risk management is an elementary component of CBL’s management and control. Effective and efficient risk management is fundamental to safeguarding the company’s interests (both in terms of corporate goals and continued existence). The risk management policy documents Clearstream’s risk management concept by describing the risk management framework in terms of processes, roles and responsibilities applicable to all staff and organisations within all legal Clearstream entities. Clearstream has developed its own corporate risk structure and distinguishes between operational, financial, business and project risk.

Clearstream has default management process (DMP) rules and procedures in place, which define the circumstances under which a customer is considered to be in default. Referring to the products and services offered, CBL defines two types of default, legal and contractual default. In order to identify a customer’s default and classify it in accordance with the abovementioned default types, Clearstream has established early warning indicators (EWI) and signals (EWS) as an integral part of its DMP.

Clearstream’s business continuity management (BCM) policy states that in case of business interruption, operations must be resumed within appropriate time scales in order to:

- Safeguard Clearstream from significant losses, maintain revenue generation and shareholder value;
- Maintain customer confidence, market stability and liquidity and minimise systemic risk;
- Maintain management control, fulfil contractual obligations and regulatory compliance.

When CBL decides to enter a new market, it will request proposals (RfPs) from leading banks in this market, who meet Clearstream’s stringent requirements for a depository / agent bank as well as a cash correspondent bank (CCB), along with criteria such as appropriate licensing for banking and custody services, credit rating, industry rank, management competence, liquidity etc. This RfP process ties together a detailed operational due diligence of each individual business process with legal and compliance review of the entire infrastructure as well as credit reviews of the various intermediaries.

Summary of the major changes since the last update of disclosure

There have been the following main changes since the disclosure framework published as at 31 December 2020:

Legal and regulatory topics

- CSDR licence: On 21 April 2021, CBL receives its CSDR licence pursuant to Article 16 of CSDR (core and non-banking-type ancillary services services), Article 54 of CSDR (banking services) and Article 19 of CSDR (“Bridge”, interoperable link with Euroclear Bank NV/SA).
- New legal structure: In the course of 2023, Clearstream will introduce a new legal structure, making the fund services business a separate legal entity under Deutsche Börse Group, aligned with the financial reporting. This new legal structure will allow the company to adjust to regulatory requirements as well as to address market trends and diverging needs of the securities and fund services business.

Products and services

- Introduction of the D7[®] platform: In 2021, Deutsche Börse and Clearstream announce the rollout of the completely digital D7 post-trade platform, a cloud-backed and DLT-ready infrastructure that enables the digitisation of financial instruments. German issuers can now issue electronic securities, starting with retail structured products. In October 2022, the first end-to-end issuances are performed by LBBW and Vontobel, and facilitated by Clearstream. In December 2022, Clearstream enhances the D7 portfolio to fixed-income products. The platform is fully integrated within Clearstream’s global infrastructure and works as a connector between established networks and digital capabilities. In the course of 2023, D7 will be made available in other jurisdictions, for instance in Luxembourg, in accordance with respective regulatory frameworks.
- Decommission of CreationOnline: By the end of 2022, CBL decommissions its trusted CreationOnline workstation, and promotes its state-of-the-art application Xact Web Portal, which offers all the core functionality available in CreationOnline as well as many new features:
 - Access both ICSD (Creation) and CSD (T2S) settlement platforms;
 - Business Monitoring Centre that alerts customers on their specific business;
 - Dashboard providing customers with an overview of all their business indicators;
 - Powerful simulation features for securities financing.

Market coverage and custodian network

- 14 June 2021: CBL expands its domestic market coverage by launching the 58th link to Saudi Arabia. CBL opens its own foreign nominee omnibus account with the Saudi CSD (EDAA). The indirect link will be operated by The Hongkong and Shanghai Banking Corporation Limited (Saudi Arabia), acting as CBL's local custodian bank.
- 21 June 2021: BNP Paribas Securities Services, Sydney Branch, replaces JPMorgan Chase Bank, N.A. Sydney Branch, as CBL's local custodian bank.
- 21 June 2021: BNP Paribas Securities Services, Sydney Branch, replaces JPMorgan Chase Bank, N.A. New Zealand Branch, as CBL's local custodian bank.
- 4 October 2021: CBL connects the Serbian capital market to its global network, with Raiffeisen Bank International acting as local custodian bank and operator of CBL's account at the Serbian CSD.
- 12 October 2021: Citibank Europe PLC, Dublin, replaces Nordea Bank Abp as operator of CBL's nominee account at the Finnish CSD, Euroclear Finland.
- 29 November 2021: Citibank Europe PLC, Dublin, replaces Danske Bank A/S as operator of CBL's nominee account at the Norwegian CSD, Verdipapirsentralen ASA (VPS).

List of publicly available sources

The following documents are available on [Clearstream's general website](#):

[General Terms and Conditions](#)

[Becoming a Clearstream customer, Customer Access and Acceptance Policy](#)

[Client Handbook](#)

[Fee Schedule](#)

[Cash Timings Matrix](#)

[Default Management Process](#)

[Market coverage section](#)

[List of depositories](#)

[Association of Global Custodians disclosure](#)

[CSDR Article 38 disclosure](#)

[Pillar III Disclosure Report](#)

[Annual accounts](#)

[Information about company governance](#)

[Information on remuneration](#)

[Gender Diversity Policy](#)

List of abbreviations

This list is intended for information purposes only and is designed to help readers to understand the terminology used by CBL in this document. In some cases, the way in which the terms are used in CBL may differ from how the terms may be applied in another context. The descriptions given are not to be considered as legally binding definitions of the terminology used. CBL gratefully acknowledges that some definitions given here are based on those used by the Group of Thirty, the International Society of Securities Administrators (ISSA), the European Central Bank (ECB) and in other market publications.

Abbreviation	Explanation
AMA	Advanced measurement approach; one of four options under the Basel II framework that banks can use to calculate regulatory capital for operational risk. The AMA is based on internal models using internal risk variables and profiles, and not on exposure proxies such as gross income. Only risk-sensitive approach for operational risk allowed and described in Basel II.
AMI-SeCo	Advisory Group on Market Infrastructures for Securities and Collateral; group that counsels the Eurosystem on issues related to the clearing and settlement of securities and to collateral management. The advisory group is composed of market participants (banks active in the EU, CCPs, CSDs and national central banks) and chaired by the ECB .
AFFL	Association des Banques et Banquiers, Luxembourg
AFME	Association for Financial Markets in Europe
AFTI	Association France Post-Marché (formerly Association Française des Professionnels des Titres)
AML	Anti-money laundering
ARM	Asset Reevaluation Manager; function within Clearstream's SSS to perform collateral reevaluation in predefined cases (market price fluctuation, redemption, security reference data change).
ASL	Automated Securities Lending; programme developed by Clearstream that facilitates the borrowing of securities to prevent settlement failures. Such lending is usually short-term.
BaFin	Bundesanstalt für Finanzdienstleistungsaufsicht (German Federal Financial Supervisory Authority); located in Bonn and Frankfurt/Main, BaFin supervises banks and financial services providers, insurers and securities trading.

BCBS	Basel Committee on Banking Supervision; primary global standard setter for the prudential regulation of banks and a forum for cooperation on banking supervisory matters. Its mandate is to strengthen the regulation, supervision and practices of banks worldwide with the purpose of enhancing financial stability. Members include organisations with direct banking supervisory authority and central banks.
BCL	Banque centrale du Luxembourg
BCM	Business continuity management; all of the organisational, technical and staffing measures employed in order to ensure continuation of core business activities in the immediate aftermath of a crisis; and gradually ensure the continued operation of all business activities in the event of sustained and severe disruption.
BIA	Business impact assessment
BoE	Bank of England
BRA	Business requirements analysis
BRRD	Bank Recovery and Resolution Recovery Directive; Directive 2014/59/EU Directive 2014/59/EU of the European Parliament and of the Council establishing a harmonised framework for the recovery and resolution of credit institutions and investment firms.
CAAP	Customer and Access Acceptance Policy; set up by Clearstream in accordance with the requirements of the CSDR and DR (EU) 2017/392 to support the management of the access to the company's SSS . The policy explains the approach adopted by CBL , CBF and LuxCSD to comply with the aforementioned requirements and provides guidance for the analysis and subsequent actions to be taken in order to identify, measure, monitor, manage and enable reporting on the risks incurred by CBF , CBL and LuxCSD and/or their customers and other participants.
CBF	Clearstream Banking AG, Frankfurt
CBL	Clearstream Banking S.A., Luxembourg
CCB	Cash correspondent bank; a bank appointed by CBL , as its agent, to handle external receipt and payment of funds in a specified currency.
CCMT	Credit Crisis Management Team; a team at Clearstream Group, comprised of senior managers and subject matter experts with the objective to ensure that a crisis is addressed in an efficient and timely manner to the Executive Board and all relevant stakeholders of Clearstream Group.

CCO	Chief Compliance Officer
CCP	Central counterparty; an entity that interposes itself, in one or more markets, between the counterparties to the contracts traded, becoming the buyer to every seller and the seller to every buyer and thereby guaranteeing the performance of open contracts.
CDM	Clearstream Default Management; unit within Clearstream Group that maintains and continuously improves the default management process in order to prepare for a crisis situation in the most efficient manner.
CeBM	Central bank money; liabilities of a central bank, in the form of either banknotes or bank deposits held at a central bank, which can be used for settlement purposes.
CEO	Chief Executive Officer
CERT	Computer Emergency Response Team; central unit at Deutsche Börse Group for all cyber situational analysis (pro-active, detective and forensic). This includes information security (IS) incident management, IS monitoring, threat and vulnerability management and internet watch to identify new vulnerabilities.
CGAB	Clearstream Group Advisory Board; addresses and discusses topics with strategic relevance, market-wide initiatives or ad hoc topics with senior executives of Clearstream customers and industry representatives to provide advice and recommendations on any matter of relevance for Clearstream Group.
CGMC	Clearstream Group Markets Committee; forum for topics with strategic relevance for Clearstream and its customers to anticipate and understand better the needs and expectations of the Clearstream customer base.
CISO	Chief Information Security Officer
CoBM	Commercial bank money; commercial bank liabilities that take the form of deposits held at a commercial bank which can be used for settlement purposes.
CRC	Clearstream Risk Committee; internal committee at Clearstream Group that steers risk, compliance and cyber security matters in order to foster an effective first line of defence across all Clearstream legal entities. The CRC plays an important role in identifying, mitigating and monitoring the company's risk exposures.
CRD	Capital Requirements Directive; Directive 2013/36/EU of the European Parliament and of the Council on access to the activity of credit institutions and the prudential supervision of credit institutions and investment firms (CRD IV). The CRR/CRD IV

	package transposes the global standards on bank capital (the Basel III agreement) into EU law.
CREST	Certificateless Registry for Electronic Share Transfer; an SSS , owned and operated by Euroclear.
CROE	Cyber resilience oversight expectations for financial market infrastructures; document published by the ECB that defines the Eurosystem's expectations in terms of cyber resilience, based on existing global guidance.
CRR	Capital Requirements Regulation; Regulation (EU) No 575/2013 of the European Parliament and of the Council of 26 June 2013 on prudential requirements for credit institutions and investment firms and amending Regulation (EU) No 648/2012. The CRR/CRD IV package transposes the global standards on bank capital (the Basel III agreement) into EU law.
CSD	Central securities depository; an entity that enables securities transactions to be processed and settled by book entry, provides custody services (for instance, the administration of corporate actions and redemptions), and plays an active role in ensuring the integrity of securities issues. Securities can be held in a physical (but immobilised) form or in a dematerialised form (that is, as electronic records).
CSDR	Central Securities Depository Regulation; Regulation (EU) No 909/2014 of the European Parliament and of the Council of 23 July 2014 on improving securities settlement in the European Union and on central securities depositories.
CSSF	Commission de Surveillance du Secteur Financier
DCA	Dedicated cash account
DCP	Direct connected participant
DDV	Due diligence visit
DR 2017/392	Commission Delegated Regulation (EU) 2017/392 of 11 November 2016 supplementing Regulation (EU) No 909/2014 of the European Parliament and of the Council with regard to regulatory technical standards on authorisation, supervisory and operational requirements for central securities depositories
DvP	Delivery versus payment; the irrevocable exchange of securities (the delivery) and cash value (the payment) to settle a transaction. True DvP involves the simultaneous exchange of securities and cash, as in the case of internal transactions between CBL counterparties.
EaR	Earnings at risk
EB	Executive Board

EBA	European Banking Authority; based in Paris, has the aim of creating a common legal framework for the national banking supervisory authorities in the EU. Like ESMA and the European Insurance and Occupational Pensions Authority (EIOPA), EBA is part of the European System of Financial Supervision (ESFS).
EBITDA	Earnings before interest, tax, depreciation and amortisation
ECB	European Central Bank
ECSDA	European Central Securities Depositories Association
EPTF	European Post Trade Forum
ESMA	European Securities and Markets Authority; based in Paris, ESMA aims to create a uniform legal framework for the national supervisory authorities in the EU. It is one of the European Supervisory Authorities established on 1 January 2011, alongside EBA and the European Insurance and Occupational Pensions Authority (EIOPA).
EWI	Early warning indicator; parameter monitored within Clearstream to identify triggers or events, which could potentially change the credit standing of a participant and as such jeopardise the fulfilment of contractual obligations to Clearstream (i.e. scheduled repayment obligations) or even lead to default of a participant.
EWS	Early warning signal; result of EWI monitoring against defined thresholds. A breach of an EWI threshold triggers an EWS, which anticipates the vulnerability of a participant to financial distress.
FATCA	U.S. Foreign Account Tax Compliance Act
FATF	Financial Action Task Force; inter-governmental body based in Paris. The FATF sets international standards that aim to prevent money laundering and terrorist financing activities and to ensure national authorities can effectively go after illicit funds linked to drugs trafficking, the illicit arms trade, cyber fraud and other serious crimes. More than 200 countries and jurisdictions have committed to implement the FATF's standards.
FMI	Financial market infrastructure; a multilateral system among participating institutions, including the operator of the system, used for the purposes of clearing, settling or recording payments, securities, derivatives or other financial transactions. Examples: central counterparty (CCP), central securities depository (CSD), clearing house, payment system, securities settlement system (SSS), trade repository (TR).
FX	Foreign exchange
GMRA	Global Master Repurchase Agreement

GRM	Group Risk Management; central function at Deutsche Börse Group.
GTCs	General Terms and Conditions
HQLA	High-quality liquid asset
HR	Human Resources
i-TOF	Intraday technical overdraft facility
ICAAP	Internal capital adequacy assessment process
ICMA	International Capital Market Association; created in July 2005 by the merger of the International Securities Market Association (ISMA) and the International Primary Market Association (IPMA). ICMA is an organisation with a broad franchise across the primary and secondary international capital market. This association has the mandate and the means to represent the interests of the investment banking industry in maintaining and developing an efficient and cost effective international market for capital.
ICMSA	International Capital Market Services Association
ICP	Indirect connected participant
ICS	Individual client segregation
ICSD	International securities depository
ILAAP	Internal liquidity adequacy assessment process
IRM	Information risk management
ISDA	International Swaps and Derivatives Association
ISLA	International Securities Lending Association
ISMA	See ICMA
IS	Information security
ISF	Information security framework
ISO	International Organisation for Standardisation; international federation of standardisation bodies for various industries that seeks to set common international standards in a variety of fields.
ISSA	International Securities Services Association
KPI	Key performance indicator

KRI	Key risk indicator
KYC	Know your customer
L/C	Letter of credit
LCR	Liquidity coverage ratio
MCP	Material change process; represents a methodology implemented at Deutsche Börse Group to ensure analysis of risks associated with material changes, risk mitigating measures being derived in terms of systems and processes. A robust control framework needs to be carried out and documented accordingly before business is commenced in new products, product variants, product combinations, new distribution channels or go to market activities or before specific changes to the business model and setup become effective.
MCWG	Material Change Working Group
MIS	Management information system
MMR	Market member readiness
MREL	Minimum requirement for own funds and eligible liabilities
MT	Message type; refers to SWIFT message types that can be used by customers to send instructions and messages, and to receive reports. For example, "MT54x" refers to Message Types 540, 541, 542 and 543.
NAV	Net asset value
NM	Network Management; business area of Clearstream Group that is responsible for developing and maintaining relationships and services with CBL's network of suppliers, such as sub-custodians, CSDs, central banks, CCBs or market infrastructures.
NRA	National Resolution Authority
OCS	Omnibus client segregation
OECD	Organisation for Economic Co-operation and Development
PFMI	Principles for Financial Market Infrastructures
PM	Position Management; central Clearstream application managing settlement instruction lifecycle data.

PRIMA	Place of Relevant Intermediary Approach; defined by the Hague convention of 13 December 2002 providing that the law governing a cross-border securities transaction will be the law of the jurisdiction where the intermediary maintaining the account to which the securities are credited is located.
QLR	Qualifying liquidity resource
Rfi	Request for information
RfP	Request for proposal
RoPs	Rules of procedure
RRP	Recovery and resolution planning
RTGS	Real-time gross settlement; processing and settlement on a transaction-by-transaction basis in real time.
RTO	Recovery time objective
RTS	Regulatory technical standard
SB	Supervisory Board
SCV	Security collateral value
SFD	Settlement Finality Directive; Directive 98/26/EC of the European Parliament and of the Council of 19 May 1998 on settlement finality in payment and securities settlement systems.
SLA	Service level agreement
SMS	Security management system
SRD II	Shareholder Rights Directive II; Directive (EU) 2017/828 of the European Parliament and of the Council of 17 May 2017 amending Directive 2007/36/EC as regards the encouragement of long-term shareholder engagement.
SSS	Securities settlement system; a system which allows the transfer of securities, either free of payment (FoP) or against payment (DvP).
STP	Straight-through processing; the swift, safe and efficient processing of a securities transaction, from order placement to delivery versus payment (DvP) and to the subsequent safe custody of the securities.
SWIFT	Society for Worldwide Inter-Financial Telecommunications

T2	TARGET2; second-generation TARGET system that settles payments in euro in CeBM ; based on a single IT platform, to which all payment orders are submitted for processing; legally structured as a multiplicity of RTGS systems.
T2S	TARGET2-Securities; the Eurosystem's single technical platform enabling CSDs and national central banks to provide core, borderless and neutral securities settlement services in CeBM in Europe.
TA	Transfer agent; the agent appointed by an investment fund to process investment fund orders and perform ancillary services.
TBAG	Tax Barriers Business Advisory Group; body at the European Commission that aims to consider the follow-up of the Commission Recommendation on simplified Withholding Tax procedures from a business perspective and to identify any remaining fiscal barrier affecting the post-trading environment.
TOF	Technical overdraft facility; aims to facilitate the settlement of securities transactions against payment, as well as the settlement of customer FX trades and corporate action exercise fees. CBL reserves the right to set individual TOF limit to be used for the settlement of cash withdrawal instructions to the extent such credit usage is in line with the Credit Terms and Conditions (CTCs) and CBL liquidity risk management principles. The terms governing the TOF are described in the Credit Terms and Conditions (CTCs), Customer Application Form and Annexes signed by customers.
TRACE	Treaty Relief and Compliance Enhancement
U2A	User to application
UCF	Unconfirmed fund facility; aims to facilitate the settlement of securities transactions against payment, as well as the settlement of customer foreign-exchange trades and corporate action exercise fees. CBL's terms governing the UCF are described in the Credit Terms and Conditions (CTCs), Customer Application Form and Annexes signed by customers.
UCoD	Unauthorised creation and or deletion of securities
VaR	Value at Risk; quantifies the risks to which a company is exposed. It indicates the maximum cumulative loss that CBL could face if certain independent loss events materialise over a specific time horizon for a given probability. CBL's models are based, in line with the Basel framework, on a one-year time horizon.
VPN	Virtual private network

Principle 1: Legal basis

An FMI should have a well-founded, clear, transparent, and enforceable legal basis for each material aspect of its activities in all relevant jurisdictions.

Key consideration 1

The legal basis should provide a high degree of certainty for each material aspect of an FMI's activities in all relevant jurisdictions.

Material aspects of CBL's activities and relevant regulatory framework

CBL is a central securities depository ("CSD") with registered office located in Luxembourg, Grand Duchy of Luxembourg. The company is authorised as CSD by the Commission de Surveillance du Secteur Financier ("CSSF") under Articles 16 and 54 of Regulation (EU) No 909/2014 of the European Parliament and of the Council of 23 July 2014 on improving securities settlement in the European Union and on central securities depositories and amending Directives 98/26/EC and 2014/65/EU and Regulation (EU) No 236/2012 ("CSDR"). It is registered with the European Securities and Markets Authority ("ESMA").

As authorised CSD, CBL offers:

- Core CSD services, such as the settlement of transactions in domestic and foreign securities, notary services (initial recording of securities in a book-entry system) as well as central maintenance services (providing and maintaining securities accounts at the top-tier level);
- Value-added and ancillary services (non-banking and banking) supporting the core activities of CBL, such as, among others, collateral management, CSD link, asset servicing, intraday credit, cash deposit and settlement services, as well as securities lending and borrowing services.

CBL also is an international CSD ("ICSD"). In this capacity, CBL acts as issuer CSD for issuances of international securities, also called "Eurobonds", together with Euroclear Bank SA/NV. In addition, both ICSDs operate an interoperable link (the "Bridge") authorised under Article 19 (5) of CSDR.

CBL's activities as CSD/ICSD cover the following material aspects:

- (i) Initial recording, and where relevant immobilisation, of the financial instruments confided to and held with CBL;
- (ii) Eligibility of financial instruments for book-entry transfer and registration;
- (iii) Recording and servicing rights and interests in financial instruments under deposit and sub-deposit;
- (iv) Settlement efficiency and finality;

- (v) Integrity of the issues;
- (vi) Validity and enforceability of financial collateral arrangements, securities financing transactions and netting arrangements, if any.

To provide the services described above in line with CSDR, CBL is authorised and regulated as a credit institution according to Article 8 of Directive 2013/36/EU and the provisions of the law of 5 April 1993 on the financial sector, as amended. Accordingly, CBL is also subject to banking supervision, which is carried out by CSSF in close cooperation with Banque centrale du Luxembourg (“BcL”). The latter also has an oversight responsibility for CBL as operator of a securities settlement system (“SSS”).

The different regulatory statuses of CBL can also be found in different databases maintained by the relevant supervisory authorities on national and EU levels:

- CSSF: [register of CSDs under Article 11 of CSDR](#)
- CSSF: [register of banks under Article 2 of the Law of 5 April 1993](#)
- BcL: [list of payment systems and securities settlement systems](#)
- ESMA: [CSD register](#) (providing descriptions of the services authorised)
- ESMA: [list of designated payment and securities settlement systems](#)

Legal basis for the material aspects of CBL’s activities

The main legal provisions relevant to the establishment and the operation of CBL as CSD/ICSD are given in the European Union’s legal framework, more specifically in the Single Rulebook and related directives, regulations and circulars for the financial services sector. This set of harmonised prudential rules with regard to banking business and securities markets by the European Supervisory Authorities² is crucial for CBL’s operational business and strategic development. Against the backdrop of this overall EU framework, CBL is supervised by the Luxembourgish authorities in charge of the supervision of CSDs, banks and SSSs (CSSF and BcL). The Grand Duchy of Luxembourg is considered as the principal jurisdiction of its operations.

According to CBL’s activities as a **CSD/ICSD**, the company’s key legal basis consists of provisions pertaining to the rights of CBL’s participants to the securities held in accounts with CBL. These comprise the following EU directives, regulations and Luxembourg Law, publicly available on Luxembourg’s official [public gazette website](#) and the websites of the Luxembourgish regulators [CSSF](#) and [BcL](#):

- CSDR and related technical standards;
- Articles 1915 to 1963 of the civil code;
- Law of 5 April 1993 on the financial sector, as amended (“Banking Act”);
- Law of 3 September 1996 concerning the involuntary dispossession of bearer securities, as amended;

² These are the European Securities and Markets Authority (“ESMA”) and the European Banking Authority (“EBA”) who perform their prudential tasks in cooperation with other institutions of the European System of Financial Supervision (“ESFS”), notably the European Central Bank (“ECB”), and the Luxembourgian competent authorities (CSSF and BcL).

- Law of 1 August 2001 on the circulation of the securities and other fungible instruments, as amended (“Securities Law”, of particular relevance with regard to the nature of the entitlement to the deposited assets held by the participants in accounts with CBL);
- Law of 5 August 2005 on the collateral financial arrangements, as amended (“Collateral Law”), implementing Directive 2002/47/EC of the European Parliament and of the Council of 6 June 2002 on financial collateral arrangements, as amended (“Collateral Directive”).
- Law of 10 November 2009 on payment services, on the activity of electronic money institution and settlement finality in payment and securities settlement systems, as amended (“Payment Services Law”, in particular Article 111 (1) when it comes to the finality of transfer orders), implementing Directive 98/26/EC of the European Parliament and of the Council of 19 May 1998 on settlement finality in payment and securities settlement systems, as amended (“SFD”);
- Law of 6 April 2013 on the dematerialisation of the securities, as amended (“Dematerialisation Law”);
- Law of 28 July 2014 on immobilisation of bearer shares (“Immobilisation Law”);

As CSD with a **banking licence**, CBL is also subject to (without limitation):

- Regulation (EU) No 575/2013 of 26 June 2013 on prudential requirements for credit institutions and investment firms and amending Regulation (EU) No 648/2012, as amended (“CRR”);
- Law of 18 December 2015 on the failure of credit institutions and certain investment firms, as amended (“BRRD Law”), transposing Directive 2014/59/EU of 15 May 2014 establishing a framework for the recovery and resolution of credit institutions and investment firms as amended (“Bank Recovery and Resolution Recovery Directive”, “BRRD”);
- Grand ducal regulation of 30 May 2018 on the protection of financial instruments and clients’ money, as amended.

Governance of CBL as a public limited company, CBL’s contractual terms of participation and services (including liability), the deposit of securities and cash, the creation and enforcement of collateral arrangements and CBL’s resolution, insolvency and winding-down proceedings are also governed by Luxembourg Law. The **contractual rules applicable to customers** are published on Clearstream’s website in the [“Key Documents” section](#).

The said documentation also covers the **rules for CBL's securities settlement system** (within the scope of Article 108 of the Payment Services Law) and is mainly composed of:

(i) General governing documents published on Clearstream's website

- **General Terms and Conditions** ("GTCs"): to be accepted by customers of CBL
- **Client Handbook**: sets out the technical and operational terms and conditions applicable to the services
- **Fee Schedule**: sets forth the fees applicable to the services and products of CBL to its customers;
- **Market Link Guides**: present key features of CBL's CSD links
- **Disclosure Guides**: compile the mandatory disclosure requirements, available with each Market Link Guide

(ii) Specific contracts relevant for ancillary services available to participants on ad-hoc basis (selection)

- Collateral Management Services Agreement for the Collateral Giver (CMSA-CG)
- Collateral Management Services Agreement for the Collateral Receiver (CMSA-CR)
- Credit Terms and Conditions for the credit users;
- Securities Lending Programme contracts, e.g. Securities Lending Principal Agreement (for lenders) and the Global Master Securities Lending Agreement (GMSLA) 2010 (for borrowers)

The contracts contain explicit choices of law and jurisdiction clauses designating mainly Luxembourg Law as applicable law and the courts of Luxembourg-city as competent forum for the disputes arising from and in relation to the services.

However, with respect to the above, other jurisdictions might become also relevant either due to a specific contractual choice of law (usually for market standard contracts under English law, such as GMSLA in relation to the securities lending services with the participants-borrowers or ISDAs for CBL's own treasury activities) or CBL's cross-border activities (usually as investor CSD).

The **investor CSD activities** imply for CBL to enter into foreign law agreements, such as rules of CSDs for direct links, agency agreements for direct links operated by an intermediary, custody agreements for indirect links; these agreements supporting the CSD links are hereinafter referred to as "Links Agreements". These Agreements set forth, among other things, the liability rules, the entitlement and the nature of the rights in book-entry financial instruments deposited in CBL's accounts with such depository/CSD, as well as the rules of protection of the assets deposited, the segregation rules, the termination rules and the choice of law and jurisdiction.

For such purposes, legal opinions are requested annually to support the review of CSD links and the Links Agreements. The reviews aim at checking that the conditions of the sub-deposit via the CSD links are at least equivalent to the conditions applied to CBL under Luxembourg Law (including CSDR). These opinions generally cover the following main topics:

- (i) The capacity and authority of the receiving CSD/depository;
- (ii) The validity and enforceability of the relevant Links Agreements;
- (iii) The nature of entitlement (i.e. confirming the recognition of the rights and interest of CBL in respect of the financial instruments sub-deposited on behalf of its participants) and the law applicable to proprietary aspects;
- (iv) Liability standards applied;

- (v) Confirmation of the recognition of settlement finality rules;
- (vi) Rules on the enforceability of netting, if applicable; and (vii) confirmation that there is no upper tier attachment.

In addition, the legal opinions address the other issues set forth in Article 84 (1), last paragraph of Commission Delegated Regulation (EU) 2017/392 of 11 November 2016 with regard to regulatory technical standards on authorisation, supervisory and operational requirements for central securities depositories (“RTS 2017/392”), such as confirmations of the absence of encumbrances, liens, pledges and set-off rights on the securities deposited abroad; the impact of insolvency proceedings opened against the receiving CSD/depository regarding the segregation requirements, settlement finality; as well as procedures and time limits to claim the securities in the relevant jurisdiction.

Key consideration 2

An FMI should have rules, procedures, and contracts that are clear, understandable, and consistent with relevant laws and regulations.

CBL has set up clear and understandable rules, procedures and contracts in accordance with Article 43 of CSDR. This set of documentation consists of general governing documents published on Clearstream’s website (see list in [key consideration 1](#) and specific contracts that are available to participants on an ad-hoc basis. The electronic English-language version of the governing documents as published on Clearstream’s website is at any time the legally binding version of these documents.

In order to ensure that the said documentation remains consistent with relevant laws and regulations, the company reviews it on a regular basis and on an ad-hoc basis, in particular when:

- (i) An update of a key law or regulation applicable to the financial services industry is relevant for CBL and/or its participants;
- (ii) The implementation of remedial measures is needed due to a claim affecting a participant or caused by a provision of the governing documents;
- (iii) Typos or inconsistencies are detected in the governing documents and/or specific agreements;
- (iv) A change of laws or regulations in the local markets shall be reflected;
- (v) A court order or a decision from a regulator is taken in favour of the clarification of certain provisions of the governing documents;
- (vi) There is a global enhancement of CBL’s technical system (such as change of deadlines);
- (vii) There are changes of the professional standards at the level of the ECSDA, ICMA, ICMSA, ISDA or ISLA to be reflected in the governing documents and/or the specific agreements;
- (viii) Major projects need to be implemented;

- (ix) Any other events occur that the control functions (Audit, Risk, Compliance) and/or the legal department consider as essential to be incorporated in the customer documentation.

The reviews are carried out by CBL's control functions teams and the legal department. In addition, the company involves, whenever appropriate, independent external legal counsels to assist in the review and drafting, where needed.

Finally, the GTCs as CBL's core governing document and any amendments thereto are reviewed, discussed and approved by the various competent internal committees and the Executive Board of CBL. Once corporate approval is granted, the document is communicated to the participants. CBL may notify its customers in writing by mail or email of any changes and the effective date thereof.

For other governing documents, CBL notifies the participants by electronic means of any such amendment and of the effective date thereof. Amendments are generally published on the company's website www.clearstream.com.

Key consideration 3

An FMI should be able to articulate the legal basis for its activities to relevant authorities, participants, and, where relevant, participants' customers, in a clear and understandable way.

The rights and interest of CBL resulting from its activities as CSD/ICSD, of its participants and the participants' customers are addressed in the documentation supporting CBL's activities and taking into account the relevant legal framework as described under [key consideration 1](#).

The legal aspects of CBL's settlement services are notably included in the contractual documentation to reflect the principle of finality of the transfer orders of the Settlement Finality Directive (SFD) into Luxembourg Law (Payment Services Law). They are also articulated in the CSD link and Links Agreement assessments that are conducted with the support of external local law firms to address any potential risk of conflict of laws and mitigate them by adapting CBL's documentation or its operational process.

In addition, CBL maintains an inventory of the laws and regulations, as well as the main rules relevant for the material aspects of its activities and main business areas in the various markets to ensure proper articulation with the applicable legal framework. This inventory is set up and reviewed at least on an annual basis by the compliance function. According to par. 143 of CSSF Circular 12/552, as amended, published on 30 June 2022, this inventory is accessible to the relevant staff at CBL.

Please also refer to [key consideration 2](#) with regard to disclosures to participants and – where relevant – participants' customers. CBL articulates the legal basis for material aspects of its activities by using well-reasoned legal opinions or analyses, carried out – where reasonably required – with the support of independent law firms of good reputation.

Key consideration 4

An FMI should have rules, procedures, and contracts that are enforceable in all relevant jurisdictions. There should be a high degree of certainty that actions taken by the FMI under such rules and procedures will not be voided, reversed, or subject to stays.

Enforceability of rules, procedures and contracts

As described under [key consideration 1](#), CBL's rules, procedures and contracts are mainly governed by Luxembourg Law. However, there are also foreign-law aspects relevant for CBL's services. As part of the internal and, where needed, external reviews of CBL's said documentation, attention is paid on its enforceability in all relevant jurisdictions. The legal relationship between CBL and its participants is a crucial aspect of these reviews, including the situation of the default of a participant (default to be read within the meaning of Article 2 par. 1(26) of CSDR).

In general, foreign jurisdictions are relevant to all cross-border activities, for instance, when CBL sub-deposits and/ or is recorded in an issuer's/shares/units register abroad (in particular for investor CSD activities) or when CBL provides credit services while receiving collateral from its participants incorporated in other jurisdictions than Luxembourg.

To ensure enforceability of said documentation in all relevant jurisdictions, CBL has implemented the following measures:

- Regarding CSD links and Link Agreements:
 - (i) Legal opinions are requested annually from independent law firms of good reputation to support the assessment and the review of the CSD links as described under [key consideration 1](#).
 - (ii) In addition, CBL requires from its contractual CSDs/depositories/agents information on any pertinent changes in domestic laws and regulations pertaining to securities, cash, exchange controls or tax issues.

- Regarding collateral arrangements received from its participants:

This aspect is reviewed and assessed in the context of the default management procedure in accordance with Article 207 (3) of CRR and Article 38 (13) of Commission Delegated Regulation (EU) 2017/392 of 11 November 2016 with regard to regulatory technical standards on certain prudential requirements for central securities depositories and designated credit institutions offering banking-type ancillary services ("RTS 2017/390"). The assessments take the form of legal memoranda issued by external and independent law firms addressing the applicable local law specificities. The scope of the assessments covers notably the validity and enforceability of collateral arrangements in the following scenarios:

- (i) Collateral arrangements under local law outside an insolvency scenario and, in particular: (a) recognition of the choice of law governing the collateral arrangement with respect to the creation, validity and enforcement of the collateral arrangements; and (b) recognition of the right-in-rem aspects related to the collateral arrangements entered into between CBL and the participant (including formalities to create a valid pledge and to perfect it against third parties);

- (ii) Collateral arrangements under local law in an insolvency scenario and, in particular (a) explanation on the general conflict-of-laws principles (including the recognition, or not, of the choice of law and the “place-of-the-relevant-intermediary” approach, PRIMA in short, in such scenario); and (b) assessment on the recognition of the ring-fencing of collateral arrangements in case of insolvency and explanations on any exceptions that might be relevant for collateral arrangements; and
- (iii) Collateral arrangements under local law over non-proprietary (client) assets (whatever the scenario, insolvency or not), in particular: (a) conditions of validity under local law (including the aspects linked to the recognition of the choice of law, PRIMA rule); and (b) conditions of enforceability under local law.

These opinions cover solely contractual documentation including collateral arrangements concluded between CBL and its participants. They are not related to the CSD Links and Links Agreements.

Degree of certainty for rules and procedures

CBL aims at a high degree of certainty for the validity and enforceability of its rules and procedures. In order to ensure that the actions taken by CBL under its contractual documentation will not be voided, the company carries out legal reviews and assessments on a regular and an ad-hoc basis as described under [key considerations 1](#) and [2](#).

In addition, Article 61 of CBL’s general terms and conditions (GTCs) comprises a salvatorius clause in order to maintain the legal substance of the relationship with the participants in accordance with Luxembourg contractual law practice should an article of a contract be declared invalid, illegal or incapable of being enforced:

“If any term or other provision of these General Terms and Conditions is invalid, illegal or incapable of being enforced by any rule of law or public policy, all other conditions and provisions of these General Terms and Conditions shall nevertheless remain in full force and effect so long as the economic or legal substance of the relationship contemplated hereby is not affected in any manner adverse to both the Customer and CBL. Upon such determination that any term or other provision is invalid, illegal or incapable of being enforced, CBL will modify these General Terms and Conditions so as to effect the original intent of both the Customer and CBL as closely as possible, in an acceptable manner to the end that the relationship contemplated hereby is fulfilled to the greatest extent possible”.

Regarding the transactions of the participants, a high degree of certainty is achieved by the recognition of the finality of the settlement whereby transactions having reached the moment of irrevocability and finality cannot be revoked, respectively unilaterally (when the moment of irrevocability is reached) or by any third party (when the moment of finality is reached).

Reversals and stays in the execution of certain actions could still result, other than the contractual rights of CBL set forth in its governing documentation, from (i) the default of a counterparty (for instance, in case of insolvency/liquidation); or (ii) court order; or (iii) resolution authorities’ decisions under BRRD or equivalent laws; or (iv) laws, resolutions, market practices applicable in certain jurisdictions (in particular for those jurisdictions not recognising the finality of the settlement).

Key consideration 5

An FMI conducting business in multiple jurisdictions should identify and mitigate the risks arising from any potential conflict of laws across jurisdictions.

As a general rule, the legal relationship between CBL and its customers is governed by Luxembourg Law (see also [key considerations 1](#) and [4](#)). However, third-country laws and regulations become relevant in the following situations:

- Settlement and custody of securities held via a CSD link or via a sub-custodian link;
- On-boarding of participants incorporated in another jurisdiction than Luxembourg (for the participants being credit users and/or collateral givers to secure obligations towards CBL).

With regard to the nature of the entitlement to the deposited assets held by the participants in accounts with CBL, the Luxembourg conflict-of-laws rules (more precisely, Article 17 of the Securities Law and the PRIMA rule set out in Article 23 of the Collateral Law) shall apply.

Furthermore, CBL's documentation governing its activities clearly outlines the law that is intended to apply to each aspect of its operations. When CBL concludes contracts that are not governed by Luxembourg Law, the contractual documentation is reviewed internally and submitted to the assessment of an external/local law firm qualified in the relevant jurisdiction to provide comments and issue legal opinions covering, among other things, the validity of the choice of law and jurisdiction and the identification of potential conflict of laws.

Should despite all precautions ensured by CBL in its contractual documentation, a dispute regarding conflict of laws arise, such dispute would generally be handled by CBL's legal department who may obtain certainty via a reasoned and independent legal opinion and analysis.

Principle 2: Governance

An FMI should have governance arrangements that are clear and transparent, promote the safety and efficiency of the FMI, and support the stability of the broader financial system, other relevant public interest considerations, and the objectives of relevant stakeholders.

Key consideration 1

An FMI should have objectives that place a high priority on the safety and efficiency of the FMI and explicitly support financial stability and other relevant public interest considerations.

CBL's objectives contributing to its own safety and efficiency

As part of Deutsche Börse Group, Clearstream Banking S.A. (CBL) aims to be a leading European supplier of post-trading services. Thus, CBL's main objective is the receipt of deposits or other repayable funds from the public and the granting of credits for its own account. This objective is anchored in Article 3 of the company's articles of association (the "Articles"). In addition, the company aims at the holding of participations, in any form whatsoever, in Luxembourgish or foreign companies, the acquisition by purchase, transfer by sale, exchange or otherwise, of equities, bonds, debentures, notes and other securities of any kind as well as the ownership, administration, development and management of its portfolio. The goal of expanding the provision of collateral management services rounds off CBL's strategy.

To achieve these objectives, CBL aligns its strategy with that of Deutsche Börse Group. The focus of this 3-year strategic and financial planning currently is on business growth, built on the following three pillars:

- Systematically **execute secular and cyclical growth opportunities**, capitalising on key industry trends, political developments, and new customer needs.
- Pursue a programmatic mergers and acquisitions (M&A) agenda in a focused and disciplined approach;
- **Invest in key technologies** to tap into new revenue opportunities and further increase the operating efficiency.

These pillars are implemented through five key strategic actions:

- Strengthen product areas;
- Ensure regulatory compliance;
- Promote internal efficiency;
- Mobilise growth potential;
- Foster effectiveness in sales and client services.

In this manner, CBL strives to continuously develop new best-in-class products and services, enhance the efficiency of its operations and reduce overall processing costs. Specific developments with the aim of achieving its strategic goals are documented through a dedicated project management structure. Furthermore, a systematic process is set up to ensure a comprehensive detection of quality deficits, facilitating their resolution.

CBL's business strategy outlined above is accompanied by a comprehensive risk strategy to ensure that objectives are met in a secure and efficient manner and by respecting an appropriate risk appetite, the latter being defined as risk limitation, which protects and ensures continuity of operations. Clearstream has developed a corporate risk structure distinguishing between operational, financial, business, pension, as well as winding down and restructuring risk (see [Principle 3](#) for details). For each of these five risk types, a risk appetite, i.e. a maximum limit, is defined and reflected in the respective requirements for risk management, control and limitation.

Monitoring and control of the above objectives including the related risk management are performed primarily by CBL's Executive Board (EB). This Board is itself supervised by the company's Supervisory Board (SB). The SB Risk Committee advises the Supervisory Board on CBL's overall current and future risk appetite, risk tolerance and risk strategy. In addition, CBL's User Committee submits non-binding opinions to the EB and advises on key arrangements that may affect its members pursuant to the CSD Regulation (EU) 909/2014 (CSDR). Furthermore, the following tools are used to ensure the quality of CBL's own operations, respectively of the operations that are outsourced to other Deutsche Börse Group entities:

- (i) Forum for structured, systemic and creative solution identification, including post-claim analysis and identification of appropriate measures;
- (ii) Key performance indicators (KPIs): quantified, objective view on service delivery of operations, for example on effectiveness, efficiency, operational quality, and operational risk;
- (iii) Key risk indicators (KRIs): early warning system for operational risk, periodically collected and analysed to observe the trend and, if necessary, initiate mitigating measures;
- (iv) KPI engine: data warehouse, linked to major production systems, enabling standard and ad hoc reporting and detailed data analysis;
- (v) Report on the performance of the settlement system and committed service level targets.

Continuous documentation and reporting of the said indicators, tools and processes are key for CBL to monitor and – wherever necessary – adjust its business and risk strategies or individual objectives.

Please refer to [Principle 21](#) for more details on the mechanisms applied for the review of CBL's efficiency and effectiveness.

CBL's objectives supporting financial stability and the efficiency of financial markets

As a financial market infrastructure and as a systemically important credit institution, CBL is a key contributor to the efficiency, stability, integrity and resilience of international financial markets. This guiding principle or overall objective translates into CBL's comprehensive range of non-banking and banking-type ancillary services in line with CSDR, designed to enhance the efficiency of its security settlement services while complying with the required regulatory standards. The following are examples of how the services of CBL are designed in a manner to minimise risk and maximise stability:

- Safekeeping of customer assets: securities are held in book-entry form and transferred by book-entry;

- Settlement services: operation of a delivery-versus-payment (DvP) Model 1 system, thereby ensuring simultaneous final settlement of securities and funds transfers on a gross (trade-by-trade) basis;
- Investment fund services: solutions to support the automation of investment fund processing, provision of order routing, DvP settlement (for on- and off-exchange traded funds), safekeeping, asset servicing and collateral management, immobilisation in a choice of ICSD and CSD locations, and mobilisation of funds as a new source of collateral;
- Securities lending services: CBL's Automated Securities Lending (ASL) programme provides opportunities for borrowers to settle trades that would otherwise fail, and for lenders to earn additional income from their portfolios;
- Triparty collateral management services: as a neutral collateral agent, CBL handles allocation, optimisation and substitution in straight-through processing and in real time, thereby reducing the risk in collateral arrangements in comparison with bilateral models;
- Global Liquidity Hub services: management of collateral to cover all types of exposures in real time, across currencies, asset classes and time zones.

CBL's accompanying business objective to extend partnerships with electronic trading platforms, CCPs, other CSDs and agent banks is in line with the above guiding principle, adding to market efficiency and stability from the customers' perspective. The same applies to CBL's activities in the investment fund area; the company has a close relationship with the fund community, also through membership – allowing customers to benefit from a streamlined process regardless of the variety of markets and investment funds involved.

With regard to its customers and their impact on financial stability and the orderliness of markets, CBL has set up transparent, objective and non-discriminatory participation criteria, as set out in its [Customer and Access Acceptance Policy](#). The Policy describes how the conduct of business rules shall provide transparency in the relation between the CSD and its participants.

Clearstream also contributes to the stability of the financial system as a whole by enriching industry and regulatory discussions on post-trade activity. In this context, Clearstream participates in various organisations and working groups on an international level, including the International Capital Market Association (ICMA), the International Capital Market Services Association (ICMSA) and the International Securities Services Association (ISSA), as well as the Advisory Group on Market Infrastructures for Securities and Collateral (AMI-SeCo) at EU level. On a national level, CBL maintains a strong network across several domestic markets and is particularly well represented in its home market. Outside Europe, CBL contributes to the development of cross-border investment and development of the related settlement and custody infrastructure in Asia and North America.

Lastly, another critical factor for the integrity of financial markets to which CBL contributes, is the issue of tax processing. It affects both settlement and custody. CBL maintains extensive contacts with local tax authorities and contributes to a number of industry bodies dealing with tax related issues, such as the Business and Industry Committee to the OECD on Treaty Relief and Compliance Enhancement (TRACE) at global level, the Tax Barriers Advisory Group (TBAG) at European level, and different bodies at the relevant national levels: the Association France Post-Marché (former Association Française des Professionnels des Titres, AFTI) in France, the EU Tax Observatory, the Association des Banques et Banquiers, Luxembourg (AFFL), and the Luxembourg Tax Group, as well as the U.S. Tax Issues Forum and the U.S. Internal Revenue Service for implementation of the U.S. Foreign Account Tax Compliance Act (FATCA).

Key consideration 2

An FMI should have documented governance arrangements that provide clear and direct lines of responsibility and accountability. These arrangements should be disclosed to owners, relevant authorities, participants, and, at a more general level, the public.

CBL's governance arrangements as well as the rules governing its activities are described in detail in a number of documents which are publicly accessible to all stakeholders on its [website](#).

These documents are annually reviewed and include:

- [Articles of Association](#),
- [Rules of Procedure for the Executive Board](#),
- [Rules of Procedure for the Supervisory Board](#),
- [Terms of Reference of the User Committee](#),
- [Internal Control Framework](#),
- [Gender Diversity Policy](#).

To ensure proper conduct and compliance with regulatory and legal provisions throughout the entire company, CBL has adopted further governance arrangements, such as the following:

- Deutsche Börse Group's framework to manage conflicts of interest: aims at addressing all types of – actual or potential – conflicts of interest within the group, including (i) corporate conflicts of interests, (ii) personal conflicts of interests, as well as (iii) specific conflict situations, see [key consideration 3](#) for more details;
- Whistle-blower policy: provides guidance to employees for reporting non-compliant behaviour to an external ombudsman. The said policy specifies the types of behaviour and situations that can be reported and describes the protection and confidentiality framework offered to whistle-blowers.

With regard to governance arrangements that may have a direct impact on CBL's customers and participants, the company's [Client Handbook](#) provides an overview of the FMI, its organisation and operational procedures.

CBL has adopted a two-tier board structure with an [Executive Board \(EB\)](#) and a [Supervisory Board \(SB\)](#). Thus, management tasks are shared between the two boards. The structure features a separation between the powers of the Supervisory Board, which permanently monitors and advises the Executive Board and is involved in strategic decisions, and the Executive Board itself, which carries out day-to-day business. Processes for ensuring performance accountability for both boards are defined in their respective Rules of Procedure (RoPs). The EB critically assesses and approves at least once a year CBL's governance arrangements and implementation thereof in order to ensure compliance with all regulatory requirements and the objectives of effective, sound and prudent business management. The EB informs the SB, at least once a year, of the implementation, adequacy, effectiveness and compliance with such governance arrangements. For further information on the two boards' tasks and responsibilities, see [key considerations 3](#) and [5](#).

In addition to the EB and the SB, CBL has implemented an [Audit Committee](#), a [Nomination Committee](#), a [Remuneration Committee](#) and a [Risk Committee](#) at SB level, as well as a [User Committee](#) in accordance with the EU Central Securities Depositories Regulation (CSDR). For more information on the User Committee, please refer to [key consideration 7](#). Moreover, the

[Clearstream Group Committees](#) advise CBL on matters of strategic relevance in the context of integrated Clearstream group functions: the Clearstream Group Markets Committee (CGMC), a forum discussing customers' needs and expectations, and the Clearstream Group Advisory Board (CGAB) which addresses, among others, market-wide initiatives or ad-hoc topics with senior executives of customers and industry representatives. Both committees are further described in [Principle 23, key consideration 2](#).

CBL's EB, and partially the SB, notably for shareholders, are accountable to (i) the company's shareholders, (ii) the Luxembourgish authorities and (iii) its customers pursuant to the provisions of its General Terms and Conditions (GTCs) and in accordance with the applicable provisions of Luxembourgish corporate law:

- (i) **Shareholders:** CBL is wholly owned by Clearstream Holding AG in Frankfurt (Germany), a wholly owned subsidiary of Deutsche Börse AG. Clearstream Holding AG, as sole shareholder of CBL, assumes all powers conferred to the general meeting of shareholders. The sole shareholder's decisions are recorded in a minutes' register held at the registered office.
- (ii) **Luxembourgish authorities:** According to the licence to operate as credit institution and as a CSD in Luxembourg, CBL is supervised by the Commission de Surveillance du Secteur Financier (CSSF) and complies with the applicable financial, legal, regulatory and statutory reporting banking requirements. Furthermore, Banque centrale du Luxembourg (BCL) performs, in cooperation with CSSF, the liquidity supervision of CBL. As a securities settlement system (SSS), CBL is overseen by BCL. This supervision and oversight relationships give rise to regular reports sent to authorities. Authorities are, among others, also consulted in the context of the development of new products. For instance, various CBL departments interact with authorities when performing regulatory audits, reporting suspicious transactions or discussing impacts and progress of forthcoming regulatory projects. Finally, changes to the governance of CBL are communicated to and discussed with the authorities.
- (iii) **Customers:** CBL achieves accountability to its customers pursuant to the provisions of its GTCs. Accountability to customers is performed both by regular and ad-hoc communication regarding any important decisions or changes in the products offered and the markets served by CBL, and by approaching customers for the development of products and services.

Key consideration 3

The roles and responsibilities of an FMI's board of directors (or equivalent) should be clearly specified, and there should be documented procedures for its functioning, including procedures to identify, address, and manage member conflicts of interest. The board should review both its overall performance and the performance of its individual board members regularly.

Roles and responsibilities of CBL's Executive and Supervisory Boards

CBL has adopted a two-tier board structure consisting of an Executive Board and a Supervisory Board as set out in [key consideration 2](#). The functioning of the two boards is mainly based on the [CSSF Circular Letter 12/552](#), as amended. Tasks and responsibilities of the two boards are presented in CBL's Articles of Association and in more detail in the boards' respective Rules of Procedure (RoP), also known as Internal Rules & Regulations. The latter have been adopted by the SB. Please refer also to [key consideration 5](#) for a comprehensive list of the boards' tasks.

The EB is composed of six members who are appointed by the SB for a period of four years. The EB cannot have among its members a member of the SB of the same legal entity. The board members are subject to a selection process executed by the Nomination Committee.

The EB is responsible for the tasks assigned to the “authorised management”, “daily management”, “senior management”, “directions” under applicable laws, regulations and other regulatory provisions. Article 11.1 of CBL’s [Articles of Association](#) states that “the management of the Company is incumbent on the Executive Board; for this, it has the most extensive powers including the power to take any action necessary or useful to realise the corporate object, with the exception of those powers expressly reserved by law or these Articles of Incorporation to the SB or the General Meeting of Shareholders”.

As the Articles do not expressly reserve specific power to the general meeting of the shareholders other than the power set out by the law in the Articles 67 to 70 of the Company Law and as there is no limitation in the Articles to the powers of the SB, the SB is entitled as per Article 53 of the Company Law to accomplish any act necessary or useful to realise the corporate objective.

The EB reports at least every quarter to the SB on the progress and foreseeable development of CBL’s business. In addition, the EB promptly passes to the SB any information on events likely to have an appreciable effect on the company’s situation. In this context, the chairman of the SB and the CEO maintain regular contacts.

The SB is composed of six members who are appointed by the general meeting of shareholders for a period of four years. Members may be reappointed for successive terms. Similarly to the members of the EB, SB members are subject to a selection process executed by the Nomination Committee. No person may be, at the same time, a member of the EB and the SB of the same legal entity. The permanent supervision and monitoring of the management of CBL is incumbent on the SB, it also appoints the members of CBL’s EB. The SB represents the company in legal proceedings either as plaintiff or as defendant. Writs served on behalf of or upon the company shall be validly served in the name of the company alone.

The SB regularly, at least once per year, assesses its efficiency (see also [key consideration 1](#)). The results of the efficiency assessment are reported to CBL’s general meeting of shareholders. Furthermore, it assesses and approves the RoPs for both EB and SB in order to improve these rules and to verify whether they are complied with de facto.

How CBL handles EB and SB members’ conflicts of interest

CBL has adopted Deutsche Börse Group’s conflicts of interest framework which is detailed within the group’s [Compliance Policy](#), and, more specifically, the Policy on Conflicts of Interest. The Policy aims to address all types of conflicts of interests that could arise, and has identified, among others, the following potential sources of conflicts:

- (i) Corporate conflicts of interests: arising between Deutsche Börse Group (or a group entity, including CBL) itself;
- (ii) Personal conflicts of interests: originating from a source beyond the employee’s professional obligations, and interfering the objectivity to make decisions or to participate in decision making processes in the course of professional obligations;
- (iii) Specific conflict situations: examples might be misuse of information or misuse of relationships.

Article 1.12 of the RoP for CBL’s EB details the procedure to identify, address and manage conflicts of interest with regard to respective board members. The corresponding rules and procedures applicable to members of CBL’s SB are set out in Article 1.10 of the RoP for this board.

In addition, a Conflict of Interests Register is set up and continuously maintained for each of Deutsche Börse Group’s CSDs, including CBL, to document and track potential and actual conflicts of interests. The Register is maintained by Group Compliance, who upon notification runs conflicts assessments and defines mitigating measures with the parties concerned by the (potential) conflict situation. The Chief Compliance Officer (CCO) of each CSD verifies on a regular

basis the status of the potential or actual conflicts and that mitigation measures are enforced accordingly. CBL's Chief Executive Officer (CEO) decides on the procedures to be followed and the measures to be adopted in order to manage conflicts of interest at the level of the company's EB. The CEO takes their decision in close cooperation with Group Compliance supported by CBL's CCO. The same applies to the chairperson of the Supervisory Board with regard to conflicts at the level of the SB.

Clearstream currently runs a bi-annual survey of related parties, where the members of the CBL EB and the SB must disclose whether they have been related to any other entity of Deutsche Börse Group. Material legal transactions between companies within Deutsche Börse Group and members of the company's EB (including related parties or related enterprises) require the prior consent of the SB.

Role and responsibilities of CBL's Supervisory Board committees

CBL's SB has established four committees to provide the board with critical assessments with respect to the organisation and operation of CBL in order to enable the SB members to fulfil their supervisory mission and to take on their responsibility pursuant to the applicable national and European laws, as well as the CSSF circulars. These SB committees are:

- (i) Risk Committee: assisting the SB in assessing the adequacy between the risks incurred and CBL's ability to manage these risks as well as the internal and regulatory own funds and liquidity reserves;
- (ii) Audit Committee: assisting the SB with the fulfilment of its supervisory mission related to reporting and accounting, internal audit, and external audit;
- (iii) Remuneration Committee: assisting the SB in any tasks in relation to the remuneration of employees, remuneration policy and remuneration system;
- (iv) Nomination Committee: identifying and recommending suitable members for the SB and EB.

The SB committees include members of the SB who are not members of either the EB or CBL's staff. Each committee is composed of three members. To ensure separation between the committees, the chairpersons as well as most of their members are different.

As mentioned in [key consideration 2](#), CBL also established a User Committee, gathering participants and issuers of CBL's SSS, in charge of advising the management body as laid down in Article 28 of CSDR. See [key consideration 7](#) for more details.

Review of overall EB and SB efficiency and individual board members' performance

The SB and its committees assess the efficiency of their work on a regular basis, and at least annually, through two evaluation formats:

- (i) Questionnaire to be answered by all members covering: aspects of the general responsibilities of the SB members, CBL's strategy, financial reporting, internal control framework, meetings held by the SB collectively and individually, independence, training, and remuneration of the SB members;
- (ii) Re-assessment of the suitability of the SB members: conducted by the Nomination Committee; results are reported to the general meeting of shareholders (for the SB) or the SB (for the committees), respectively.

The individual performance of the members of the EB is assessed on a regular basis. The assessment of the individual performance of the members of the EB is ensured through a tool-based appraisal system. At the beginning of each year, the SB ("appraiser") and the respective EB member ("appraisee") agree on three to five targets for the respective year(s), which are entered

in the system. The SB assesses the level of target achievement after the end of the performance period (subject to decision in the Remuneration Committee).

The objectives of the process are to (i) apply transparent rules, (ii) set challenging and ambitious targets with respect to the function, (iii) link performance to business targets, (iv) link performance to long-term perspective, (v) measure and judge performance in an objective and consistent way, (vi) clarify task definition and the expectation of accomplishment and (vii) avoid any conflict of interest of staff making the judgment. Details on the process are outlined in CBL's Remuneration Policy.

Key consideration 4

The board should contain suitable members with the appropriate skills and incentives to fulfil its multiple roles. This typically requires the inclusion of non-executive board member(s).

Members of CBL's SB and EB, as well as other key function holders at CBL, are subject to a thorough suitability assessment to ensure that the two boards fulfil the criteria regarding skills and incentives. The guiding principles for such assessment are set out in the following documents:

- [Joint ESMA and EBA guidelines on the assessment of the suitability of members of the Management Body and key function holders \(EBA/GL/2017/12\)](#);
- Deutsche Börse Group's Suitability Assessment Policy;
- Side letter to Deutsche Börse Group's Suitability Assessment Policy (adopted by Clearstream; provides job descriptions for SB and EB members as well as key function holders);
- [Clearstream Group Remuneration Policy](#).

The Suitability Assessment Policy is reviewed by the SB's Nomination Committee at least once a year to check whether it is appropriate and complies with the legal and regulatory requirements applying to CBL.³ The objective of the policy is to ensure that all members of CBL's SB and EB are suitable with respect to the following governance criteria stipulated in the joint ESMA and EBA guidelines:

- Time commitment;
- Knowledge, skills and experience;
- Reputation, honesty and integrity;
- Independence of mind
- Diversity
- Independence (for SB members)

³ Owner of the policy is Deutsche Börse Group's Human Resources (HR) function. It designs and organises the regular review with the assistance of Group Legal and the Boards & Committees units for the individual group entities. CBL's Boards & Committees unit is responsible for content and review regarding the suitability assessment for CBL's SB and EB members. HR assumes responsibility for content and review regarding the suitability assessment for key function holders.

CBL's SB is responsible for ensuring that the individual SB and EB members, as well as the SB and EB, collectively fulfil the above suitability criteria in case of a new assignment but also on an ongoing basis. To this end, individual and collective suitability assessments are conducted once a year and prior to any appointment by the SB's Nomination Committee. The assessment of the SB's and EB's collective suitability will be initiated additionally in the following situations:

- (i) When members of CBL's SB or EB must be reappointed, and the requirements of the position have changed or the members are appointed to a different position within the respective board;
- (ii) When members cease to be members of CBL's SB or EB;
- (iii) Whenever appropriate, e.g. material change to the scope of CBL's business model, risk appetite or strategy.

In addition, the Nomination Committee initiates a suitability assessment for individual SB and EB members, as well as key function holders whenever appropriate (for instance, in the following situations: reduction of worktime, change regarding the scope or nature of the mandate, or negative event with regard to the reputation of the appointed board member).

If a suitability assessment is necessary, the Nomination Committee prepares a suitability assessment and – with support of the company's HR and Legal functions, upon request – proposes a decision to the SB.

The suitability assessment for members of the Management Body and Key Function Holders is initiated in the following situations: (i) when the respective Company in Scope is applying to be authorised as financial institution or Central Security Depository; (ii) when new members of the Management Body or Key Function Holders have to be appointed; (iii) whenever appropriate, for example, reduction of worktime, change regarding the scope or nature of the mandate or negative event with regard to the reputation, in relation to appointed members of the Management Body or Key Function Holders; and (iv) as part of the periodical re-assessment.

The assessment of the collective suitability of the Management Body will be initiated in the situations stated above and additionally in the following situations: (i) when members of the Management Body have to be re-appointed, and the requirements of the position have changed or the members are appointed to a different position within the Management Body; (ii) when members cease to be members of the Management Body; and (iii) whenever appropriate, e.g. material change to the Company in Scope's business model, risk appetite or strategy.

Should the suitability assessment conclude that an SB or EB member is not compliant with the requirements in total, CBL will take appropriate measures to rectify the situation and will inform the competent authority (CSSF) accordingly.

CBL's annual suitability assessments in 2021 and 2022 concluded that both the company's SB and EB are suitably skilled to perform the responsibilities entrusted to them.

With respect to the above criterion of independence of the SB, CBL's SB includes both non-executive as well as independent members. In line with the applicable CSSF circulars, CBL considers a director as independent when they have no significant business relationship with the company, close family relationship with any SB member, or any other relationship with the company, its controlling shareholders or SB members which is liable to impair the independence of their judgement. The board is composed of at least one third, and in any case no less than two independent members.

Regarding the incentives that CBL has in place for its EB and SB to appropriately fulfil their multiple roles, the Clearstream Group Remuneration Policy provides a framework for the design and implementation of the remuneration system for staff and advises on the rules applicable to the remuneration system for EB members, risk takers and other employees, including employees in control units.

The remuneration system set out in the policy has been designed in cooperation with the relevant Clearstream Group's control units (that is Risk Management, Compliance, Internal Audit, HR and Group Compensation Officer). In line with CRD IV, representatives of the relevant control units participate in the [Remuneration Advisory Board](#), which is involved in the decision-making process with respect to the design and development of Clearstream Group's remuneration system.

The supervisory boards of the Clearstream Group entities adopt and periodically review the general principles of the policy and are responsible for overseeing its implementation. For CBL, the review of the remuneration policy is performed by both the company's SB and EB. The two boards also assume the responsibility to implement the remuneration system and to ensure compliance with specific local requirements. In addition, CBL's SB Remuneration Committee directly oversees the remuneration of the officers in charge of the company's control units as described in the policy, in accordance with the regulatory requirements.

To ensure appropriateness of the incentives for CBL's SB and EB members, the following principles and rules are anchored in the Clearstream Group Remuneration Policy:

- Employees engaged in control units must be independent from the business units they oversee, have appropriate authority, and are remunerated in accordance with the achievement of the objectives linked to their functions, independent of the performance of the business areas they control; variable remuneration is linked primarily to control targets.
- Members of the EB, risk takers and other employees (including staff employed in control units), shall receive fixed and variable remuneration.
- The fixed and variable remuneration of all employees, except of the EB members themselves, is determined by the EB. The fixed and variable remuneration of the members of CBL's EB is determined by the company's SB.
- The method of determining remuneration of the EB member responsible for risk controlling must not compromise their objectivity or be likely to do so. Their variable remuneration shall not exceed the fixed remuneration.
- CBL's SB members do not receive any variable remuneration nor any remuneration for the mandate as SB member that is performance-related or risk-oriented, only an attendance fee. The amount of these fees is fixed and does not depend on the performance of CBL.
- In general, the fixed remuneration shall be the substantial part of the total annual remuneration.
- The variable remuneration, not guaranteed, shall not exceed one third of the total remuneration and consists of remuneration such as a discretionary performance bonus or payments in instruments, taking into account the overall performance of Deutsche Börse Group, the performance of the areas of responsibility and the individual performance contributions. This ratio can be exceeded only in exceptional and well-justified situations, but the variable remuneration shall in any case be below the fixed remuneration.
- A fixed remuneration only (that means, without any variable element) is permissible.

Key consideration 5

The roles and responsibilities of management should be clearly specified. An FMI's management should have the appropriate experience, a mix of skills, and the integrity necessary to discharge their responsibilities for the operation and risk management of the FMI.

Roles and responsibilities of CBL's Supervisory and Executive Boards

The roles and responsibilities of CBL's SB and EB are described in detail in several documents, notably in the company's Articles of Association and the Rules of Procedure (RoPs) for the two boards (see also [key considerations 2](#) and [3](#)).

Without prejudice to the powers of the SB, the EB assumes, among others, the following tasks:

- Prepare and implement procedures, policies and processes by which the EB operates;
- Establish clear objectives and strategies for CBL;
- Establish adequate remuneration policies for employees of the company;
- Ensure the surveillance of the risk management function and take decisions related to risk management;
- Ensure the independence and adequate resources of the risk management, technology, compliance and internal audit functions;
- Monitor outsourcing arrangements;
- Monitor and ensure compliance with all relevant regulatory and supervisory requirements;
- Be accountable to shareholders or other owners, employees, users and other relevant stakeholders;
- Approve the internal audit planning and review;
- Review and update regularly the governance arrangements of CBL;
- Where the EB delegates tasks, retain the responsibility for decisions that may affect the smooth provision of services by CBL;
- Hold the final responsibility for managing CBL's risks;
- Define, determine and document an appropriate level of risk tolerance and risk bearing capacity for CBL and for all of the company's services;
- Ensure that CBL's policies, procedures and controls are consistent with its risk tolerance and risk bearing capacity and that these policies, procedures and controls address how CBL identifies, reports, monitors and manages risks.
- Without prejudice to the powers of the general meeting of shareholders and of the EB, CBL's SB assumes, among others, the following tasks:
 - Review and ensure that well-established procedures, policies and processes by which the EB, the SB and the Committees shall operate, exist and are well implemented;
 - Approve the objectives and strategies of CBL proposed by the EB;

- Effectively monitor the EB;
- Establish adequate remuneration policies for the members of the Executive Board and review the remuneration policies established by the Executive Board for other employees of the Company;
- Monitor the EB in ensuring the surveillance of the risk management function and in taking decisions related to risk management;
- Monitor the EB in ensuring the independence and adequate resources of the risk management function, technology function, compliance function and internal audit function;
- Monitor the EB in the monitoring of outsourcing arrangements;
- Monitor the EB in monitoring and ensuring compliance with all regulatory and supervisory requirements,
- Be notably accountable to the shareholders and partially to other owners, employees, users and other relevant stakeholders;
- Approve the internal audit planning and review;
- Review and update regularly the procedures applicable to the EB and SB;
- Hold the final responsibility for monitoring the performance of the management body as well as the systems that ensure an effective risk management;
- Approve the level of risk tolerance and risk bearing capacity of CBL defined, determined and documented by the EB;
- Monitor the EB in ensuring that CBL's policies, procedures and controls are consistent with its risk tolerance and risk bearing capacity and that these policies, procedures and controls address how CBL identifies, reports, monitors and manages risks.

Experience, skills and integrity

As set out in the joint ESMA and EBA guidelines on the assessment of the suitability of members of the Management Body and key function holders, CBL's SB and EB members must fulfil certain criteria (see also [key consideration 4](#) for details). Among others, each member shall be of sufficiently good repute and shall have appropriate skills, knowledge and experience.

In order to ensure that CBL's SB and EB members have the appropriate experience, a mix of skills, and the integrity necessary to discharge their responsibilities for the company's operation and risk management, candidates and members of CBL's SB and EB members, must run through a suitability assessment. This assessment is exercised for both boards on an annual basis but also on an ad-hoc basis when changes in the respective board occur. Please refer to [key consideration 4](#) for details on the conditions and implementation of the assessment procedure.

The scope of responsibilities – and hence, implicitly, the related required skills – of the individual members of CBL's EB are related to the departments they are responsible for. These departments are defined in a schedule of responsibilities. This schedule must be announced to the SB without delay following its definition. Enactment, modification and revocation of the schedule of responsibilities requires unanimous resolution of the joint EB. If a unanimous resolution does not pass, the CEO must petition the SB to regulate the assignment of duties. Every EB member has sole managerial authority within the framework of the department assigned to them by the schedule and the resolutions of the joint EB. Without prejudice to the division of responsibilities, each EB member is responsible for management as a whole.

Key consideration 6

The board should establish a clear, documented risk management framework that includes the FMI's risk tolerance policy, assigns responsibilities and accountability for risk decisions, and addresses decision making in crises and emergencies. Governance arrangements should ensure that the risk management and internal control functions have sufficient authority, independence, resources, and access to the board.

Effective and efficient risk management is an elementary component of the management and control of CBL. The different aspects of CBL's risk management framework including risk tolerance, responsibilities and accountability for risk decisions, as well as decision making processes in crises and emergencies, are clearly described, among others, in the following key documents:

- Deutsche Börse Group's Risk Management (GRM) Policy
- Appendix to the Group Risk Management Policy: Risk Taxonomy
- Deutsche Börse Stress Testing Handbook and Clearstream-specific appendix
- Deutsche Börse Group risk-specific handbooks: Financial Risk Handbook, Operational Risk Handbook, Business Risk Handbook, Pension Risk Handbook
- Clearstream Risk Strategy
- Clearstream Operational Risk Model Change Procedure, and Model Analysis Results and Validation
- CSDR Application – CBL Appendix to the GRM Policy
- Deutsche Börse Group's Incident and Crisis Management Guideline

The risk management framework in terms of processes, roles and responsibilities is applicable to all CBL staff. Its overall objective is to enable CBL's EB to monitor the company's overall risk profile, as well as material risks, so that developments that could jeopardise the interests of CBL can be identified at an early stage and suitable countermeasures deployed. This is achieved through periodic and ad hoc reporting on all significant risk developments to CBL's EB. The reporting procedures are further described in the handbooks for every risk type, for example, operational-risk reporting is documented in the Operational Risk Handbook.

CBL has been included throughout the development of Deutsche Börse Group's Risk Taxonomy. The taxonomy distinguishes between five aggregated risk types:

- Operational Risk,
- Financial Risk,
- Business Risk,
- Pension Risk,
- Winding-down and Restructuring Risk.

Clearstream's risk strategy is based on its business strategy and sets limits specifying the maximum risk permitted for the above risk types as well as the company's overall risk. This is done by laying down respective requirements for risk management, control and limitation. CBL ensures that appropriate measures are taken to avoid, reduce and transfer, or intentionally accept, risk. Further details are described in [Principle 3](#).

CBL's SB Risk Committee is responsible for advising the SB on the ICSD's overall current and future risk tolerance and strategy. Its tasks and responsibilities are to:

- Advise the SB on the institution's overall current and future risk appetite, risk tolerance and risk strategy and assist the board in overseeing the implementation of that strategy;
- With the SB Audit Committee, submit proposals to the EB about how the conditions applied to customers in accordance with the business model and the risk structure could be created;
- Examine whether incentives provided by the remuneration system take into consideration the risk, capital and liquidity structures of the institution and the likelihood and timing of earnings. The tasks of the SB's Remuneration Committee remain unaffected;
- Review whether the conditions offered to customers take into account the institution's business model and risk structure. If this is not the case, the Risk Committee takes advice from external experts, if necessary. It determines type, comprehensiveness, format and frequency of information to be provided by the EB with regard to strategy and risk.

CBL's risk management processes and measurement systems are subject to regular reviews performed by the Internal Audit function, as well as external auditors. Ultimately, Internal Audit acts as third line of defence by providing assurance via independent audits, which verify that risk control and risk management are performed adequately. The results of these audits are part of CBL's risk management system.

Regarding decision making in crises and emergencies, the incident and crisis management processes applicable to CBL are set out in Deutsche Börse Group's Incident and Crisis Management Guideline. This guideline aims to facilitate the co-ordinated and rapid reaction to an incident/crisis in a controlled and effective manner, in order to contain and resolve the incident, minimise business and market impact and return to normal activity as quickly as possible.

In case of financial crises, credit events, recovery plan indicator breaches or recovery events impacting Clearstream entities, the Credit Crisis Management Team (CCMT) Best Practice Guide (BPG) applies. The CCMT is comprised of senior managers and subject matter experts. The team's objective is to ensure that a crisis is addressed in an efficient and timely manner to CBL's EB and all relevant stakeholders. The main role of the CCMT is to gather and coordinate all relevant information related to a crisis in order to mitigate the adverse effects on Clearstream, its customers and market participants. The CCMT monitors the crisis, implements mitigating measures and develops an adequate response strategy to resolve the crisis.

Moreover, operational disruption events caused by an incident such as the unavailability of staff or the loss of workspace or IT facilities are subject to the Crisis Clearstream Default Management Credit Incident Management Team (Business Duty Managers / Incident Crisis Managers).

CBL's governance arrangements ensure that the company's risk management and internal control functions have sufficient authority, independence, resources, and access to the board: According to its rules of procedure, the SB is tasked with monitoring the internal control system, risk taking and risk management framework and their effectiveness to manage risks, including whether the company has adequate resources.

Furthermore, CBL's chief risk officer, chief compliance officer, chief technology officer, chief information security officer and chief internal auditor have direct access to the SB. For this purpose, the respective officer shall usually contact the SB's chairperson and/or the chairpersons of the relevant committee, as appropriate.

Key consideration 7

The board should ensure that the FMI's design, rules, overall strategy, and major decisions reflect appropriately the legitimate interests of its direct and indirect participants and other relevant stakeholders. Major decisions should be clearly disclosed to relevant stakeholders and, where there is a broad market impact, the public.

CBL has identified four categories of stakeholders: stakeholders to whom the company provides a service, stakeholders who provide a service to CBL, stakeholders involved in the establishment of the legislative and regulatory framework in which CBL operates, and stakeholders with a direct influence on CBL's equity. CBL uses different approaches to involve the said groups in its decision-making processes:

(i) Stakeholders to whom CBL provides a service

CBL follows an active approach towards its customers, among others, organising regular customer meetings, forums and trainings, as further described in [Principle 21, key consideration 1](#) and [Principle 23, key consideration 3](#). All customers are assigned a relationship manager who maintains permanent communication with them and may report any individual customer issues to CBL's decision making bodies. In the context of the review of CBL's General Terms and Conditions (GTCs) and other governing documents, amendments are notified to all customers.

Additionally, CBL has established a [User Committee](#) for the securities settlement system (SSS) it operates. According to its [Terms of Reference](#), this committee has the mandate to advise CBL's EB on key arrangements that impact the users, including the criteria for accepting issuers or participants, and the service level. The User Committee may moreover submit non-binding opinions to CBL's EB, containing detailed reasons regarding the company's pricing structure. The User Committee regularly reports to and shares the meeting minutes with the EB. The EB of CBL takes account of the interests of the FMI's participants and other relevant stakeholders in its decision-making through advice received from the User Committee, as mentioned above, on key arrangements that impact the users, including the criteria for accepting issuers or participants, and the service level. The User Committee meets at least twice a year. CBL promptly informs the User Committee as well as the competent authority (CSSF) of any decision in which the EB decides not to follow the advice of the committee. In addition, CSSF receives an annual report including any decision of CBL's EB following or not following the advice of the User Committee.

Furthermore, CBL also participates in public consultations that may be directly relevant to its services and impact its participants, either initiated by law makers or regulatory bodies. CBL also participates in a number of industry related associations and forums which aim at promoting standards and defining guidelines for the industry (for example, ICMA, ICMSA, ISMAG, ISSA; see also [key consideration 1](#)). Thus, the company actively aligns with its customers allowing all participants to be informed of market needs or changes and to be able to voice and discuss new regulatory requirements, potential new services or participants' concerns which may lead to changes in existing services.

CBL supports issuers and issuer agents in making their securities eligible on its platform and to best harmonise and standardise the market in the interest of all participants. In that context, CBL is a member of working groups of market associations (see also below).

(ii) Stakeholders who provide a service to CBL

Existing relationships with depository banks, central securities depositories (CSDs), transfer agents (TAs), cash correspondent banks (CCBs), Euroclear Bank and connectivity providers are reviewed on an ongoing basis, and completed by on-site visits, based on CBL's continuous oversight of market developments in the areas of procedures, practices, regulations or other infrastructure related developments. Service level agreements with suppliers are updated as and when necessary, and on average, this is being done on an annual basis. Institutions providing links to domestic markets abroad inform CBL of any changes to market practice and regulation in the respective markets. Similarly, Clearstream's Network Management team informs such providers of upcoming changes to CBL's services and works with them to develop new service offerings.

(iii) Stakeholders involved in the establishment of the legislative and regulatory framework in which CBL operates

Clearstream is represented in more than 35 market organisations globally, through which it is able to identify and take into consideration a wide range of stakeholders' interests. CBL's participation in the regulatory debate and in industry forums has allowed the company to refine its core securities settlement and custody infrastructure in various areas such as the fund industry, collateral management services and securities financing. CBL cooperates with Luxembourgish regulators in many areas. As such the company takes into account their views, or seeks their approval, for taking major decisions like significant changes to its system design as well as to its rules and procedures.

(iv) Stakeholders with a direct influence on CBL's equity

Clearstream Holding AG is the sole shareholder of CBL. Thus, it assumes all powers conferred to the general meeting of shareholders. Clearstream Holding's decisions are recorded in a minutes register held at the registered office. Concerning the disclosure of major decisions made by CBL's SB and EB to relevant stakeholders, Clearstream Holding AG, receives extensive reporting on CBL activities.

Conflicts of interests between stakeholders and CBL are identified and addressed according to the requirements of the SB's and EB's RoPs (please refer to [key consideration 3](#)).

Major decisions taken by CBL's SB are communicated to the public via press release and the company's website www.clearstream.com, and to customers either via the website or through direct communication to clients. The website provides information on CBL's regulatory framework, its products and services, as well as on the Clearstream group overall service offering (see [Principle 23](#) for a detailed description).

Principle 3: Framework for the comprehensive management of risks

An FMI should have a sound risk-management framework for comprehensively managing legal, credit, liquidity, operational, and other risks.

Key consideration 1

An FMI should have risk-management policies, procedures, and systems that enable it to identify, measure, monitor, and manage the range of risks that arise in or are borne by the FMI. Risk-management frameworks should be subject to periodic review.

The Clearstream Risk Management function is responsible to develop strategies, policies, procedures and handbooks to identify, measure, monitor and report risks that arise in or are borne by the company. Clearstream Risk Management comprises coverage of the three CSDs being CBF, CBL and LuxCSD.

Risk management policies and procedures

Deutsche Börse Group's overarching Group Risk Management (GRM) Policy, as applicable to CBL, describes the enterprise-wide risk management concept, including the risk management framework in terms of processes, roles and responsibilities applicable to all staff and organisational units and levels. The GRM Procedure outlines the risk management process applicable to CBL. It consists of the consecutive stages of identification, notification, assessment, control (mitigation) and monitoring (reporting) of risks.

The Risk Taxonomy/Inventory, included within the GRM Procedure, gives the risk taxonomy for CBL. The Risk Taxonomy/Inventory is a comprehensive and complete list of all the potential risks that CBL may be exposed to due to its current and future business operations. The inventory includes all of the risks that CBL is aware of. Level 1 of the Risk Taxonomy/Inventory consists of the five aggregated risk types as outlined below.

CBL undertakes a consistent, regular, structured identification and assessment process of all risks the entity might be exposed to due to its business model and industry environment. In addition to the annual risk inventory process, risk type specific risk items and drivers may be identified.

Risk types

CBL defines risk as a potential negative impact on its financial, revenue and liquidity situation, CBL differentiates between five Aggregated Risk Types that are managed and controlled with distinct methods. The aggregated risk types are: operational risk, financial risk, business risk, pension risk, as well as winding-down and restructuring risk.

Operational risk

Operational risk is defined as the risk of losses resulting from inadequate or failed internal processes, people and systems or from external events. Clearstream has adopted a definition that is in line with Basel definitions of operational risk which is the risk that deficiencies in information systems or internal processes, human errors, management failures, or disruptions from external events will result in the reduction, deterioration, or breakdown of services provided by Clearstream.

Operational risk comprises the following sixteen risk clusters: compliance risk, contagion risk, corporate tax risk, custody risk, information security risk, information technology risk, legal risk, model risk, operational project risk, people risk, physical security risk, processing and execution risk, product tax risk, risk management risk, secondary reputational risk and third-party risk.

Clearstream also distinguishes between four classes of operational risk, for labelling purposes only, namely: availability, service deficiency, damage to physical assets, legal offences and business practices.

Operational risks that CBL does not want to run and that can be insured against at reasonable cost are transferred by closing insurance policies. All insurance policies are coordinated centrally for entire Deutsche Börse Group thereby ensuring the uniform risk-cost benefit insurance coverage. Operational risk is assessed as a major risk type within CBL.

Financial risk

CBL is exposed to financial risks in the form of credit, market and liquidity risks. Exposure to the abovementioned risks is mitigated through the existence of effective control measures. These cover the risks inherent to market transactions, the ability to meet financial obligations, lending activities and settlement of receivables such as the risk of default of business partners, individuals and entities performing specific functions.

— Credit risk

Credit risk or counterparty credit risk describes the risk that a counterparty might not meet its contractual obligations in parts or fully. Credit risk mainly arises in the short term and with credit institutions or governmental counterparties (risk of losses arising from the default of counterparties). Measurement criteria include the credit rating of the counterparty, the degree to which a credit line has been utilised, the collateral deposited and concentration risk. There have been no material credit losses at CBL since 1970.

CBL grants loans to its customers in order to increase the efficiency of securities settlement. However, these lending operations cannot be compared with those of other credit institutions. Firstly, the loans are extended solely on an extremely short-term basis. Secondly, they are extended solely for the purposes of increasing the efficiency of securities settlement. These loans are fully collateralised. Loans are only granted to creditworthy customers with very good credit ratings. Furthermore, credit lines granted are uncommitted and can be revoked at any time.

CBL bears credit risk from its Automated Securities Lending (ASL) programme, where every loan of securities is guaranteed by CBL. The guarantee is backed by securities pledged by the borrower, as follows:

- Collateral securities are pledged by the borrower to CBL under a Luxembourgish law pledge. Collateral quality and sufficiency are monitored by CBL on a daily basis.
- Second ranking pledge on collateral – in the unlikely event of a simultaneous default by CBL and the borrower, the right to the collateral passes to the lender.

Furthermore, credit risk can arise from cash investments and cash holdings at cash correspondent banks (CCBs). Own funds are invested in highly rated bonds, issued by governments, supranational institutions or agencies. CBL largely makes short-term collateralised investments or placements with the respective central bank. Nevertheless, it is not always possible to avoid unsecured overnight balances in all currencies Clearstream is active in. Clearstream also makes use of intercompany transactions, where mainly CBF has an exposure on CBL, which can in less frequent cases also be vice versa.

The creditworthiness of potential customers is assessed before entering into a business relationship. In addition, CBL establishes customer-specific credit lines on the basis of both regular reviews of the customer's creditworthiness and ad hoc analyses as required. The creditworthiness of CBL's CCBs and counterparties is also assessed on an annual or, if necessary, ad hoc basis.

– **Market risk**

Market risk is the risk of losses arising from holding assets and liabilities – on- or off-balance sheet – with different maturity dates, creating exposure to changes in the level of interest rates, foreign-exchange rates or market prices. Market risk consists of the following risk clusters: commodity risk, credit driven market risk, equity price risk, foreign-exchange rate risk, interest rate risk, market concentration risk, market risk of non-consolidated entities and market volatility risk.

Market risk may arise in the form of interest rate risk (as a result of fluctuations in interest rates in connection with cash investments or borrowing), currency risk (in the operating business, when recognising net revenues denominated in foreign currencies or when holding positions in foreign currencies) and in the form of equity price risk.

CBL is exposed to interest rate risk in connection with cash investments as part of its capital is invested in securities with the highest credit quality. Some of these securities have floating interest rates, with a low sensitivity to interest rate fluctuations, but also fixed coupon bonds have been bought leading to increased interest rate risk. Interest rate risk is mitigated using a limit system that only permits maturity transformation to a small extent. Open currency positions are avoided whenever possible.

– **Liquidity risk**

Liquidity risk is the risk of losses arising from the inability to meet payment obligations when they come due or without incurring excessive costs. Liquidity risk consists of the following risk clusters: funding/refinancing risk, illiquidity risk, intraday liquidity risk, market liquidity risk and liquidity concentration risk.

CBL is exposed to liquidity risk in that it may lack sufficient liquidity for its intraday cash operations or incur increased refinancing costs in the event of liquidity shortage. CBL's liquidity risk is primarily driven by its customers as a result of their credit exposure due to their settlement activities and the interoperable link that CBL maintains with Euroclear, the "Bridge". In addition, Treasury Front Office activities, that means, secured/unsecured investments and nostro activities, are other material risk drivers.

Daily and intraday liquidity is monitored closely by the Treasury and Credit departments and managed with the help of a limit system. Sufficient credit lines and funding sources are available to provide cover in extreme situations. Further details on the robust framework to manage CBL's liquidity risk are described under [Principle 7, key consideration 1](#).

Business risk

Business risk is the unexpected residual loss, which arises when EaR exceed anticipated net income after tax, which may be due to the competitive environment (for example customer behaviour, investment failure, industry trends) or erroneous strategic management decisions.

Unexpected loss due to deviations (positive or negative) from net income after tax is calculated using EaR. The methodology is based on quarterly relative deviations between expected and actual profit and loss figures. Business risk is reported if the calculated VaR is higher than the budgeted net profit for the next four quarters. Business risk is considered material for CBL.

Pension risk

Pension risk is defined as the risk of losses due to increased costs from post-employment benefit plans based on non-market risk factors. The expected pension payments and therefore the overall pension risk is influenced by several factors: longevity in terms of unexpected changes compared to the anticipated life expectancy, inflation in terms of unexpected changes compared to the projected inflation rate, salary growth in terms of unexpected changes compared to the forecast salary growth and discount rate in terms of unexpected changes compared to the anticipated discount rate.

CBL is exposed to pension risk by its pension debt obligations, primarily managed through a pension fund. Pension risk is quantitatively shown to be immaterial for CBL. However, pension risk is chosen to be managed as a material risk for CBL. This decision is mainly driven by the extra attention required due to ongoing stress inflation rates. Therefore, pension risk is considered as an immaterial risk in the risk profile, but processes are applied treating it as a material risk type.

Winding-down and restructuring risk

Winding-down and restructuring risk is defined as the risk of losses due to insufficient capital being held for an orderly winding-down or restructuring of operations and services, in the case where new capital cannot be raised. This risk type is addressed by the capital requirements outlined by CSDR as well as by comparable requirements laid out in BRRD for CRR institutions (MREL which targets financial and operational continuity). Winding-down and restructuring risk is considered material for CBL.

Risk management handbooks

The Operational Risk Handbook gives a comprehensive description of the objectives, overall approach and scope of operational risk management at Clearstream, considering that operational risk management is an essential component of management and controls of operations. The Handbook includes topics such as the definition of and categories within operational risk, organisational structure, roles and responsibilities, operational risk instruments and methods used as well as the respective reporting.

Clearstream follows the Advanced Measurement Approach (AMA) for calculating the regulatory capital requirements for operational risk. The AMA requires internal loss data and model-based methods to calculate the regulatory capital requirements. CBL has established a comprehensive operational risk framework and a set of instruments meeting both the requirements from a regulatory and a business perspective. The roles and responsibilities within operational risk management are assigned to the organisational units at a local level as well as to Clearstream Risk Management at a central level.

Clearstream Risk Management established an operational risk procedure that serves as a guide in addition to the Operational Risk Handbook, primarily for the business departments within the organisation. This procedure describes the approach and major instruments applied within the process of managing operational risks on a high level. Furthermore, it sets the internal standards regarding roles and responsibilities as well as the related duties of different legal entities within Clearstream group.

Clearstream Risk Management also established a Financial Risk Handbook. The main objective of this handbook is to provide a comprehensive description of the organisational structure, processes, models and methodologies that constitute CBL's financial risk approach. Financial risk comprises the risk of losses arising from the default of counterparties (credit risk), from holding assets and liabilities for on- and off-balance sheet items, for instance interest rate risk or currency rate risk (market risk), the risk of losses arising from the inability to meet all short- and long-term obligations resulting from on- and off-balance sheet liabilities (liquidity risk).

In addition, Clearstream Risk Management has established a Business Risk Handbook and a Pension Risk Handbook. The objective of these handbooks is to provide detailed descriptions of the approaches and instruments applied within the management of business and pension risks. The handbooks include a detailed explanation of the frameworks and information on the functional organisation (governance). The description of the models and validation processes and reporting responsibilities are also provided in the handbooks.

The risk management framework including the underlying policies, procedures and handbooks is subject to periodic reviews, at least annually.

Risk measurement

CBL has installed a standardised approach for measuring and reporting all operational, financial and business risks across its organisation: the concept of Value at Risk (VaR). The purpose is to allow the overall risk appetite to be expressed in a comprehensive and easily understandable way and to facilitate the prioritisation of risk management actions. Furthermore, risk reporting consolidates all risk measures across the company (operational, financial and business risks), except for liquidity risk, which is covered in CBL's Liquidity Stress Testing Model.

The VaR quantifies the risks to which a company is exposed. It indicates the maximum cumulative loss that CBL could face if certain independent loss events materialise over a specific time horizon for a given probability. CBL's models are based, in line with the Basel framework, on a one-year time horizon. Correlations between individual risk estimates are recognised when calculating the capital charge for operational risk. Between the individual risk types, the most conservative approach of a correlation of "1" is implemented.

CBL also performs VaR calculations in order to detect potential risk concentrations, as well as stress test calculations, which consider even more conservative model parameters than the regular VaR calculations.

The aim of CBL's risk management framework is to set adequate and comprehensive risk management standards to ensure the sustainability of its operations and thereby smooth and efficient market operations. This framework ensures that CBL:

- Can identify, measure, monitor, manage and report risks it may be exposed to, and limits the risks its poses to others;
- Applies appropriate risk control and monitoring measures to safeguard the integrity of financial markets and limit potential exposures and systemic risks.

CBL has put in place a wide range of internal control processes and procedures, including security, technical and operational organisational arrangements, as well as risk control measures, to ensure they protect both CBL and the interests of the external stakeholders, that means its users and their respective clients, the CSD links, CCPs, trading venues, payment systems, settlement banks, liquidity providers and investors.

Key consideration 2

An FMI should provide incentives to participants and, where relevant, their customers to manage and contain the risks they pose to the FMI.

CBL puts in place a range of internal control processes and procedures in order to ensure that participants and, where relevant, their clients properly manage and address the risks they pose to the (I)CSD. CBL discloses to its customers extensive information in the respective documentation that allows customers to assess the risks associated with the products and services CBL provides. The documentation describes the activities performed by the CSD and all related obligations, rights, termination clauses, liabilities, breaches, the default and technical specifications. CBL explicitly states the risks associated with each product or service it offers.

Key participants, identified according to ESMA RTS Article 67, are managed, monitored and reported and, in essence, are subject to enhanced due diligence measures for the assessment of their risk management capabilities, that means:

- Quarterly reviews on participant settlement transaction activities (driven by volumes and values of trades settled in CBL's SSS) in order to generate key statistical information essential to identify and derive key participants;
- Additionally, the key participants lists are used by operational teams to map the participant causing operational incidents where relevant, further cementing CBL's view of the key participant risk exposures.

Please refer to [Principle 19](#) for details on the identification, management and monitoring of CBL's key participants.

In principal, this approach allows the CSD to derive the relevant risk metrics to support its business continuity management, Recovery Plan and default management procedures. In doing so, CBL ensures and obliges its key participants to have sufficient measures in place to properly manage and address the risks they pose and thereby minimise to the maximum extent possible the potential risks posed for CBL.

In addition, specifically in relation to KYC/AML, CBL has adapted its Customer Due Diligence procedures to take into account the fact that it may not know the identity of the clients of its customers. For this reason, the enforcement history and exposure of CBL's customers is also subject to continuous review as part of the enhanced KYC programme. To further reduce risks of this type, there are enhanced KYC controls around the use of omnibus accounts and controls around the opening of additional accounts for existing customers.

CBL discloses to its users extensive information in the respective documentation that allows users to assess the risks associated with the products and services CBL provides. CBL's product documentation and in particular the Client Handbook and Product Guides provide the necessary information for participants to assess the risks they face from the CSD.

Moreover, CBL participants can choose from a range of reports available to help them manage and contain the risks they pose to CBL's SSS. Reporting profiles can be set up that are tailored to their own business requirements. Participants are asked to specify which reports they want to receive, respectively to retrieve, and via which communications media.

CBL has established a [User Committee](#) composed of issuers and participants, with the mandate to advise the management body on key arrangements that impact CBL's participants.

Key consideration 3

An FMI should regularly review the material risks it bears from and poses to other entities (such as other FMIs, settlement banks, liquidity providers, and service providers) as a result of interdependencies and develop appropriate risk-management tools to address these risks.

Material risks CBL bears from other entities

CBL regularly reviews material risks it bears from other entities and that can potentially impact the smooth running of the company's business services, as well as the soundness and stability of the financial markets and system as a whole. Measures include the management of risks related to:

- (i) Availability risk borne from reliance and connectivity to SWIFT, IT systems and applications for the provision of essential core business services;
- (ii) Service deficiency risks borne from operational interdependencies of the company's critical outsourcing and third-party governed services, CSD market links and supplier network providers;
- (iii) Operational risks that may be posed by CBL key participants as well as credit risks related to customers in default

The identification and management of operational risk is further described under [Principle 17, key consideration 1](#).

With regard to critical entities (for example critical providers of services such as SWIFT), CBL has defined and implemented a critical service provider governance framework procedure based on the CPMI IOSCO FMI assessment methodology. For more details, please refer to [Principle 17, key consideration 7](#).

In addition, the identification of risks is based on the risk inventory list and assigned to at least one of the Clearstream's risk clusters. Depending on the risk cluster, the risk assessment may take place from the second to the fourth quarter of the year. Clearstream Risk Management assesses the materiality of the Group's risk cluster by determining their potential impact on the entity's required economic capital. If the impact is valued greater than 1% of the economic capital, then the risk category is classified material. In terms of financial risk, each risk item is first assessed for materiality before the material risk items' exposures are incorporated into quantification. With regard to business and operational risk, the risk items (in the form of scenarios) are first quantified according to the applicable risk assessment procedures. Consequently, the materiality evaluation per risk item is implicitly determined by linked scenarios. CBL also performs risk-wide stress tests, which incorporate the interaction of all material risk types.

Material risks associated with products and services provided by CBL

In line with Article 34 (5) of CSDR, CBL discloses to all customers information that allows them to assess the risks associated with the products and services provided. CBL explicitly states the risks associated with each product or service it offers. The ICSDs' product documentation and, in particular, the Client Handbook and Product Guides provide customers and (indirectly) their respective clients with necessary information to assess the risks they face when contracting with CBL. Thus, customers can perform their own risks assessments and handle the risk the CSD poses to them.

Material risks posed by CBL to other entities

CBL's interconnectedness to other FMIs (for example, stock exchanges, CCPs) makes substitution difficult, thereby increasing its interdependencies and subsequent potential operational and financial risks that could be posed to others.

As a result, CBL addresses the risks arising from interdependencies with other entities via crisis management arrangements outlining different scenarios of disruptions potentially caused by such interdependencies. These procedures also include alert escalation mechanisms, joint key crisis contact lists and joint contingency procedures.

Additionally, a business impact assessment (BIA) is performed on the core CSD functions at business unit level of the business lines in order to identify the critical functions and accordingly define unit recovery plans to support the business continuity and incident & crisis management measures that can assure CBL can adequately address the potential risk exposures identified from internal and external interdependencies and interconnectedness.

Moreover, when a participant is identified as "key participant", due diligence is complemented by additional questions to assess the key participant's potential interdependencies on third-party providers for critical services.

All relevant data and information are collected, assessed and reported by the company's Risk Management team. The general risk management framework processes and procedures on which CBL relies for (i) assessing the effectiveness and (ii) reviewing risk management systems and tools, as described under [key consideration 1](#), are also applicable to risks related to interdependencies.

Clearstream Risk Management reports to CBL's EB, the Audit Committee as well as to the Risk Committee on a quarterly basis and to the SB on a yearly basis regarding the overall risk exposure profile of CBL. In those reports, the responsible EB members are informed of any material risks, their assessment and possible immediate countermeasures. The risk reports include and focus in particular on the VaR figures as for Pillar II (risk bearing capacity statement), Clearstream's risk strategy and potential issues, as well as stress test results and credit concentration assessment. In case of a material impact of a new risk or the development of an existing risk, the Risk Management team may issue an ad hoc report to the relevant recipients.

Key consideration 4

An FMI should identify scenarios that may potentially prevent it from being able to provide its critical operations and services as a going concern and assess the effectiveness of a full range of options for recovery or orderly wind-down. An FMI should prepare appropriate plans for its recovery or orderly wind-down based on the results of that assessment. Where applicable, an FMI should also provide relevant authorities with the information needed for purposes of resolution planning.

Scenarios that may prevent CBL from providing critical operations and services

CBL has identified different idiosyncratic and systemic scenarios, which could potentially prevent it from being able to provide its critical operations and services as going concern. The scenarios are based on plausible near default events taking into account the requirements of the Annex to DR 2017/390, particularly points 6 and 7. In total, CBL has identified eight stress scenarios, which are classified into following categories:

- Different idiosyncratic scenarios affecting CBL's operational capacity as well as its capital and liquidity profile;
- Different market-wide scenarios affecting mainly CBL's liquidity and capital profile;
- A combination of idiosyncratic and market-wide scenarios to derive a larger stress magnitude, based on which the effectiveness of appropriate mitigating tools is tested accordingly.

Recovery and orderly wind-down plans

CBL distinguishes between requirements for a recovery plan (mitigating a near-default situation), a restructuring and wind-down plan (ensuring a solvent wind-down) and a resolution plan (insolvent wind-down).

The recovery plan as well as the restructuring and wind-down plan are drawn up and maintained by CBL. Their purpose is to set out available tools of CBL to overcome severe financial and operational shocks that could potentially undermine CBL's viability and the sustainability of its business. Ultimately, the plans aim at ensuring the continuity of CBL's critical operations and services, also preventing significant adverse effects on the financial system. The resolution plan, on the other hand, is owned and drawn up by the National Resolution Authority (NRA) with the objective to resolve CBL in an orderly manner in case the strategies under the recovery plan or the restructuring and wind-down plan are not sufficient to prevent the failure of CBL. In concrete terms this means that CBL can no longer meet its obligations as they fall due or is at immediate and evident risk of not being able to do so ("fail-or-likely-to-fail" situation according to BRRD). CBL provides continuous support to the NRA for the preparation and maintenance of the resolution plan.

As aforementioned, the recovery, restructuring and wind-down plans, outline the critical operations and services of CBL, which were identified and assessed in accordance with the requirements stipulated in EBA/Op/2015/05 and the Commission Delegated Regulation (EU) 2016/778. A function was classified as "critical", when its discontinuance is likely to lead to a disruption of services that are essential to the real economy or financial stability in one or more member states and when that specific function cannot be adequately substituted, that means other market participants are not able or willing to take over the functions provided by CBL in an adequate timeframe.

The recovery plan includes eight scenarios which assess whether CBL's critical operations and services are affected as a going concern. The selected scenarios stand for severe but plausible near-default situations covering a full range of stresses, both CBL specific (idiosyncratic) and market-wide (systemic). In general, the scenarios simulate the stress on CBL's liquidity, capital, profitability and operational capacity. Furthermore, they test the adequacy of various recovery measures available to CBL, each with an execution plan identifying key processes and potential barriers to implementation.

CBL has identified a number of viable recovery options and evaluated them towards their applicability in times of stress. These options aim at helping CBL to restore its financial and operational viability in stress situations. They are grouped in recovery options covering the aspects of capital, liquidity, risk positions, and operational capacity.

The recovery plan as well as the restructuring and wind-down plan are reviewed and updated by Clearstream Risk Management at least annually to ensure their continuous improvement. The plans are subject to approval by CBL's Executive Board before being submitted to the regulators. The review and update process is initiated in one of the following cases:

- Regular annual review;
- Significant changes in the legal or organisational structure of Clearstream;
- Significant changes of the business model or the business activities of Clearstream;
- Significant changes with respect to the financial or the risk situations, that have essential effects on the recovery plans;
- Other important reasons that may apply.

Principle 4: Credit risk

An FMI should effectively measure, monitor, and manage its credit exposure to participants and those arising from its payment, clearing, and settlement processes. An FMI should maintain sufficient financial resources to cover its credit exposure to each participant fully with a high degree of confidence. In addition, a CCP that is involved in activities with a more-complex risk profile or that is systemically important in multiple jurisdictions should maintain additional financial resources sufficient to cover a wide range of potential stress scenarios that should include, but not be limited to, the default of the two largest participants and their affiliates that would potentially cause the largest aggregate credit exposures to the CCP in extreme but plausible market conditions. All other CCPs should maintain, at a minimum, total financial resources sufficient to cover the default of the one participant and its affiliates that would potentially cause the largest aggregate credit exposures to the CCP in extreme but plausible market conditions.

Key consideration 1

An FMI should establish a robust framework to manage its credit exposures to its participants and the credit risks arising from its payment, clearing, and settlement processes. Credit exposure may arise from current exposures, potential future exposures, or both.

CBL's framework to manage its credit exposures to its participants and the credit risks related to all of its business activities that give rise to credit risk (see below for details) is composed of the Clearstream credit strategy, the Credit Policy and the Credit Handbook. The credit strategy articulates the high-level core credit principles for the maintenance of a robust credit risk framework in order to maintain credit decisions that are determined according to well-defined and objective credit granting criteria. The said principles are designed to ensure the following:

- Credit exposures to individual customers and customer groups are fully secured through the use of collateral and other equivalent financial resources;
- Intraday and overnight credit risk is identified, measured, monitored, and managed;
- Collateral and other equivalent financial resources used to fully cover corresponding credit exposures are measured, monitored, and managed;
- Potential residual credit exposures are identified, measured, monitored and managed;
- Reimbursement procedures along with sanctioning rates are maintained, to discourage overnight credit exposures;
- Controls exist to maintain the reporting of credit exposures in accordance with regulatory requirements;
- Information on aspects of credit risk measurement, monitoring and management are regularly disclosed to the market.

CBL is exposed to credit risk arising from a number of different sources but mainly from settlement and custody activities. Credit appetite is defined as CBL's non-binding tolerance for accepting credit risk. It is approved by the company's Executive Board, taking into account CBL's business strategy, its role as an operator of a securities settlement system (SSS), as well as the

target risk profile on its credit portfolio. Credit appetite is expressed numerically as the maximum amount of all credit limits available to customers and counterparties, plus a predefined threshold.

Key elements of CBL's framework for managing credit risk include testing of credit limits, collateral, internal credit ratings and credit control, as well as stress testing.

The governing principles of the framework for managing credit risk are determined by CBL's Executive Board. The Board members review and approve the credit strategy on an annual basis. The Board also assumes responsibility for ensuring that CBL's credit activities are executed within the said framework. In accordance with Article 59 (3) (a) of CSDR, the documents forming the company's credit risk framework has been filed with the relevant competent authorities.

Key consideration 2

An FMI should identify sources of credit risk, routinely measure and monitor credit exposures, and use appropriate risk-management tools to control these risks.

Credit risk may arise from custody and settlement, treasury and securities financing activities and Bridge settlement.

Credit risk arising from settlement activities

For settlement activities, credit risk arises when CBL grants intraday credit (cash loans) to customers. CBL grants cash loans to its customers in order to increase the efficiency of securities transaction settlement. Customer cash financing is granted on an intraday basis and solely for the purpose of increasing the efficiency of securities settlement. It is offered via unconfirmed funds facilities (UCFs) and technical overdraft facilities (TOFs). The size of these credit lines is defined as a function of the trading activity and credit worthiness (or internal rating, respectively) of the customer, as well as the availability of appropriate collateral.

TOFs and UCFs for CBL customers are governed by CBL's General Terms and Conditions (GTCs) and Credit Terms and Conditions (CTCs). They are mostly granted on a secured basis and are fully collateralised. Unsecured credit limits may be granted to strong credit quality counterparts where zero risk weight is applied by Regulation (EU) No 575/2013 with specific approval by CBL's Executive Board.

The company's rules with respect to the granting of intraday credit facilities to customers set out a "waterfall principle" that applies to the allocation of the proceeds after the enforcement of the collateral is extended to secure the borrower's exposure under the CTCs.

CBL ensures that it does not take any unacceptable credit risk without sufficient collateral in place, nor any unacceptable liquidity risk by ensuring it has access to sufficient qualifying liquid resources (QLRs). Credit lines remain uncommitted and can be revoked at any time.

- **Credit risk arising from UCFs:** CBL grants UCFs which are intraday credit facilities designed to facilitate the settlement of securities transactions, to provision customer foreign-exchange (FX) trades, and to withdraw income proceeds. UCFs may also facilitate the provisioning of cash withdrawals upon approval of CBL's Executive Board. UCFs enable customers to purchase securities or settle FX trades based on an anticipated receipt of funds from either a pre-advance, a sale of securities over the Bridge with Euroclear Bank or a sale over a domestic market link.

- **Credit risk arising from TOFs:** TOFs are intraday credit facilities which are used to facilitate the settlement of securities transactions. TOFs enable customers to borrow funds to purchase securities and provision customer FX trades. TOFs may also facilitate the provisioning of cash withdrawals upon approval of CBL's Executive Board.

Credit risk arising from securities lending activity

Credit risk may arise from securities lending activity, that means, services provided via CBL's ASL and ASLplus programmes. ASL, which was activated in 2021 and until December 2022 had no active transactions, provides opportunities for borrowers to avoid settlement failures, and for lenders to earn additional income from their portfolios. Under ASLplus, CBL acts as contractual counterparty under the loans with the lender, on behalf of underlying borrowers, based on a commission agency arrangement between CBL and such borrowers. All lending transactions are fully collateralised and only selected securities are accepted as collateral.

Credit risk arising from the Bridge with Euroclear Bank S.A.

The Bridge with Euroclear Bank is a source of credit risk should Euroclear Bank default before paying for securities delivered. To offset this risk a letter of credit is used.

The creditworthiness of potential customers is assessed before entering into a business relationship. CBL establishes customer-specific credit lines based on regular reviews of the customer's creditworthiness and ad hoc analysis as required.

Measuring and monitoring of credit exposures

Deutsche Börse's Group Credit & Default Management team provides independent credit assessments, internal credit ratings and credit monitoring on all of the Group's credit risk related activities. These services are offered to several Deutsche Börse Group entities including CBL under the existing outsourcing agreements. All of CBL's credit services have been outsourced to Clearstream Services S.A. and to Clearstream Banking S.A. Singapore Branch. Group Credit & Default Management is responsible for implementing the credit strategy and developing policies and procedures aimed at identifying, measuring, monitoring, controlling and reporting credit risk for all activities throughout CBL. Part of the monitoring and reporting function is performed by a Credit Monitoring unit within Group Risk Management.

Group Credit & Default Management also performs independent assessments of the creditworthiness of CBL's counterparties with credit limits. The team maintains systems and operating procedures for early warning and remedial action with respect to credit deterioration. In addition, the team ensures that credit exposures remain within levels consistent with prudential standards and within predefined limits, and that exceptions to credit policies, procedures and limits are reported on a timely basis to CBL's Executive Board and the [Clearstream Risk Committee](#).

As part of their measuring and monitoring responsibilities, Group Credit & Default Management and the Credit Monitoring team ensure the following:

- Credit exposures to individual customers and customer groups are fully secured through the use of collateral and other equivalent financial resources;
- Intraday and overnight credit risk is measured, monitored, and managed;
- Collateral and other equivalent financial resources used to fully cover corresponding credit exposures are measured, monitored, and managed;
- Potential residual credit exposures are measured, monitored, and managed;

- Reimbursement procedures along with sanctioning rates are maintained, to discourage overnight credit exposures;
- Controls exist to maintain the reporting of credit exposures in accordance with regulatory requirements.

In addition, CBL uses the following tools to control identified sources of credit risk and undue credit risk concentration: the Credit Exposure Monitoring Tool (CEMT), the Exposure Management & Collateral reporting tool (EMC2) and the DvP Model 1 settlement system, which ensures simultaneous settlement of securities and funds transfers on a gross (trade-by-trade) basis. These tools allow CBL to aggregate and measure exposures. The risk management system is updated at regular intervals and provides a consolidated view of credit exposures arising from securities settlement-related credit exposures, calculated close to real time. The system also allows the generation of automatic and on-demand reports used in the process of measurement and monitoring.

Daily, weekly, monthly and quarterly controls and reporting are performed by the Credit Monitoring team.

Model 1 DvP system

Clearstream operates a Model 1 DvP system, ensuring simultaneous settlement of securities and funds transfers on a gross (trade-by-trade) basis. Funds and securities transfers process within the same (settlement) system. When customers give instructions to deliver or receive securities against payment, each securities transfer links to the specific payment. Accordingly, customer transactions settle by simultaneous book-entry debits and credits in their respective accounts. Book entries effected after completion of a processing run settle in such a way as to optimise settlement while remaining within pre-defined limits. As the Model 1 DvP system ensures true delivery versus payment, failure to settle does not result in the unwinding of the concerned settlement instruction.

Key consideration 3

A payment system or SSS should cover its current and, where they exist, potential future exposures to each participant fully with a high degree of confidence using collateral and other equivalent financial resources (see Principle 5 on collateral). In the case of a DNS payment system or DNS SSS in which there is no settlement guarantee but where its participants face credit exposures arising from its payment, clearing, and settlement processes, such an FMI should maintain, at a minimum, sufficient resources to cover the exposures of the two participants and their affiliates that would create the largest aggregate credit exposure in the system.

To fully cover exposures to each participant, CBL applies a conservative approach to credit granting and to its collateral eligibility criteria. CBL mitigates credit risk on counterparties by granting credit mostly on a fully collateralised basis. Unsecured credit limits may be granted to strong credit quality counterparties where zero risk weight is applied by Regulation (EU) No 575/2013 with specific approval by CBL's Executive Board. The company accepts securities as collateral and applies conservative haircuts (see also Principle 5). Through the application of sound collateral eligibility criteria, conservative haircut treatment in the valuation of collateral, and active monitoring for credit deterioration (at the individual customer level and on customer group level), CBL maintains and holds sufficient resources to offset both current and potential future exposure.

Credit limits

CBL assesses customers' creditworthiness to set individual credit limits to its customers for the purpose of managing intraday credit risk. CBL only grants credit to selected customers who can satisfy its stringent requirements. When it does so, CBL grants credit:

- For specific, well-defined purposes (e.g. settlement of securities transactions);
- Only on an intraday basis;
- Within the limits of the customer's credit facilities;
- To the extent that there is sufficient collateral available to secure the customer's obligation (unless credit limit is unsecured).

Credit limits are granted within in the said scope to individual customers but monitored at an institutional, customer group and country level. Processes are in place to ensure prompt identification, accurate assessment, proper approval, and consistent monitoring and reporting of credit risk.

The following sections outline CBL's principles for credit limits for its main credit granting activities, that is on securities transaction settlement, securities financing transactions and the ASLplus programme.

- Credit limits on settlement of securities transactions:

When granting credit with respect to the facilitation of the settlement of securities transactions, collateral is pledged on customers' accounts opened with CBL. In order to mitigate market and liquidity risk on collateral, a haircut is applied to the calculation of collateral with respect to the valuation of securities. The purpose of the haircuts is to offset the potential loss of value (including liquidation costs) that may result from adverse price moves over the liquidation period. For details please refer to [Principle 5](#).

Securities prices are automatically collected, on a daily basis, from several recognised external information providers. Where no price is available by eligible information providers or by other market infrastructures (e.g. depositories) the price of a security will be the issue price. Where a price does not list on a stock exchange, acceptance of such security is determined according to the market maker's price. For equity instruments, the issue price is required at the initial setup of the security. CBL will apply additional haircuts to the latest available price if no new price becomes available. For periods beyond two days, a haircut of 100% will be applied.

- Credit limits on securities financing transactions:

Credit limits on securities financing transactions are fully secured. Under the Automated Securities Lending (ASL) programme, customers can borrow securities from lenders who are also customers of CBL. An ASL limit identifies the maximum counter value of securities that a customer may borrow. ASL is fully integrated in CBL's settlement engine and, as such, applies the same collateral eligibility criteria and haircuts as are applied on settlement limits. As collateral agent under the ASL programme, CBL monitors daily collateral eligibility, collateral values, concentration limits, the mark-to-market revaluation view of the loan and of the collateral, and the automatic collateral substitution. Collateral used to secure ASL exposures is available in the system, thus ensuring that for each new loan, collateral is sufficient to cover the exposure in relation to securities borrowing. Moreover, CBL guarantees vis-à-vis the ASL lenders in case of a borrower default thereby reducing their counterparty risk.

– Credit limits on ASLplus programme

For the ASLplus programme, CBL acts as contractual counterparty under the loans with the lender and lends securities to market participants through various counterparties. Credit limits for borrowers on ASLplus transactions are fully secured. Collateral generally takes the form of high-quality, liquid fixed-income securities. Collateral eligibility criteria include the type of security, issuer credit rating, term-to-maturity, currency, and country of issuance. Cash is accepted on an exceptional basis provided it is substituted by eligible securities by the following business day. According to the terms of the ASLplus programme, collateral received by CBL from borrowers via transfer of title is pledged (second ranking for CBL, the lenders receive a first-ranking pledge) to the lenders and registered in a specific collateral account opened in the name of Clearstream International S.A. as collateral agent. The ASLplus programme under its current form is not bearing any credit risk for CBL. Clearstream receives the collateral via a transfer of title from the borrowing customers and pledges the securities onwards to the lenders as first-ranking pledge. The collateral is re-evaluated and monitored daily. In order to mitigate market and liquidity risks on ASLplus transactions, haircuts apply.

Haircuts are set taking into criteria listed in Articles 13 (3) and 14 (2) of DR 2017/390 such as issuer type, term to maturity, credit risk, the country of issuance, and rating of the underlying assets. Additional qualitative limits are established to mitigate, among others, concentration and correlation (“wrong-way”) risks. Such limits provide an important cushion against the risk of “contagion” under situations of market stress, which is relevant for CBL given that its clientele is naturally concentrated towards financial institutions.

In case of a counterparty default, collateral held either for settlement limits, ASL or ASLplus can be enforced immediately, subject to a final decision of CBL’s Executive Board.

Placement and repo limits for Treasury transactions

For collateral management services, certain triparty repo transactions requiring DvP settlement in commercial bank money, will trigger settlement credit exposure on either of the two counterparties to the trade (that is, at opening or closing of the trade).

CBL grants credit to counterparties in support of its own treasury activities. The Treasury team’s investment strategy is driven by the cash amounts customers leave on their settlement accounts with CBL. Treasury invests funds in a manner to allow maximum liquidity within one business day. This is achieved through overnight secured and unsecured placements and through the use of overnight foreign exchange swaps.

A placement limit is the approved amount that Treasury can place with counterparties in the interbank market. Placement limits are unsecured and extended to customers, market counterparties and CCBs to cover the investment of surplus funds and cash balances left in nostro accounts.

Reverse repos are executed on a bilateral or triparty basis. Securities received as collateral under term reverse repos are transferred to BCL to access liquidity should it be necessary. In order to protect the lender against a change in the market value of the securities over the life of the contract, an initial haircut is agreed upon by the two parties at the start of the transaction. The amount of the initial haircut depends on various factors such as credit quality, liquidity and price volatility of the underlying security, credit quality of the counterparty, duration of the repo contract and market convention. It is not market practice to establish an initial haircut in short-term repos involving high-grade collateral; therefore, Treasury is allowed to enter into reverse repo contracts up to three months without applying an initial haircut.

Term reverse repo contracts (that means reverse repo contracts with a maturity of more than one business day) are marked to market daily. Should the market value of the securities received as collateral fall below a certain pre-agreed tolerance level (normally, EUR 10 million), additional

margin would be called. Conversely, should the market value of the collateral rise above the pre-agreed tolerance level, the counterparty would normally demand cash (or securities) equivalent to the amount of the excess.

The company's Treasury Liquidity Management Policy establishes minimum eligibility criteria for securities to be eligible as collateral under reverse repo transactions. Criteria include issue rating, maximum maturity, coupon type, issuer type, minimum issue (or programme) size, and maximum limit per issue (or programme). In order to ensure the collateral is of strong credit quality and liquidity, securities must be rated at least AA- (by S&P or Fitch) or Aa3 (by Moody's) in accordance with the Policy (the lower rating applies). In the absence of an issue rating, an issuer rating can be used.

In order to minimise concentration risk on collateral accepted on terms reverse repo transactions, CBL monitors collateral concentration by country of risk on a monthly basis. In addition, CBL monitors the collateral composition in terms of external credit ratings and issuer type.

Key consideration 4

A CCP should cover its current and potential future exposures to each participant fully with a high degree of confidence using margin and other prefunded financial resources (see Principle 5 on collateral and Principle 6 on margin). In addition, a CCP that is involved in activities with a more-complex risk profile or that is systemically important in multiple jurisdictions should maintain additional financial resources to cover a wide range of potential stress scenarios that should include, but not be limited to, the default of the two participants and their affiliates that would potentially cause the largest aggregate credit exposure for the CCP in extreme but plausible market conditions. All other CCPs should maintain additional financial resources sufficient to cover a wide range of potential stress scenarios that should include, but not be limited to, the default of the participant and its affiliates that would potentially cause the largest aggregate credit exposure for the CCP in extreme but plausible market conditions. In all cases, a CCP should document its supporting rationale for, and should have appropriate governance arrangements relating to, the amount of total financial resources it maintains.

Not applicable to CBL.

Key consideration 5

A CCP should determine the amount and regularly test the sufficiency of its total financial resources available in the event of a default or multiple defaults in extreme but plausible market conditions through rigorous stress testing. A CCP should have clear procedures to report the results of its stress tests to appropriate decision makers at the CCP and to use these results to evaluate the adequacy of and adjust its total financial resources. Stress tests should be performed daily using standard and predetermined parameters and assumptions. On at least a monthly basis, a CCP should perform a comprehensive and thorough analysis of stress testing scenarios, models, and underlying parameters and assumptions used to ensure they are appropriate for determining the CCP's required level of default protection in light of current and evolving market conditions. A CCP should perform this analysis of stress testing more frequently when the products cleared or markets served display high volatility, become less liquid, or when the size or concentration of positions held by a CCP's participants increases significantly. A full validation of a CCP's risk-management model should be performed at least annually.

Not applicable to CBL.

Key consideration 6

In conducting stress testing, a CCP should consider the effect of a wide range of relevant stress scenarios in terms of both defaulters' positions and possible price changes in liquidation periods. Scenarios should include relevant peak historic price volatilities, shifts in other market factors such as price determinants and yield curves, multiple defaults over various time horizons, simultaneous pressures in funding and asset markets, and a spectrum of forward-looking stress scenarios in a variety of extreme but plausible market conditions.

Not applicable to CBL.

Key consideration 7

An FMI should establish explicit rules and procedures that address fully any credit losses it may face as a result of any individual or combined default among its participants with respect to any of their obligations to the FMI. These rules and procedures should address how potentially uncovered credit losses would be allocated, including the repayment of any funds an FMI may borrow from liquidity providers. These rules and procedures should also indicate the FMI's process to replenish any financial resources that the FMI may employ during a stress event, so that the FMI can continue to operate in a safe and sound manner.

The company's Credit Terms and Conditions (CTCs) provide that further to the enforcement of the first-ranking-security interest granted over the assets held in pledged accounts in favour of CBL, the latter shall apply any amount of proceeds of such enforcement to the payment of the borrower secured obligations.

Potentially uncovered credit losses may materialise when, in the event of a liquidation process being triggered, either (i) collateral and other equivalent financial resources (pursuant to Article 15 of DR 2017/390) are insufficient to cover credit exposures or (ii) no collateral is available to cover credit exposures.

Allocation of potentially uncovered credit losses (as per Article 25 (2) (a) of DR 2017/390) follows the procedures as defined in the Clearstream Liquidation Framework: If at the end of the liquidation process, (i) all the collateral of the defaulting participant has been liquidated, and (ii) the outstanding exposure has not been fully covered by the corrective measures, and (iii) there is no other recourse to cover the remaining exposure, then the uncovered exposure will lead to the materialisation of a loss for CBL. There is no mutualisation of the loss with other participants.

Additionally, CBL has a recovery plan to ensure the continuity of its critical functions if its capital, liquidity or operational capacity are adversely affected. As such, should operational or credit losses reach an amount that affects the capital situation of CBL significantly and threatens the continuity of its critical functions, CBL has numerous recovery options at its disposal to restore the capital situation and ensure its going concern, as outlined in [Principle 3, key consideration 4](#).

For details on replenishment of financial resources, please refer to [Principle 7, key consideration 10](#).

Principle 5: Collateral

An FMI that requires collateral to manage its or its participants' credit exposure should accept collateral with low credit, liquidity, and market risks. An FMI should also set and enforce appropriately conservative haircuts and concentration limits.

Key consideration 1

An FMI should generally limit the assets it (routinely) accepts as collateral to those with low credit, liquidity, and market risks.

The general principles under which CBL considers financial assets acceptable for the collateralisation of credit limits are defined in the Clearstream Credit Strategy and documented in the Clearstream Credit Policy. Both the Policy and the Strategy are reviewed and approved annually by the Executive Board of CBL.

Within the scope of the Credit Policy, "collateral" means any financial security, in any form, that is held by CBL to mitigate credit risk and that would be liquidated or otherwise used in the event of a counterpart defaulting. The term "acceptable collateral" is defined in the Policy as financial securities that fulfil certain common standards, also called collateral eligibility criteria. These are outlined in the following paragraphs:

- CBL accepts collateral according to the conditions specified in Articles 9, 10 (1) (Tier 1a) and 10 (2) (Tier 1b) of the Commission Delegated Regulation (EU) 2017/390 of 11 November 2016 supplementing Regulation (EU) No 909/2014 (hereinafter "DR 2017/390"). As such, only collateral in the form of debt instruments, transferable securities and money market instruments issued by governments, certain public authorities and issuers with low credit risk (rated BBB- or above), low market and low liquidity risk may qualify subject to specific conditions ensuring that it can be liquidated within one day.
- Other collateral that does not meet the definition of highly liquid collateral with minimal credit and market risk may also be accepted to the extent that CBL has access to routine credit with its central banks that accept such collateral ("highly liquid collateral"). Such securities are only accepted if the criteria stipulated in Article 11 (1) (Tier 2) of DR 2017/390 are met.
- Other types of collateral meeting the requirements stipulated in Article 11 (2) (Tier 3) of DR 2017/390 that are not eligible with the central banks may still be accepted if CBL holds other qualifying liquid resources (QLRs) to cover the time required to liquidate such collateral, which should not be longer than five days.

By applying these collateral eligibility criteria, CBL ensures it does not take any unacceptable credit risk without sufficient collateral in place, nor any unacceptable liquidity risk by ensuring it has access to sufficient QLRs.

Key consideration 2

An FMI should establish prudent valuation practices and develop haircuts that are regularly tested and take into account stressed market conditions.

CBL has a collateral valuation system in place to set haircuts and concentration limits for collateral which take into account criteria such as the instrument type, maturity, credit risk, country of issuance, price volatility, liquidity, industry and denomination currency. Collateral valuation and monitoring is based on a mark-to-market model and is performed on a near-to-real-time basis collateral values with credit and market risk.

When collateral is considered eligible at the central bank, CBL applies a central bank floor rule to ensure that the haircuts applied are not lower than the haircuts applied by the central bank to that type of collateral. Stressed market conditions are taken into account using the price volatility risk factor of the collateral valuation system; haircuts are assigned accordingly. Regular haircut back testing is conducted in order to assess the robustness of the collateral haircuts.

CBL's collateral management system appropriately covers its core activities as a custodian and securities settlement system (SSS), all by allowing to accommodate to potential changes in collateral management practices and procedures. For details on the system's functionalities, please refer to Key consideration 6.

Securities recorded in CBL's collateral management system are revalued on an ongoing basis against the valuation matrix for changes in the value of risk factors, or changes in parameters within the valuation matrix. Any change in the valuation matrix, or from changes in either risk factors or parameters will automatically trigger a recalculation of the haircut applied to the collateral valuation of securities. These collateral valuation and provision processes are embedded in CBL's SSS and do not require any manual intervention.

In order to mitigate the market and liquidity risks on securities used as collateral, CBL applies a haircut in the calculation of the security collateral value (SCV). Generally, haircuts aim at covering the potential loss of value of the collateral security due to adverse price moves over the liquidation period (i.e. the period between the default of the counterparty and the actual sale of the collateral), as well as costs incurred in the liquidation of the asset. Haircuts are expressed as a percentage and its amount reflects the characteristics of the security and not the customer's creditworthiness.

Key consideration 3

In order to reduce the need for procyclical adjustments, an FMI should establish stable and conservative haircuts that are calibrated to include periods of stressed market conditions, to the extent practicable and prudent.

In accordance with Article 13 (6) of DR 2017/390, collateral haircuts are calculated in a conservative manner to limit pro-cyclicality as far as possible. The CBL system which calculates the collateral haircut is based on a set of different risk categories thus helping to limit the effects of pro-cyclicality that could potentially arise from a single risk category. In addition, calculation takes into consideration the five-days period as a maximum time for liquidation.

To comply with Article 13 (5) of DR 2017/390, no collateral value is assigned to securities provided by an entity belonging to the same group as the borrower. CBL does not grant collateral value to correlated entities and negates the collateral value from correlated securities.

The annual review of the collateral policies and procedures is another measure to limit the effects of pro-cyclicality. If collateral haircuts are deemed too low as a result of ensuing macro-economic developments, CBL can increase the haircuts if necessary. CBL's internal credit rating, which is also used to rate the collateral issuer helps to balance any pro-cyclicality that may arise from external rating agencies ratings.

CBL's policies and procedures on collateral haircut determination take into account the fact that collateral may need to be liquidated under stressed market conditions. Collateral stress tests are conducted in order to ensure the robustness of the collateral haircuts in stressed market conditions.

Key consideration 4

An FMI should avoid concentrated holdings of certain assets where this would significantly impair the ability to liquidate such assets quickly without significant adverse price effects.

A concentration of credit risk refers to a credit exposure with the potential to produce losses large enough to threaten CBL's financial condition. Unduly high concentration of credit risk has the potential to cause material losses which could significantly weaken the company's competitive position in the market and/or lead to a credit ratings downgrade, resulting in a loss of customer confidence. In the course of its credit granting activities, CBL might be indirectly exposed to concentration risks in its collateral pool. This risk may materialise as the potential loss which CBL may suffer during the default management process, due to an insufficient diversification of this pool.

Therefore, CBL actively monitors concentration and correlation risks in its collateral pool. Collateral concentration limits are monitored at both the CBL level and the customer level. Collateral concentrations are monitored across multiple concentration criteria and limit types, such as issuer, country, wrong way risk, instrument type, settlement currency, instrument's credit rating, ECB eligibility, liquidity and price volatility.

Customer breaches to any of the said concentration limits are monitored, analysed and reported, triggering respective risk mitigation measures until the breach is remediated. Collateral concentration limits and procedures are subject to regular review, at least on an annual basis. More frequent reviews may be conducted in case of deteriorating market conditions or where material changes demand such a review.

Key consideration 5

An FMI that accepts cross-border collateral should mitigate the risks associated with its use and ensure that the collateral can be used in a timely manner.

The legal risks that arise through the use and acceptance of cross-border collateral at CBL relate primarily to conflicts of laws with respect to the creation, perfection and enforcement of such collateral. The legal framework for the creation, perfection and enforceability of collateral is provided under the law on financial collateral agreements of 5 August 2005 ("Law on Collateral") as amended, which implements the Financial Collateral Directive 2002/47/EC of 6 June 2002. The Law on Collateral provides for effective and flexible mechanisms to ensure the creation, perfection and enforceability of a pledge over financial instruments, as well as a ring-fencing of pledged financial instruments, which increases the protection in case of bankruptcy, insolvency or similar collective liquidation proceedings.

According to the Law on Collateral, the pledger is deemed the owner of the pledged securities unless the said pledger has notified or informed the pledgee, in advance and in written form, of absence of ownership rights. However, the pledge remains valid should the pledger confirm it has received consent from the underlying owner to grant the pledge.

The intraday technical overdraft facilities (i-TOFs) and unconfirmed funds facilities (UCFs) for CBL customers are governed by CBL's General Terms and Conditions (GTCs) and Credit Terms and Conditions (CTCs). The GTCs are governed by Luxembourgish law. According to the GTCs, CBL has a general right of retention on all assets held on the customer's CBL accounts (Article 43: General right of retention). In addition, all assets held by the customer at CBL are pledged in favour of CBL to secure credit facilities granted to the customer (Article 44: Right of pledge). Customers are required to notify CBL if assets held on CBL accounts cannot be used as collateral and must be segregated (for example, "non-proprietary assets"). According to Article 46 of the GTCs, CBL has the right to set off credit and debit balances on any account of the customer at any time. In addition, it is authorised to sell any securities to cover a debit balance without prior notice.

CBL ensures that cross-border collateral can be used in a timely manner through the following measures:

- Requiring a first-ranking pledge on the securities pledged as collateral, which is deposited in CBL's system;
- Adhering to a strict policy of selection of its network of depository institutions, including the performance of regular reviews (see [Principle 16](#) for details);
- Maintaining updated default management and collateral realisation procedures (see [Principle 13](#) for details);
- Monitoring the concentration of collateral per currency.

It is therefore widely accepted that the use and acceptance of cross-border collateral at CBL, whilst subjecting CBL to legal risk, does not carry any additional risk with respect to operational and market risk.

Key consideration 6

An FMI should use a collateral management system that is well-designed and operationally flexible.

CBL's collateral management system is well-designed and equipped with an easy-to-use user interface by the company's IT department which offers full on-site support and maintenance. The collateral management function is sufficiently staffed to ensure maintenance or adaptation of the collateral eligibility parameters even in stressed market conditions. The fully automated collateral management system comprises the following main functionalities:

- Automatic collateral haircut calculation,
- Flexible maintenance of haircut parameters,
- Reporting functionality allowing for detailed analysis of collateral pool,
- Automatic exclusion of correlated collateral,
- Maintenance function for classification purposes.

The design of CBL's collateral management system allows for flexible maintenance of haircut parameters. Thus, changes in a collateral haircut due to changes in the value of one of the risk parameters are reflected and applied within CBL's settlement system via the Asset Reevaluation Manager (ARM) function. Furthermore, the system provides a flexible collateral-percentage-override function, for example for negating collateral value from securities that are issued by issuers that are facing financial or legal troubles. This is accompanied by the flexible collateral-tier-override function and flexible query reporting functions.

Principle 6: Margin

A CCP should cover its credit exposures to its participants for all products through an effective margin system that is risk-based and regularly reviewed.

Not applicable to CBL.

Principle 7: Liquidity risk

An FMI should effectively measure, monitor, and manage its liquidity risk. An FMI should maintain sufficient liquid resources in all relevant currencies to effect same-day and, where appropriate, intraday and multiday settlement of payment obligations with a high degree of confidence under a wide range of potential stress scenarios that should include, but not be limited to, the default of the participant and its affiliates that would generate the largest aggregate liquidity obligation for the FMI in extreme but plausible market conditions.

Key consideration 1

An FMI should have a robust framework to manage its liquidity risks from its participants, settlement banks, nostro agents, custodian banks, liquidity providers, and other entities.

Clearstream Banking S.A. (CBL) has established a robust framework to manage its liquidity risks evidenced by the following set of internal policies and procedures:

- Investment policy,
- Liquidity management policy, including a liquidity contingency funding plan and a qualifying liquid resource (QLR) handbook,
- Handbook on internal liquidity adequacy assessment process (ILAAP),
- Liquidity stress testing framework,
- Set of operational procedures including an intraday liquidity controls procedure and other procedures detailing all treasury processes,
- Recovery plan including the liquidity options to stabilise CBL's liquidity situation.

The above policies are reviewed and approved at least annually by CBL's Executive Board (EB). It is ensured that they are in line with the liquidity risk appetite as defined in Clearstream's risk strategy.

CBL's target for its liquidity management is the ability to manage its varying cash positions to have sufficient liquidity available in all currencies for a timely provision of settlement and payment services as they fall due, and to have in place measures to deal with unexpected disruptions to its cash flows.

Due to the nature of its business, CBL does not have any long-term obligations and does not require long term funding. Thus, CBL's liquidity requirements are mainly intraday and overnight.

With Clearstream Xact and Creation, CBL operates two securities settlement systems (SSS). The company manages its liquidity (including intraday) and associated risks stemming from its commercial bank money activities (refer to [key consideration 2](#) for details).

CBL achieves its liquidity management objectives through permanent measurement, monitoring and management of its liquidity requirements and liquid resources. For this purpose, the company has in place a range of ex-ante and ex-post measures addressing liquidity risk, including intraday liquidity risks, for each currency of the SSS for which CBL acts as settlement agent. Ex-ante measures include permanent liquidity buffers in main currencies, committed and uncommitted secured/unsecured liquidity facilities, real-time monitoring of expected cash flows etc., while ex-post measures include escalation procedures and regular stress testing.

From a normative perspective, CBL is required to maintain its liquidity coverage ratio (LCR) above the 100% regulatory requirement. Early warning indicators including an escalation procedure are in place. The LCR is calculated and monitored daily.

CBL's intraday objective is to execute payments and settlement as they fall due. To determine the amount of liquid resources required on an ongoing basis in each relevant currency, the company's Risk Management team runs a wide range of stress scenarios (see [key consideration 9](#) on stress testing). The level of required liquidity shall be the highest liquidity exposure identified in the various scenarios of stress.

Key consideration 2

An FMI should have effective operational and analytical tools to identify, measure, and monitor its settlement and funding flows on an ongoing and timely basis, including its use of intraday liquidity.

To meet its liquidity management objectives set in the liquidity management policy, CBL has implemented effective operational and analytical tools: all sources of liquidity risk are considered for the measurement, monitoring, and management of CBL's intraday liquidity management, including its relations to the participants of the SSS and linked financial market infrastructures or other entities that may pose liquidity risk to its intraday liquidity flows.

CBL's Credit department approves credit limits based on the various roles of its counterparts and considers the size of the total exposure on the applicant and all its affiliates. The monitoring process is described in further detail in [Principle 4](#).

The company has defined intraday liquidity management processes, timelines and thresholds for management escalation in case of non-receipt of funds along with a crisis management system alerting the appropriate level of management depending on the seriousness of incidents.

CBL's liquidity management policy states the roles and responsibilities when facing a crisis event where day-to-day liquidity generation measures would not be sufficient to cover a liquidity shortage in one or several currencies. The liquidity issue would be escalated to CBL's EB which can decide in view of the liquidity crisis event to activate exceptional liquidity generation measures.

To monitor its actual cash balances held with its cash correspondent banks and central banks, CBL captures credit and debit advices by its agents and intermediaries and compiles the current actual available intraday cash balances in all currencies on a near to real-time basis. The same applies to the matching of CBL's expected flows against incoming and outgoing funds.

CBL has specific intraday operational processes and procedures (mentioned in [key consideration 1](#)) to identify, measure and monitor intraday liquidity needs. The determination of the potential largest aggregate payment obligation is based on a wide range of stress tests, including stress tests implying customer defaults and idiosyncratic and/or market disruption elements.

To meet its intraday objectives, CBL has in place intraday funding sources. To determine the amount of liquid resources required on an on-going basis in each relevant currency, CBL runs a wide range of stress scenarios (see [key consideration 9](#) on stress testing).

According to the European Central Securities Depositories Regulation (CSDR), CBL also measures and monitors its own qualifying liquid resources on a currency basis.

Key consideration 3

A payment system or SSS, including one employing a DNS mechanism, should maintain sufficient liquid resources in all relevant currencies to effect same-day settlement, and where appropriate intraday or multiday settlement, of payment obligations with a high degree of confidence under a wide range of potential stress scenarios that should include, but not be limited to, the default of the participant and its affiliates that would generate the largest aggregate payment obligation in extreme but plausible market conditions.

CBL maintains as liquid resources own funds, customers' residual cash balances, multicurrency committed foreign-exchange (FX) swap and repo facilities, as well as intraday committed lines of credit.

CBL funds its qualifying liquid resources (as required by CSDR) with its own funds and own debts. CBL invests its own resources into high-quality liquid assets (HQLAs): bonds issued or guaranteed by top rated governments or supranational issuers. The uninvested part of its own resources is held in an account at Banque Centrale du Luxembourg (BCL). Both bonds and uninvested own funds are kept unencumbered on separate accounts under the direct management of the Treasury team as CBL's liquidity management function and may only be used as a source of contingent funds during stress periods. These assets can be directly transferred to BCL to generate intraday liquidity via CBL's credit line.

CBL tests on a regular basis the capacity of its liquidity providers to perform on their commitments to provide intraday liquidity.

CBL invests its available cash on a secured basis if possible or towards the end of the respective currency deadline to avoid as much as possible an unforeseen liquidity squeeze. CBL has a range of tools in place to manage liquidity gaps, such as, among others, secured borrowing, committed funding facilities, as well as credit lines with private institutions and BCL (see [key consideration 5](#) and [key consideration 6](#)).

CBL defines a minimum amount of QLR (see [key consideration 5](#)) needed to cover the liquidity impact resulting from a possible default of the two participants and their respective affiliates that would generate the largest aggregate intraday payment obligation for CBL in extreme but plausible market conditions.

To test the sufficiency of its liquid resources to be used as a source of backstop liquidity, CBL designed a set of liquidity stress scenarios that are in line with the requirements set out in the CSDR. Thus, CBL calculates forward-looking liquidity stress tests (including reverse stress tests) considering a number of extreme but plausible stress scenarios. One of those scenarios is the above-mentioned default of the two participants generating the largest aggregate payment obligation for CBL under stressed market conditions (Cover 2 + market stress). The stress tests are calculated for CBL (on single-entity level) and for Clearstream (on group level⁴).

Key consideration 4

A CCP should maintain sufficient liquid resources in all relevant currencies to settle securities-related payments, make required variation margin payments, and meet other payment obligations on time with a high degree of confidence under a wide range of potential stress scenarios that should include, but not be limited to, the default of the participant and its affiliates that would generate the largest aggregate payment obligation to the CCP in extreme but plausible market conditions. In addition, a CCP that is involved in activities with a more-complex risk profile or that is systemically important in multiple jurisdictions should consider maintaining additional liquidity resources sufficient to cover a wider range of potential stress scenarios that should include, but not be limited to, the default of the two participants and their affiliates that would generate the largest aggregate payment obligation to the CCP in extreme but plausible market conditions.

Sufficient liquid resources

Not applicable to CBL.

Risk profile and systemic importance in multiple jurisdictions

Not applicable to CBL.

Key consideration 5

For the purpose of meeting its minimum liquid resource requirement, an FMI's qualifying liquid resources in each currency include cash at the central bank of issue and at creditworthy commercial banks, committed lines of credit, committed foreign exchange swaps, and committed repos, as well as highly marketable collateral held in custody and investments that are readily available and convertible into cash with prearranged and highly reliable funding arrangements, even in extreme but plausible market conditions. If an FMI has access to routine credit at the central bank of issue, the FMI may count such access as part of the minimum requirement to the extent it has collateral that is eligible for pledging to (or for conducting other appropriate forms of transactions with) the relevant central bank. All such resources should be available when needed.

CBL mitigates risk arising from sources of liquidity risk, including banking-type ancillary services, with qualifying liquid resources (QLRs) in each relevant currency. The QLR handbook, which forms part of CBL's liquidity management policy, defines CBL's QLRs in detail. These are composed of the following items:

⁴ Clearstream group includes the credit institutions Clearstream Banking AG and Clearstream Banking S.A.

- Cash deposited at a central bank of issue on a non-operational account;
- Available cash deposited at a creditworthy financial institution;
- Committed lines of credit or similar arrangements, of which:
 - Committed FX swap lines,
 - Committed repo facilities,
 - Committed lines of credit including unsecured and syndicated facilities;
- Assets that fulfil the criteria of Article 10 of DR 2017/390 – CBL proprietary securities portfolio;
- Collateral that fulfils the criteria of Articles 10 and 11 of Commission Delegated Regulation (EU) 2017/390 (DR 2017/390), that means, pledged customer collateral which can be monetised on a same-day basis if the pledger defaults.

To be eligible as QLR, strict conditions mentioned in the QLR handbook (refer to [key consideration 1](#) on governance) apply for cash, committed lines of credit, assets and collateral.

To ensure timeliness and reliability of the liquidity providers and its operational procedures, CBL regularly tests all its committed lines with its liquidity providers using intraday and unannounced scenarios. The results of the tests are presented to the EB monthly.

To serve as source of backstop liquidity, the minimum amount of required QLR is derived from the results of daily calculated liquidity stress tests. The minimum requirement shall ensure that sufficient QLRs are always available to cover the liquidity impact caused by a possible default of the two participants and their respective affiliates that would generate the largest aggregate payment obligation for CBL, as well as the knock-on effects of such default.

Key consideration 6

An FMI may supplement its qualifying liquid resources with other forms of liquid resources. If the FMI does so, then these liquid resources should be in the form of assets that are likely to be saleable or acceptable as collateral for lines of credit, swaps, or repos on an ad hoc basis following a default, even if this cannot be reliably prearranged or guaranteed in extreme market conditions. Even if an FMI does not have access to routine central bank credit, it should still take account of what collateral is typically accepted by the relevant central bank, as such assets may be more likely to be liquid in stressed circumstances. An FMI should not assume the availability of emergency central bank credit as a part of its liquidity plan.

CBL supplements its QLRs with the following additional liquid resources (non-QLRs):

- Assets or collateral funded by residual, non-operational customer cash balances immediately convertible into cash via central bank or repo market access;
- Residual cash balances of CBL customers deposited at BCL or on other central bank accounts, left at CBL's cash correspondent banks (CCBs) or placed with creditworthy financial institutions;
- Uncommitted unsecured lines of credit granted by CBL's CCBs that can be drawn intraday;
- Uncommitted money market funding lines;

- Uncommitted FX swap lines with a large set of financial institutions where International Swaps & Derivatives Association (ISDA) agreements are in place;
- Uncommitted repo facilities with a large set of financial institutions where global master repurchase agreements (GMRAs) are in place.

The uncommitted lines are tested on a regular basis to estimate market depth and availability.

Key consideration 7

An FMI should obtain a high degree of confidence, through rigorous due diligence, that each provider of its minimum required qualifying liquid resources, whether a participant of the FMI or an external party, has sufficient information to understand and to manage its associated liquidity risks, and that it has the capacity to perform as required under its commitment. Where relevant to assessing a liquidity provider's performance reliability with respect to a particular currency, a liquidity provider's potential access to credit from the central bank of issue may be taken into account. An FMI should regularly test its procedures for accessing its liquid resources at a liquidity provider.

CBL's Treasury team ensures through due diligence that each of the selected committed facility providers has sufficient information to understand and manage their associated liquidity risk and is able to comply with the conditions of a prearranged and highly reliable funding arrangement. A Due Diligence Questionnaire is completed by each facility provider and good candidates for providing a committed facility. This assessment allows the Treasury team to reassess the providers' profiles. Dependent on the outcome of the assessments, contracts may be rolled over/renewed or not.

CBL's Treasury team in particular reviews if the counterparty meets internal and regulatory criteria. Clearstream defines the following minimum criteria:

- Minimum internal credit rating of 'D' (strong credit quality),
- Access to the central bank of issue of the currency,
- Settlement instructions in place to settle in the currency of issue,
- Sufficient information to understand and manage associated liquidity risk.

In its liquidity management function, CBL's Treasury team tests its operational procedures by performing regular intraday liquidity generation tests. The result of the tests is reported to management periodically.

Key consideration 8

An FMI with access to central bank accounts, payment services, or securities services should use these services, where practical, to enhance its management of liquidity risk.

To enhance its management of liquidity risk, CBL has access to central bank accounts at the Banque Centrale du Luxembourg (BCL) for EUR, at the Bank of England (BoE) for GBP and in addition, at the Central Bank of Iceland for ISK for settlement and income related cash flows. Liquidity available on these accounts can be directly accessed via SWIFT payment message without any restrictions. The nostro transfer functionality in CBL's trade entry system allows the transfer of funds from CBL's BCL account to another cash correspondent bank (CCB) or to CBL intraday within the real-time gross settlement (RTGS) opening time.

Through its BCL and BoE accounts, CBL has access to the ECB and the BoE standing facilities (lending and deposit facilities). In addition, CBL has opened a separate account under the direct management of its liquidity management function (CBL's Treasury team) to deposit its non-invested own funds, which may only be used as a source of contingent funds during stress periods (refer to [key consideration 5](#) for more details).

Key consideration 9

An FMI should determine the amount and regularly test the sufficiency of its liquid resources through rigorous stress testing. An FMI should have clear procedures to report the results of its stress tests to appropriate decision makers at the FMI and to use these results to evaluate the adequacy of and adjust its liquidity risk management framework. In conducting stress testing, an FMI should consider a wide range of relevant scenarios. Scenarios should include relevant peak historic price volatilities, shifts in other market factors such as price determinants and yield curves, multiple defaults over various time horizons, simultaneous pressures in funding and asset markets, and a spectrum of forward-looking stress scenarios in a variety of extreme but plausible market conditions. Scenarios should also take into account the design and operation of the FMI, include all entities that might pose material liquidity risks to the FMI (such as settlement banks, nostro agents, custodian banks, liquidity providers, and linked FMIs), and where appropriate, cover a multiday period. In all cases, an FMI should document its supporting rationale for, and should have appropriate governance arrangements relating to, the amount and form of total liquid resources it maintains.

To determine the amount and regularly test the sufficiency of CBL's liquid resources, Clearstream Risk Management performs a number of forward-looking liquidity stress tests (including reverse stress tests) on a regular basis. These liquidity stress tests are conducted at the level of CBL itself as well as on the superordinate level of Clearstream Holding AG.

Within a dedicated liquidity stress testing framework, Clearstream clearly defines the objectives of conducting the tests, describes the different scenarios to be calculated (including the underlying parameter calibration and assumptions), sets out the relevant management reporting lines, regulates the ongoing and effective review of the stress testing processes, and ensures that a procedure for follow-up actions based on stress test results is in place.

The liquidity stress tests conducted at CBL level have been designed in line with the requirements set out in the CSDR. This regulation ensures that systemically important securities infrastructures are subject to common EU rules. It has mandated the European Banking Authority (EBA) to develop regulatory technical standards (RTSs), adopted by the Commission as DR 2017/390, which specify the details of the frameworks and tools for monitoring, measuring and management, reporting and public disclosure of the liquidity risks, including those that occur intraday. The key requirements for liquidity stress testing are described in Articles 35 (5), 36 (6) and 36 (7) of the DR 2017/390.

CBL's liquidity stress tests consider all entities and products that may pose a material liquidity risk to the company. Moreover, the tests are calculated on relevant currency level where the liquidity exposures are tested against CBL's qualifying liquid resources (QLRs). They cover a multiday period and are tailored to CBL's liquidity risk profile using a wide range of scenarios, considering idiosyncratic and market stress factors as well as combinations thereof. Such stress factors include, among others, the default of the two participants that would generate the largest aggregate payment obligation for CBL (Cover 2), a multiple default event, the temporary inability of a liquidity provider to provide liquidity, a general economic slowdown (including shifts in market factors) and a change in the institution's reputation. The stress test results show the potential impact that a stress event might have on the liquid resources in each relevant currency. Exposures towards entities that play multiple roles (for example, both as treasury counterparty and as customer of CBL) are aggregated daily and across all roles to ensure that second-round effects are adequately reflected in the stress simulation.

The results of the different liquidity stress tests are reported to appropriate decision makers within CBL such as the Head of Risk Management, the Asset and Liability Committee, the Treasury Front Office, and the Executive Board. Based on the results, Risk Management may recommend taking measures concerning CBL's liquid resources.

The stress test assumptions and parameters are reviewed and updated systematically by Clearstream Risk Management at least on an annual basis. Adverse market developments, changes within CBL's business model as well as changes within relevant regulatory requirements can lead to an ad-hoc review.

Key consideration 10

An FMI should establish explicit rules and procedures that enable the FMI to effect same-day and, where appropriate, intraday and multiday settlement of payment obligations on time following any individual or combined default among its participants. These rules and procedures should address unforeseen and potentially uncovered liquidity shortfalls and should aim to avoid unwinding, revoking, or delaying the same-day settlement of payment obligations. These rules and procedures should also indicate the FMI's process to replenish any liquidity resources it may employ during a stress event, so that it can continue to operate in a safe and sound manner.

Same-day settlement

In view of the very short-term nature of obligations arising from core settlement activities, liquidity requirements are mainly intraday and overnight.

Most of the Treasury team's daily investment and funding activities are same-day market transactions. These transactions are executed in day-to-day cash management to meet intraday liquidity management objectives. CBL may also execute same-day transactions with its liquidity providers (committed and uncommitted) to deal with unexpected disruptions to its intraday liquidity flows. For details, please refer to [key considerations 5 and 6](#).

Replenishment of liquidity resources

To reduce the risk of a liquidity squeeze to the maximum extent possible and make sure to have sufficient liquidity in all currencies to pay all financial obligations as they fall due at all times (even during a stress event), CBL strictly follows its investment strategy with a focus on secured investments.

CBL has a range of day-to-day and contingency intraday liquidity generating measures described in its liquidity management policy, its liquidity contingency funding plan and in its recovery plan. These intraday measures can be repeated to cover a multiday period until the liquidity stress event is over. Such measures, combined with the day-to-day processes and the tools of the liquidity contingency funding plan, provide a framework of measures in place aiming to avoid unwinding, revoking, or delaying the same-day settlement of payment obligations following the default of participants (individual or combined).

Principle 8: Settlement finality

An FMI should provide clear and certain final settlement, at a minimum by the end of the value date. Where necessary or preferable, an FMI should provide final settlement intraday or in real time.

Key consideration 1

An FMI's rules and procedures should clearly define the point at which settlement is final.

CBL operates the "Creation" securities settlement system (SSS) to provide clear and certain final settlement. As required by the CSDR, CBL defines the moments of entry, of irrevocability and finality in said system. For more information on the legal basis of CBL's settlement services, please refer to [Principle 1](#). Section 4.1 "Settlement Finality" of CBL's [Client Handbook](#) sets out the provisions regarding the point at which settlement is final. As governing document, the handbook is available to and binding upon all customers and CBL.

CBL distinguishes between internal, external and Bridge transactions. For each type of transaction, CBL has established precise definitions for the moments of entry, irrevocability and finality of an instruction. The term "instruction" is used to refer to a "transfer order" within the meaning of Article 2 (i) of the SFD, as amended: "any instruction by a participant to place at the disposal of a recipient an amount of money by means of a book entry on the accounts of a credit institution, a central bank, a central counterparty or a settlement agent, or any instruction which results in the assumption or discharge of a payment obligation as defined by the rules of the system."

Internal instructions

Any instructions between two counterparties in CBL using their accounts in CBL are referred to as internal instructions.

- **Moment of entry:** Reflects the moment from which an instruction produces effects towards a third party according to Article 111 (1) of the Payment Services Law. The Client Handbook provides that an internal instruction is deemed to be introduced (or entered) into CBL's system when it is successfully validated by said system, in view of the matching and the settlement processes. Internal instructions introduced into the SSS successfully validated, but still unmatched, can be cancelled by the customer unilaterally.
- **Moment of irrevocability:** Reflects the moment from which an instruction cannot be revoked or amended unilaterally by the instructing customer. In accordance with Article 111 (1) of the Payment Services Law, an instruction becomes irrevocable under CBL's SSS rules as soon as it is matched.
- **Moment of finality:** Reflects the moment from which an instruction has settled in the SSS. The finality of an instruction occurs upon successful debit and credit of the relevant customers' accounts. As from this point in time, the settlement is "final", that means definitive, binding, enforceable and unconditional between the customer, the counterparty and any third party.

Internal instructions are reported to customers as settled via Xact Web Portal, CreationOnline or ClearstreamXact using the following SWIFT messages: MT536 (Statement of Transactions), MT54x (Settlement Confirmation) and an additional MT950 (Money Statement) for "delivery versus payment" (DVP) settlement instructions.

External instructions

Transactions settling with a domestic counterparty (that is, in the context of domestic links) are considered by CBL as relating to external instructions for the finality of deliveries of securities. These can be settled in the domestic markets either against or free of payment. The settlement rules are further described in the respective Market Link Guide published on the [Clearstream website](#).

With regard to external instructions, “depository” shall refer to another central securities depository (CSD), a securities settlement system (SSS) operated by a CSD (that is, a linked issuer SSS) to which CBL entrusts the safekeeping and administration of securities that CBL holds, either directly with local CSDs or indirectly with intermediaries, on behalf of the customers. For the avoidance of doubt, the term “depository” shall be understood as the entity with which CBL has its securities account for the deposit of the securities on behalf of the customers.

The rules governing the moments of entry, of the irrevocability of external instructions and the enforceability of deliveries of securities and cash to or from a domestic counterparty are defined by each of the depositories or local issuer SSSs (for indirect links) in accordance with the domestic rules applicable to such market. The irrevocability and enforceability of the external instructions are then achieved in the books of the depositories or local issuer SSSs.

Once the external instructions are final (that is, irrevocable and unconditional) with the depository or local issuer SSS and upon notice of credit/debit of the relevant account of CBL with such depository, CBL will update the customers’ accounts accordingly. As per Article 7.2 of the Luxembourg [Law of 1 August 2001 on the Circulation of Securities](#), as amended, customers acquire the interest in domestic securities as soon as the securities are credited to the securities account of CBL with the depository and before credit to the customer’s securities account.

Bridge instructions

An instruction introduced by a customer into CBL’s securities settlement system for the purpose of matching and settlement of a transaction with a Euroclear Bank counterparty (Bridge counterparty) is considered by CBL as a Bridge instruction.

- **Moment of entry:** Reflects the moment from which an instruction produces effects towards a third party. Bridge instructions sent by customers to CBL are deemed to be introduced into the SSS when they are successfully validated, in view of the matching and the Bridge settlement processes.
- **Moment of irrevocability:** Reflects the moment from which the Bridge instruction cannot be revoked or amended unilaterally by the instructing customer, or, in respect of an instruction sent by Euroclear, in accordance with the terms of the Bridge Agreement.
- **Moment of finality:** Reflects the moment when the settlement is definitive, binding, enforceable and unconditional between the customer, the Bridge counterparty and any third party.

A Bridge receipt or delivery cannot be cancelled or amended in the following circumstances:

- (i) If provision has been debited from the account during the settlement processing but confirmation or refusal of the transaction has not yet been received from the counterparty;
- (ii) If it has been reported as settled via Xact Web Portal, CreationOnline or ClearstreamXact using the following SWIFT messages: MT536 (Statement of Transactions), MT54x (Settlement Confirmation) and an additional MT950 (Money Statement) for DVP settlement instructions.

Key consideration 2

An FMI should complete final settlement no later than the end of the value date, and preferably intraday or in real time, to reduce settlement risk. An LVPS or SSS should consider adopting RTGS or multiple-batch processing during the settlement day.

The processing day varies depending on the eligibility for settlement (that is, mandatory and/or optional period) and the type of settlement instruction, being internal in CBL's system, external with a domestic counterparty or over the Bridge.

Internal instructions

For CBL's "Creation" SSS, the settlement day consists of the following settlement cycles as described in chapter 3.4 "The settlement day" of the [Client Handbook](#):

- (i) Main settlement processing: real-time processing, performed following a delivery-versus-payment (DvP) Model 1 arrangement or on a free-of-payment basis, by simultaneous book-entry debits and credits in the respective securities and/or cash accounts;
- (ii) End-of-day processing.

Settlement on value date or same-day settlement can be completed if both counterparties fulfil their settlement obligations for processing on the intended settlement day, that is, delivery of cash and securities. This is ensured due to CBL's real-time processing which begins after the scheduled start of the settlement cycles at 21:30 (SD-1), that is, in the evening of the business day preceding the settlement date and runs continuously until 20:05 (SD) on settlement date. Real-time processing is followed by the end-of-day processing, which is scheduled to be completed by 20:35 (SD). Processing delays are resolved prior to the start of the end-of-day processing.

The settlement day is split into two settlement periods:

- Mandatory settlement period: delivery may only be refused for reason of cash or credit provision (or, temporarily, for risk management purposes);
- Optional settlement period: customers may determine eligibility for settlement by means of an optional settlement flag (OSF).

The optional settlement period follows the mandatory settlement period for DvP instructions only and, provided that customers have determined that their instructions are to be eligible for the optional settlement period, all internal DvP instructions unsettled at the end of the mandatory settlement period and any new or amended DvP instructions received by the respective input deadlines for optional settlement, are processed in the optional settlement period.

In order to detect differences or errors in the instructions submitted, matching attempts are applied as soon as an instruction has been submitted and validated. Details on the matching process are provided in chapter 3.7 "Matching requirements" of the [Client Handbook](#).

External instructions

For external instructions, local market rules apply. Please refer to the respective [Market Link Guides](#) for further details.

Bridge instructions

CBL's settlement day for Bridge instructions follows the same rules and procedures than the one for internal instructions; please see the [respective section](#) for details. Regarding settlement cycles, the processing of Bridge instructions differs from the processing of internal instructions as follows:

- Bridge transactions are processed through the exchange of matching files (every 2–3 minutes) and settlement and feedback files (53 per ICSD) during the course of the settlement day.
- Settlement processing of Bridge instructions continues on a mandatory basis from 21:30 (SD-1)
 - until 14:25 (SD) for DvP instructions in all currencies except for ARS, CAD, EUR, GBP, MXN, PEN and USD,
 - until 15:55 (SD) for DvP instructions in EUR and GBP,
 - until 17:35 for DvP instructions in ARS, CAD, MXN, PEN and USD.
- Processing of Bridge instructions then continues on an optional basis for DvP transactions until 19:05 (SD). The settlement processing of free-of-payment Bridge instructions runs from 21:30 (SD-1) to 19:05 (SD).

Key consideration 3

An FMI should clearly define the point after which unsettled payments, transfer instructions, or other obligations may not be revoked by a participant.

Internal instructions

Internal instructions that have not settled by the end-of-day processing on settlement date do fail. In such cases, CBL will initiate, in the name and on behalf of the customer, a new settlement instruction for settlement on the next settlement date until either the settlement is successful, or cancellation requests are received from both customers.

Unmatched instructions can be revoked (cancelled) anytime. For instructions that are still unmatched 45 days after the requested settlement date, a request will be sent to the customer to either cancel or confirm the instruction. If no decision is provided by the customer, the unmatched instructions will be recycled on the next settlement date for a further 15 calendar days, after which the instructions will be automatically cancelled. If the instruction is matched within the 15-day period, the instruction will not be cancelled automatically. If confirmation is received from the customer, the 60 calendar-day period (that is, 45 plus 15) starts over again.

Matched instructions can only be cancelled bilaterally. Customers cannot cancel their matched internal instructions unilaterally even if the requested settlement date has not been reached. Once both counterparties have sent their cancellation requests, both instructions are immediately cancelled and reported accordingly. If only one cancellation request has been received, both instructions are not put on hold and remain eligible for settlement until the second cancellation request is received. If no matching cancellations are received by then and the instruction has not settled by the end-of-day processing on settlement date, CBL will, in the name and on behalf of the customer, issue a renewed cancellation request for a new instruction for settlement on the next settlement date; such new cancellation request must be matched by the customer's counterparty on the same settlement date.

Settled instructions cannot be cancelled by participants.

For further details please refer to section 4.1 "Settlement Finality" of CBL's [Client Handbook](#).

External instructions

For external instructions, local market rules apply. Please refer to the respective [Market Link Guides](#) for further details.

Bridge instructions

Unmatched instructions can be revoked (cancelled) anytime. Identical to internal instructions, any unmatched Bridge instruction that has not been settled or cancelled remains in suspense for a period of 45 calendar days after the requested settlement date. At the end of this period, the customer who submitted the instruction is requested to either cancel or confirm it. If the instruction is neither cancelled nor confirmed, it remains in suspense for a further 15 calendar days, after which it is automatically cancelled. If confirmation is received from the customer, the 60 calendar-day period (that is, 45 plus 15) starts over again.

Matched instructions can only be cancelled bilaterally. Customers cannot cancel their matched Bridge instructions unilaterally even if the requested settlement date has not been reached.

An instruction can only be cancelled provided a cancellation request is received from both the delivering and the receiving customers and the instruction has not yet been settled. If the receiving ICSD receives a cancellation request from its customer for an instruction, which has been matched, the receiving ICSD shall send the cancellation request to the delivering ICSD. Until the delivering ICSD has effectively cancelled both receipt and delivery instructions, both instructions remain eligible for settlement. The confirmation of the effective cancellation of an instruction will be communicated by the delivering ICSD to the receiving ICSD. Upon receipt of such confirmation, the receiving ICSD will cancel both receipt and delivery instructions in its books.

Moreover, a Bridge receipt or delivery instruction cannot be cancelled or amended if:

- (i) Provision has been debited from the account during settlement processing but confirmation or refusal of the transaction has not yet been received from the counterparty; or
- (ii) It has been reported as settled.

Settled instructions cannot be cancelled by participants.

Principle 9: Money settlements

An FMI should conduct its money settlements in central bank money where practical and available. If central bank money is not used, an FMI should minimise and strictly control the credit and liquidity risk arising from the use of commercial bank money.

Key consideration 1

An FMI should conduct its money settlements in central bank money, where practical and available, to avoid credit and liquidity risks.

CBL offers the possibility for its customers to settle transactions free of or against payment. This applies to internal transactions between two accounts in the books of CBL as well as to Bridge transactions with a counterparty in Euroclear Bank and external instructions settlement in a domestic market (CBL “link” settlement via the Creation securities settlement system).

As an ICSD, CBL currently offers money settlement in 44 eligible currencies (of which 34 are eligible for Bridge settlement) including the Euro.

CBL conducts money settlement in commercial bank money (CoBM) in all CBL eligible settlement currencies. Settlements are carried out on the books of CBL itself. All CBL customers have multi-currency cash accounts in the relevant settlement currencies on the books of CBL. Settlement in central bank money (CeBM) for such currencies is currently deemed:

- (i) Neither available for CBL, as for legal reasons, CBL is often not allowed as foreign entity to open cash accounts at central banks of other countries according to the domestic rules;
- (ii) Nor practical for CBL or its participants, to open accounts at all the respective central banks of issue;
- (iii) For internal and Bridge transactions, the moment of finality is reached when the transaction between two customers is settled in CBL’s SSS. Upon reaching finality, there is a simultaneous transfer of securities and cash in CBL’s books, whereas DvP in CeBM would require that cash flows be separated from the securities flows.

For external instructions settlement, CBL uses CeBM where practical and available. Thus, CBL currently holds accounts with various central banks, for example, an account with Sedlabanki, the central bank of Iceland, for Icelandic Króna, as well as an account with the Bank of England for British Pounds. CBL continues to broaden its CeBM access with further central banks to enhance its liquidity risk management. In this respect, CBL will open an account for Australian Dollar at the Reserve Bank of Australia once it has been granted the Overseas Clearing License by the relevant regulatory authorities.

For each settlement currency, CBL opens one or several cash accounts with one or several cash correspondent banks (CCBs). For the Euro currency, CBL relies on a large network of CCBs, including, among others, Banque centrale du Luxembourg (BCL). A CCB (or several for the Euro) is appointed to handle cash movements between the domestic banking system and CBL. Cash deadlines vary in accordance with the time zones of the liquidity providers of the currency in question. Timings are outlined in CBL’s [Cash Timings Matrix](#). CBL’s cash transfer process enables customers to transfer funds at any time up and until the cash withdrawal deadlines published for each

currency. Upon receipt of a valid customer instruction and near real-time, CBL executes cash withdrawal instructions received before the currency deadline – provided that the instructed account is fully funded for the amount of the requested transfer and the instruction complies with its conditional instruction rules:

- When settling internal instructions, CBL follows a DvP Model 1 approach, thereby ensuring simultaneous final settlement of securities and cash funds transfers on a gross (transaction-by-transaction) basis. For DvP transactions to settle, the receiving customer shall have available cash funds on its account or can benefit from CBL’s cash financing facilities.
- The settlement of Bridge instructions with counterparties in Euroclear Bank works similar to the settlement of internal instructions. Cash positions resulting from the settlement of DvP transactions between CBL and Euroclear Bank counterparties are realigned between the two ICSDs following bilaterally agreed operational procedures.
- For external settlement transactions in T2S markets, Euro cash settlement with T2S counterparties is effected in CeBM. To this end, CBL holds a cash account at BCL in TARGET2, which is linked to the respective dedicated cash account (DCA) on T2S. From the T2 account, CBL is able to fund settlement within T2S for its customers, which themselves fund their settlement in CoBM. The release of purchase instructions to the T2S platform is conditioned to the customer’s available cash or credit/collateral provision. CBL’s customers continue to fund CBL’s CCBs in CoBM. In turn, CBL uses its central bank cash account at BCL. This cash account is linked to the omnibus securities accounts opened in the specific market. From here, CBL transfers cash to its DCA cash account (CeBM) at BCL in order to fund settlement within T2S. For deliveries against payment, cash is received onto the CBL DCA and the proceeds resulting from the effective delivery of the securities are credited on the CBL customer’s multi-currency cash account.
- For external settlement transactions outside of T2S markets, the release of purchase instructions to the local market is also conditioned to the customer’s available cash or credit/collateral provision. CBL’s customers continue to fund CBL’s CCBs in CoBM. The cash movements resulting from the effective settlement of receipt and DvP instructions are booked on the CBL cash account with the CCB.

For an assessment of credit and liquidity risk stemming from these processes, please refer to [Principles 4](#) and [7](#).

Key consideration 2

If central bank money is not used, an FMI should conduct its money settlements using a settlement asset with little or no credit or liquidity risk.

CBL conducts CoBM settlement on its own books. Credit and liquidity risks stemming from CCBs and depositories related to external settlement are described and assessed in [Principles 4](#) and [7](#).

Key consideration 3

If an FMI settles in commercial bank money, it should monitor, manage, and limit its credit and liquidity risks arising from the commercial settlement banks. In particular, an FMI should establish and monitor adherence to strict criteria for its settlement banks that take account of, among other things, their regulation and supervision, creditworthiness, capitalisation, access to liquidity, and operational reliability. An FMI should also monitor and manage the concentration of credit and liquidity exposures to its commercial settlement banks.

Not applicable to CBL as the company conducts CoBM settlement on its own books. Therefore, CBL does not rely on settlement banks according to the PFMI definition.

Key consideration 4

If an FMI conducts money settlement on its own books, it should minimise and strictly control its credit and liquidity risks.

CBL relies on a network of CCBs (including several ones for the Euro) for participants to fund and defund their cash accounts with CBL. In this context, with regard to the Euro currency, CBL has a cash account with BCL to manage Euro liquidity risks and effect participant funding and defunding in Euro.

Credit and liquidity risks stemming from CCBs and depositories related to the settlement of external instructions are described and assessed in [Principles 4](#) and [7](#).

Key consideration 5

An FMI's legal agreements with any settlement banks should state clearly when transfers on the books of individual settlement banks are expected to occur, that transfers are to be final when effected, and that funds received should be transferable as soon as possible, at a minimum by the end of the day and ideally intraday, in order to enable the FMI and its participants to manage credit and liquidity risks.

Not applicable since CBL conducts cash settlement on its own books and, therefore, does not rely on settlement banks according to the PFMI definition.

Principle 10: Physical deliveries

An FMI should clearly state its obligations with respect to the delivery of physical instruments or commodities and should identify, monitor, and manage the risks associated with such physical deliveries.

Key consideration 1

An FMI's rules should clearly state its obligations with respect to the delivery of physical instruments or commodities.

CBL's obligations and responsibilities with respect to the immobilisation and delivery of physical instruments or commodities are defined in accordance with Luxembourg Law. All bearer instruments and global certificates held with CBL are indeed immobilised and represented in book entry form in its system in accordance with the general rules of the civil code regarding the deposit applicable to CBL – in particular, Articles 1915, 1927 and following which define the general obligations of CBL as depository –, as well as the Securities Law and the Immobilisation Law (as defined under [Principle 1](#)).

The following securities are accepted for physical delivery and immobilisation with CBL:

- Financial instruments in bearer form issued by Luxembourg issuers governed by Luxembourg Law, deposited with CBL and considered as immobilised within the meaning of the Immobilisation Law;
- Financial instruments in bearer form issued by foreign issuers and not governed by Luxembourg Law deposited and immobilised with CBL;
- Financial instruments immobilised in other SSSs, for example, global certificates in the vaults of CBL's specialised Eurobond depository banks;
- Financial instruments immobilised in CBL's SSS, for instance, global certificates in the vaults of CBL's common depository banks, which cannot be transferred outside CBL and Euroclear Bank S.A.; and
- Other physical securities such as domestic securities issued in bearer or registered form, for example, U.S. restricted securities or non-CREST eligible securities in the UK, which can be transferred physically outside the SSS.

Further details on such securities are provided for each individual market served in the corresponding Market Link Guide (available in the [Market Coverage](#) section of the Clearstream website).

As depository under Luxembourg Law and CSD subject to CSDR, CBL's obligation is mainly to receive physical deliveries for immobilisation purposes in order to represent such securities as book entries. Circulation of the securities in CBL's system is performed exclusively in book-entry format in accordance with Article 3 of CSDR. The obligations and responsibilities regarding safekeeping and delivery of physical instruments and commodities are defined in CBL's [governing documents](#), in particular in the [GTCs](#), the [Client Handbook](#) and the [Market Link Guides](#). Article 10 of the GTCs provides that "transfers of securities to or from accounts within the Clearstream system shall be effected by book-entry only".

In order to facilitate customers' understanding of their obligations and procedures for effecting physical deliveries, if any, CBL maintains, in addition to the information publicly disclosed in the said governing documents, an active relationship with its participants; please refer to [Principle 23](#) for details. It offers service meetings (minimum annual frequency), due diligence visits, trainings and webinars to ensure that participants correctly understand the applicable rules and procedures as well as the risks they potentially incur through their participation in the CBL system, including those related to the handling and immobilisation of physical securities.

Key consideration 2

An FMI should identify, monitor, and manage the risks and costs associated with the storage and delivery of physical instruments or commodities.

The main risks associated with the immobilisation, storage and delivery of physical instruments is the loss of certificates during the process and the receipt of fraudulent certificates. The costs associated with the immobilisation, storage and delivery of physical instruments or commodities typically include postal costs, insurance costs, physical handling and re-registration fees, as well as custody fees.

CBL has defined processes, procedures and controls to monitor the risks and costs associated with the handling and immobilisation of physical instruments or commodities. These processes are defined in the contractual agreements that CBL has in place with its depositories, as well as in internal operational procedures and published customer documentation. These include:

- Validation of transfer documentation upon receipt and consequent authorisation or rejection to customers;
- Definition of withdrawal and deposit instruction requirements;
- Monitoring and communication flows between involved parties;
- Reflection of settlement and processing status to CBL customers.

Processes implemented aim to minimise the risk of loss of certificates during their shipping and safekeeping.

The receipt of fraudulent certificates is avoided by undertaking in-depth validation checks upon receipt (including signature checks of transfer documents, validation check of certificates in accordance with market practice, and bilateral agreements between CBL and its depositories). In terms of storage, CBL reviews depository processes on an annual basis. In particular and in the context of bilateral agreements with its depositories, CBL performs as part of its annual due diligence visit exercise, a vaults check, including a (random) physical verification of the securities in the vault/safe rooms, checks related to the physical immobilised security, processes and controls in place at the depository as well as insurance coverage. As an additional control, CBL directly monitors the announcements of stop orders issued by the Luxembourg Stock Exchange, the Ministry of Finance of Belgium and Bundesanstalt für Finanzdienstleistungsaufsicht (BaFin, German federal financial supervisory authority). For all other markets, CBL registrars/depositories will perform the respective monitoring.

Additionally, with the increased dematerialisation of securities in domestic markets combined with depository related insurances, risks related to storage in domestic markets are more and more mitigated. Please also see [Principle 15](#) for more details on general business risk.

Timely settlement and status reporting for physical deliveries to CBL customers is being assured by real-time processing within CBL.

Customer instructions for physical transfer of securities into or out of CBL's system are executed by depositories or agents on the local markets to the extent permitted by the local law. For the links to a market, a depository/agent acts as interface between CBL and that market. The functioning as well as rules and procedures of such movements are duly documented in CBL's [Client Handbook](#) and where applicable, on a market-by-market basis, in the [Market Coverage](#) section on the Clearstream website (Market Link Guides).

Principle 11: Central securities depositories

A CSD should have appropriate rules and procedures to help ensure the integrity of securities issues and minimise and manage the risks associated with the safekeeping and transfer of securities. A CSD should maintain securities in an immobilised or dematerialised form for their transfer by book entry.

Key consideration 1

A CSD should have appropriate rules, procedures, and controls, including robust accounting practices, to safeguard the rights of securities issuers and holders, prevent the unauthorised creation or deletion of securities, and conduct periodic and at least daily reconciliation of securities issues it maintains.

According to the requirements set forth by Articles 26, 37 and 38 of CSDR, CBL has implemented rules, procedures and controls to safeguard the rights of the securities issuers and holders as well as the integrity of issues by preventing the unauthorised creation or deletion of securities (UCoD). These rules are described in CBL's CSDR authorisation file and are designed to comply with the Luxembourg law framework which includes, among others, the CSDR, the civil code, the Securities Law, the Payment Services Law, the Banking Act and the Grand ducal regulation of 30 May 2018 as described in [Principle 1, key consideration 1](#).

Safeguarding the rights of securities issuers and holders

In accordance with Article 38 of CSDR, CBL requires its customers to segregate their assets by opting for one of the two following levels of segregation: a segregated account or an omnibus account within CBL's system. Article 3 (2) of the company's [GTCs](#) stipulates that customers shall inform CBL accordingly as provided in the governing documents. Customers shall segregate in separate accounts at all times assets deposited with CBL and held on a proprietary basis from assets deposited with CBL and held on a non-proprietary basis. Such accounts shall be designated accordingly; please refer to [key consideration 5](#) for details.

In addition, chapter 2.1 of CBL's [Client Handbook](#) provides operational information notably in the paragraph dedicated to "Third party assets: Omnibus versus segregated account". For further details see [key consideration 5](#).

As an account keeper, CBL may deposit with other (foreign) account keepers the securities credited or transferred to the securities accounts it maintains; or CBL may be registered directly or indirectly on the securities register of the relevant securities. When doing so, CBL complies with the protective principles set under Articles 17 and 19 of the Securities Law that complement the CSDR principles applicable to the accounts and assets held by customers in the accounts with CBL (Article 38) and via the CSD links (Article 48). CBL holds these securities separately from its own securities with these other account keepers or depositories. This form of deposit shall neither affect the situation of the securities that continue to be held with CBL, nor the validity or effectiveness of the collateral (Article 17 of the Securities Law). As CBL operates a securities settlement system (SSS), it maintains distinct securities accounts for each customer to keep the securities held in relation to the system it operates separately from the other securities deposited in accordance with Article 19 of the Securities Law.

For assets that are sub-deposited via a CSD link, holders of securities including investment funds are made aware of the rules applicable in each market via CBL's Market Link Guides (available via the [Market Coverage](#) section on the company's website).

Safeguarding the integrity of issues by preventing UCoD and daily reconciliation

To safeguard the integrity of issues by preventing UCoD and protecting the right of both securities holders and issuers, CBL as account keeper and CSD, applies the requirements set out in Article 14 (1) of the Securities Law. The company has implemented rules, procedures and controls to hold, on its own books or with another (foreign) account keeper, securities that are, in number and description, equal to the number and description of the securities credited on the securities accounts it maintains for its account holders.

CBL has in place operational measures internally, with linked CSDs, appointed intermediaries and common depositories to properly safeguard, record, reconcile and report the assets deposited with it, and notify the relevant stakeholders when required. Thus, Article 50 of CBL's GTCs provides for the following obligations:

- Obligation for CBL to report the positions to customers on a daily basis by providing them statements of accounts as specified in its governing documents. For further details see chapter 11.2 of CBL's [Client Handbook](#).
- Obligation for customers to reconcile the said statements with their own books. Customers are solely responsible for their internal reconciliation processes.
- Obligation for customers to report back to CBL any inconsistencies or errors in any of the said statements or related information to ease any remedial actions. These reports shall be provided to CBL by the end of the business day following the day on which such statement or information was made available by CBL.

Prevention of the unauthorised creation or deletion of securities

CBL has implemented rules, procedures and controls to prevent UCoD of securities:

- Authorised creation of securities positions in the CBL system is only performed upon receipt of securities to be credited to customer accounts either through a new issue distribution (issuing agent) or the settlement of a corporate action.
- Authorised removal of securities positions is generally performed upon final maturity or in the context of a corporate event.
- Integrated securities provisions checks are exercised before release of a settlement instruction.

Daily reconciliations are performed to ensure the correct application of the rules to prevent UCoD of securities. The various reconciliation measures as well as the handling of differences are detailed below in the "[Periodic reconciliation of securities issues](#)" and "[Reconciliation frequency](#)" sections of this key consideration.

Periodic reconciliation of securities issues

The internal and external reconciliation procedures and controls ensure on a daily basis that rules are adhered to.

As required by Articles 37 (1) and 37 (3) of CSDR, appropriate reconciliation measures are performed automatically within CBL's systems to verify that the number of securities making up a securities issue or part of a securities issue submitted to CBL is equal to the sum of securities recorded on the securities accounts of the CBL participants of the SSS, and on owner accounts maintained by CBL. Such reconciliation measures are conducted daily. As required by Article 59.1

of RTS 2017/392, CBL ensures that these measures are performed for each securities issue recorded in all securities accounts maintained by CBL (centrally and not centrally).

The validation of securities positions covers the following key processes:

- Validation of the number of securities making up a securities issue or part of a securities issue submitted to CBL versus the total position recorded on the securities accounts of its participants and validation against a negative securities balance (that means that no negative securities balance exists on a participant account);
- Comparison of the previous end-of-day balance with all settlements processed during that day and the current end-of-day balance on CBL's books; and
- Usage of double-entry accounting.

Automated alerts are generated when a mismatch or divergence from established rules is detected.

Reconciliation frequency

CBL performs daily internal securities reconciliation processes that it maintains centrally. It involves functional and non-functional processes performed on CBL's books or in its systems, respectively, ensuring the integrity of a security issue (as explained in the "[Periodic reconciliation of securities issues](#)" section of this key consideration).

CBL also maintains daily securities reconciliation processes with various external parties. This refers to daily reconciliation of movements and positions that relies on reporting to be received from an external party, and securities positions which therefore are not (fully) maintained centrally by CBL. The main purpose of reconciliation is to ensure the integrity of the issue and to minimise operational risk related to open differences in the respective holdings. For investment funds, the daily frequency corresponds to the frequency of the net asset value (NAV) calculation.

To perform reconciliation of securities' positions recorded in CBL's system with the securities positions held by CBL's depositories, as per contractual agreement, the depositories are required to send to CBL Statements of Holding (MT535) and Statements of Transactions (MT536) on a daily basis. CBL will compare its records with the positions provided by the depositories, using a dedicated reconciliation application using pre-defined matching criteria. Non-matched securities positions will be investigated and, if identified as a reconciliation break, will be allocated to the relevant business unit or depository for prompt investigation and/or resolution. A list of the identified discrepancies is sent to the depositories on a daily basis, as well as to CBL's business units and management on a weekly basis. Business units may also check for open items allocated to their area in CBL's reconciliation application where real-time updates are available.

Each remaining difference following reconciliation tasks is reported as open until it is fully resolved, that means corrective actions have been taken or missing movements have been booked. Once these movements have been reported or respectively transmitted to the reconciliation application, open breaks can be reconciled and the open items authorised and closed. This is documented in CBL's internal reconciliation procedure.

According to CSDR reconciliation requirements, any reconciliation break is immediately investigated by CBL's reconciliation team and the impacted business unit(s). Both will perform all necessary measures to remedy the break without undue delay: the reconciliation team investigates the differences and may identify missing movements to solve them. However, the corrective action itself can only be confirmed as correct and be booked by the impacted CBL business unit or external party.

Where the reconciliation break reveals a UCoD, and CBL fails to solve this reconciliation break by the end of the following business day, CBL will suspend the affected securities issue from settlement until the UCoD of securities is resolved. In such cases, CBL will inform internal and external stakeholders without undue delay of the fact that settlement in the relevant securities issue is suspended. Stakeholders will also be informed without undue delay when the UCoD of securities is resolved, and settlement in the affected securities issue is resumed.

As stated in CBL's governing documents, in order to allow its participants to perform their daily reconciliation obligations, the company makes daily statements of holdings and transactions available to customers.

The robustness of the system and the daily reconciliation processes are reviewed also by internal and external auditors on an annual basis.

Key consideration 2

[A CSD should prohibit overdrafts and debit balances in securities accounts.](#)

As per Article 37 (3) of CSDR, internal system validations regarding the number of securities, ensure that securities overdrafts, securities debit balances or securities creation are not allowed for the securities accounts of CBL's participants, even on an intraday basis: securities account reference data is registered in CBL's Account Master system and synchronised to its Position Management (PM) system. Data related to rule "negative positions" is set for all participant securities accounts to "not allowed".

PM data integrity controls are organised in the system's Data Integrity Manager process (intra-) daily. This process performs functional checks to verify the quality of the calculated positions, that means by ensuring total holdings on all participant/omnibus accounts are equal to the holdings on all mirror/issuance/transit accounts.

CBL's Creation platform performs a "provision check" before executing a customer instruction, thereby ensuring sufficient securities are available on the participant account to execute the delivery and preventing a debit balance. Hence, a transaction will not settle, should the number of securities credited to the relevant account is not sufficient, and the delivering participant is not able to borrow said securities under CBL's settlement efficiency related securities lending programme.

Key consideration 3

[A CSD should maintain securities in an immobilised or dematerialised form for their transfer by book entry. Where appropriate, a CSD should provide incentives to immobilise or dematerialise securities.](#)

CBL's obligations and responsibilities with respect to the immobilisation or dematerialisation are defined in accordance with Luxembourg Law. All financial instruments held with CBL are represented in book entry form in its system as immobilised or subsequent to a direct issuance in dematerialised form, as the case may be, in accordance with Article 3 of CSDR, the Securities Law (including the Dematerialisation Law) and the Immobilisation Law (as set out in [Principle 1](#)).

The related propositions are set out in CBL's governing documents, such as the GTCs and the Client Handbook: Article 5 of the GTCs stipulates that all securities initially recorded with and/or held in CBL are represented in book-entry form and shall be deemed fungible. Chapter 7 of CBL's Client Handbook describes in detail the operational aspects related to the admission and distribution of new issues.

For securities held for participants in the domestic markets to which CBL maintains CSD links, the large majority is in book-entry form. For the residual portion of securities, which are still in physical form, these are immobilised and the certificates are not physically transferable as described in [Principle 10](#). In these cases, ownership is transferred on the books of the CSD and the certificate remains in the CSD's vaults. The major portion of physical securities remain in certificate form (bearer/registered form) and the certificates are transferable among custodians (that means they are not necessarily kept at the CSD/in centralised form).

Key consideration 4

A CSD should protect assets against custody risk through appropriate rules and procedures consistent with its legal framework.

As mentioned in [key consideration 1](#), CBL has implemented rules and procedures to safeguard the rights of securities issuers and holders. These rules and procedures are in line with CBL's legal framework described in [Principle 1](#) and imply the following:

- (i) CBL's own assets are segregated from participants' assets;
- (ii) Securities and cash legs of an instruction are simultaneously booked;
- (iii) Reconciliations between CBL's and its depositories' books are run on a daily basis with any mismatch timely and adequately investigated and resolved in accordance with CSDR and Luxembourg Law principles.

With respect to custody risk, CBL has implemented procedures to diligently select its depositories and intermediaries with which it enters into dedicated written agreements (Link Agreements as defined under [Principle 1](#)). CBL maintains legal opinions issued by independent local law firms of good reputation in order to:

- (i) Assess the legal protection afforded to securities deposited with CSDs/sub-custodians in each market pursuant to local laws (in particular with regard to insolvency protection) and the applicable contractual framework;
- (ii) Ensure that the conditions applicable to the local deposits are at least equivalent to those applicable under Luxembourg Law (including CSDR requirements applicable to CSD links).

When appointing a CSD/sub-custodian, CBL regularly assesses and reviews the custody risk associated with the decision to entrust the securities to the respective CSD/sub-custodian. CBL's procedures also include due diligence visits and/or vault inspections at the local CSDs/sub-custodians to ensure that its network of suppliers has sound and robust processes and procedures in place.

Key features of CBL's CSD links, in particular the summaries on main legal topics addressed by the legal opinions are published in the "Legal arrangements" sections of the [Market Link Guides](#) on the Clearstream website.

In addition, CSDs/sub-custodians are requested to provide a Three Point Declaration pursuant to BaFin Circular 08/2015 in which they confirm that securities positions delivered by them are kept as customer positions of the depository, that these can be separated from the CSDs'/sub-custodians' own assets in the event of their insolvency and that, as a matter of principle, they will not assert any rights of lien or rights of retention in relation to these securities. Furthermore, the custodians shall promise that they will not outsource the custody of the securities positions underlying the Three Point Declaration to a third party without the consent of CBL. The said Three Point Declarations are published on CBL's website under [Company Governance → Regulation](#).

Key consideration 5

A CSD should employ a robust system that ensures segregation between the CSD's own assets and the securities of its participants and segregation among the securities of participants. Where supported by the legal framework, the CSD should also support operationally the segregation of securities belonging to a participant's customers on the participant's books and facilitate the transfer of customer holdings.

CBL has implemented robust arrangements to ensure segregation between CBL's own assets and the securities of its participants, as well as segregation among the securities of its participants in line with Luxembourg Law (set out in [Principle 1](#)):

Under Article 38 (1) of CSDR, CBL in its capacity of CSD has the obligation, to keep records and accounts that enables the company, at any time and without delay, to segregate in the accounts held with it, the securities of one participant from those of any other participant and, if applicable, from CBL's own assets.

Following the Securities Law, as an account keeper, CBL has the obligation to segregate its own assets and the securities of its participants. Article 17 of the said law provides that CBL may deposit with other (foreign) account keepers, through book transfer or otherwise, the securities credited or transferred to the securities accounts it maintains, or it may be registered directly or indirectly on the securities register of the relevant securities. CBL holds these securities separately from its own securities with these other account keepers or depositories. In addition, in its function as an SSS, CBL keeps the securities held by it in relation to the system it operates separately from the other securities deposited with it in line with Article 19 of the Securities Law.

In accordance with the grand ducal regulation of 30 May 2018 on the protection of financial instruments and clients' money, as amended, CBL as a credit institution complies with organisational requirements aiming at the protection and segregation of the assets as set forth in Article 2 (1), paragraphs 1 to 4:

- CBL keeps records and accounts enabling it at any time and without delay to distinguish assets held for one customer from assets held for any other customer and from its own assets;
- CBL maintains its records and accounts in a manner that ensures their accuracy, and in particular their correspondence to the securities and – with regard to investment firms – the funds held on behalf of customers, and that they may be used as an audit trail;
- CBL conducts, on a regular basis, reconciliations between its internal accounts and records and those of any third parties by whom those assets are held (see [key consideration 1](#) for details);
- CBL takes the steps necessary to ensure that any customer's securities deposited with a third party can be identified separately from its own securities and from the securities belonging to that third party, by means of differently titled accounts on the books of that third party or other equivalent measures that achieve the same level of protection.

The segregation of securities belonging to CBL's participants and to their underlying clients is reflected in the CSD's contractual framework: Articles 3 and 45 of the GTCs stipulate that CBL's participants shall segregate entitlements to securities deposited for their own account (proprietary assets) from entitlements deposited on behalf of third parties (client assets). At the core of the arrangements governing the deposit of client assets is the allocation of all customer accounts opened in CBL's system by the direct participants to one of the following classifications:

- (i) Participant's own account,
- (ii) Individual client segregation (ICS) account,
- (iii) Omnibus client segregation (OCS) account.

Regarding the segregation on CBL's books, in order for the custody and settlement of securities transactions to be carried out by CBL, customers (that means direct participants) can opt for a collective account with CBL. In this type of account, securities holdings of multiple underlying clients of the CBL customer are booked together. This level of segregation corresponds to the omnibus client segregated account (OCS) as set out in Article 38 (3) of CSDR. Alternatively, customers may choose to set up separate deposit accounts with CBL to segregate the securities of their individual clients from their own holdings and from their other clients. This level of segregation corresponds to the individual client segregated account (ICS) as set out in Article 38 (4) of CSDR.

For either account type (ICS or OCS), CBL books the securities and any other fungible financial instruments received as a deposit or held in an account, separately from its own proprietary positions and off-balance sheet (that means independently of ICS or OCS accounts). For more information, please refer to CBL's [CSDR Article 38 disclosure document](#), available at the company's website.

Regarding the segregation at the level of the CSD links, customer assets are held segregated from CBL proprietary assets, either in an omnibus account in CBL's name with the local CSD or indirectly via a custodian of the local CSD. The above system implemented by CBL enables it to safeguard participants' ownership rights, especially in the event of its own insolvency, and to prevent the use of participants' financial instruments on own account except when the participants have provided their express consent in accordance with the provisions of Article 37-1 (7) of the Banking Act (as defined under [Principle 1](#)).

According to the Securities Law, participants depositing securities with CBL benefit – up to the amount of securities held on their securities accounts – from an intangible proprietary right in all securities of the same description held on an account by CBL, from the rights attached to the securities and from the rights provided for in Article 3 (1) of the Securities Law. Such rights can be exercised only against CBL as the relevant account keeper.

In the event of winding-up proceedings in relation to CBL, Article 10 of the Securities Law provides the following: "the claim on the number of securities which the account keeper owes shall be filed with the liquidator collectively on the aggregate amount of the securities of the same description held by or for the account keeper, registered in its name or in the name of a third party designated in whatever form, or maintained in the name of the relevant account keeper with another account keeper".

In accordance with Article 4 (2) of the Securities Law, CBL's participants would then acquire the ownership right over the securities as soon as these are credited to CBL's securities account with the linked CSD or intermediary or registered on the register in the name of or on behalf of CBL and before the credit to their own securities accounts with CBL in the case of winding-up proceedings of CBL as account keeper.

Key consideration 6

A CSD should identify, measure, monitor, and manage its risks from other activities that it may perform; additional tools may be necessary in order to address these risks.

Besides central safekeeping and administration of securities and settlement, CBL offers a variety of services for financial institutions across selected markets and financial instruments. The company identifies, measures, monitors and manages risks arising from these activities. The following sections present information complementing the propositions provided in [Principles 3, 4, 7, 15, 16 and 17](#).

CBL performs cash management and FX services, as well as financing, lending and borrowing services. CBL also offers investment fund related services, including an order routing solution (Vestima). This service covers mutual funds, exchange-traded funds as well as alternative funds. Comprehensive custody management includes, for example, withholding tax and general shareholder meeting services. In addition, CBL offers related information distribution including customer reporting and a comprehensive new issues service.

Credit and liquidity risks arising from CBL's additional services

Any risk deriving from credit and liquidity activities is addressed in [Principles 3, 4 and 7](#).

CBL considers corporate actions (including general meetings) as central safekeeping and administrative functions.

Order routing, settlement and custody services for investment funds do not present any material risk which would require a risk management approach different to the one described in [Principles 3, 15, 16 and 17](#).

Credit and liquidity risks arising from collateral management agency services mainly relate to derived asset servicing and settlement activities; they do not differ from the risks set out in [Principles 4, 5 and 7](#).

For securities lending services, a dedicated legal framework is set up for and with each individual customer in addition to the provisions of CBL's Client Handbook.

CBL offers several FX services to its customers, such as automatic FX services for custody proceeds, interest charges and standard monthly fees, as well as an FX service for securities settlement instructions and the Case-by-case FX service.

All of CBL's additional services are delivered in accordance with the company's key risk and credit principles. A permanent monitoring process is in place to identify large customer positions which may lead to unwanted nostro balances, regular daily reconciliation of cash balances and a contractual framework are in place with each CCB.

Operational risk arising from CBL's additional services

The creation of new products or services is triggered in different manners: through CBL's customers, the company's reply to market or regulatory changes or through CBL's management initiatives.

CBL has in place a wide range of IT tools, controls and procedures to minimise the impact of sources of risks related to new or existing (enhanced) products and services to ensure the integrity of securities issues, minimise and manage the risks associated with the safekeeping and transfer of securities. Thus, IT tools support the monitoring and reduction of operational risk and ensure that CBL's technical environment remains stable (for example, by ensuring the monitoring of the infrastructure).

With regard to operational risk, CBL in particular uses IT tools and processes to manage and monitor its settlement systems. The control environment includes but is not limited to IT controls: it covers, for instance, cybersecurity measures, local and physical access management, stress testing/VaR, BCM or project management processes, such as the 4 eyes principle. Key controls are detailed and documented in the “Mitigation actions and controls” section of CBL operational scenarios which lists information on controls and procedures (which may also be supported by IT tools). The other control types are further detailed in internal policies and procedures used by CBL to minimise the impact of sources of operational risk.

CBL’s Material Change Process (MCP)

As a general control mechanism, for material changes⁵, new business activities and strategic initiatives, Deutsche Börse Group has implemented a Material Change Process (MCP) governance framework. This framework defines rules, roles, processes and responsibilities applicable to all staff and management, as well as the principles to be applied when assessing any material change activity before, during and after their implementation (including intended updates or implementation of new business activities and services).

Within the MCP framework, a Material Change Committee (MCC) has been set up in addition to the Clearstream Risk Committee (CRC) that is chaired by an independent chairperson. Along with the first line of defence management, the MCC comprises the company’s Chief Compliance Officer (CCO), Chief Risk Officer (CRO), Chief Information Security Officer (CISO), Chief Information Officer/ Chief Technology Officer and permanent guests (for example the Chief Internal Auditor). The MCC is designed to ensure consistency in material change risk assessment reviews, approval processes, completeness of risk impact analysis and adequacy of risk-based measures to manage dependencies and potential risk implications of respective material changes (in accordance with the defined workflow requirements). The MCC has veto right of non-recommendation of a proposed material change by way of their advisory opinions provided for the MCC reviews.

Furthermore, the MCC assessment ensures that key factors for relevant risk types are taken into consideration, and potential capital impact is assessed. It is essential for CBL to identify those risks and modify or structure the product in such a way as to mitigate the risks in the best possible manner. Material changes including all new business activities are assessed by the MCC or Clearstream Risk Committee. The outcome of the risk management assessments shall be reported to CBL’s Executive Board by the chairperson of the CRC.

Within the MCP framework, various stakeholders are involved both at Deutsche Börse Group and legal-entity level based on a “three lines of defence” strategy. The heads of departments and sections (business owners) are responsible for informing the MCC of any plan to introduce a change activity considered a “material change”. In the event that the MCC does not recommend a proposed new business activity, this may nonetheless be proposed to the relevant governing board or committee explicitly stating the conclusions of the MCC.

There are a number of interconnected risks involved in the launch of a new product. Accordingly, it is essential for Clearstream to identify those risks and modify or structure its products in such a way as to mitigate the risks in the best possible manner. Clearstream Risk Management performed 167 Clearstream risk assessments and recommendations for CBL during the year 2021 and 12 related to CBL and CBF (German CSD) combined.

⁵ A change activity is classified as “material” where it has the potential to directly or indirectly affect the business and risk profile of one or more of the regulated Clearstream entities. In these regards, the MCP outlines a set of categories that exemplify prominent examples (not exhaustive) of activities included in scope of “material change”, in particular those that have an impact on the governance, business products and processes relevant for Clearstream.

Material changes are tracked in a centralised inventory also comprising the full list of Clearstream products and services. This inventory is periodically reviewed to ensure appropriate governance during the lifecycle of the respective products and services.

In accordance with the MCP workflow requirements, the material assessment review will be performed by the business owner responsible for CBL in collaboration with other relevant stakeholders, notably the company's Risk Management, Compliance, Information Security, Data Protection and Legal functions. The assessment review is divided in three phases: initiation, pre-launch and post-launch. "MCC review & recommendation" quality gates (QG) are used to verify that a set of required activities is performed to ensure a sound and reliable analysis of the intended material change to allow for a fact-based decision making by the Executive Board. Following the review performed by the MCC, a recommendation will be provided to CBL's Executive Board (MCC review documentation and minutes are stored in a centralised inventory for reference).

Principle 12: Exchange-of-value settlement systems

If an FMI settles transactions that involve the settlement of two linked obligations (for example, securities or foreign exchange transactions), it should eliminate principal risk by conditioning the final settlement of one obligation upon the final settlement of the other.

Key consideration 1

An FMI that is an exchange-of-value settlement system should eliminate principal risk by ensuring that the final settlement of one obligation occurs if and only if the final settlement of the linked obligation also occurs, regardless of whether the FMI settles on a gross or net basis and when finality occurs.

CBL settles transactions that involve the settlement of two linked obligations being the delivery of securities against the payment of cash (delivery-versus-payment transaction). Principal risk is avoided through the irrevocable and simultaneous exchange of the securities (delivery) and the cash value (payment) to settle a delivery-versus-payment (DvP) transaction. This aspect is covered by:

- (i) the legal and regulatory framework applicable to CBL's settlement activities as defined in [Principle 1](#);
- (ii) CBL's governing contractual framework (the CBL Client Handbook, section 4.1.) has implemented the provisions of the SFD and Payment Services Law (as defined in [Principle 1](#)). The Client Handbook sets out the settlement mechanisms and finality rules applicable and binding upon CBL and its customers in order to address the principal risk in the system pursuant to Luxembourgish law;
- (iii) From a technical perspective, CBL's Creation platform processes all instructions in real time ensuring a simultaneous exchange of delivery and payment. Securities settlement instructions are matched and provisioned prior to settlement to ensure the adequacy of cash and securities for settlement. The timely processing is assured by undertaking regular mitigating measures, such as system developments as soon as potential system performance issues are detected. The high level of system performance is being ensured by regular system regression testing activities. CBL links the final settlement through a DvP settlement mechanism. Accordingly, the DvP mechanism links a securities transfer and a cash transfer in such a way as to ensure that delivery occurs if the corresponding payment occurs. Internal DvP transactions are final as soon as cash and securities have been successfully settled in CBL's real-time system environment. This is simultaneous and therefore the length of time between the blocking and final settlement of both obligations is minimised.

Bridge settlement

The Bridge as interoperable link between CBL and Euroclear Bank NV/SA enables delivery versus payment (DvP) transactions. For the settlement of Bridge transactions, both ICSDs mitigate the principal risk by defining common rules of finality for the settlement. In addition, the fact that only matched instructions are eligible for settlement on the Bridge ensures a linking of the settlement instructions aiming at a reduction of the principal risks.

Obligations resulting from DvP instructions are settled on a gross basis. The same securities can be received and delivered ("back-to-back") several times during a settlement cycle. These transactions are processed in "transaction chains". Transaction chains are made up of all transactions in the same security within the same settlement cycle. Unsettled securities transactions are re-cycled in several settlement cycles as new information is received from depositories and from Euroclear Bank over the Bridge. If, in each chain, the initial deliverer has securities provision and the final receiver has cash provision, all internal transactions can be settled by netting through the flow of securities and cash in the chain. If provision is lacking on either side or on both sides, the chain is retried, taking the counterparty or counterparties next to the failing deliverer and/or receiver.

Finality of Bridge instructions is reached when the settlement is definitive, binding, enforceable and unconditional between the customer, the counterparty to the transaction via the Bridge and any third party. For day-time processing, finality is achieved in the books of the receiving ICSD at the moment the securities are debited from the transit account of the delivering ICSD and, in case of DvP instructions, cash is credited on the cash transit account of the delivering ICSD. For night-time processing, finality is achieved upon the completion of the following three events:

- (i) Receipt by the delivering system operator of feedback file;
- (ii) Receipt by the delivering system operator of the next proposed delivery transmission from the receiving system operator;
- (iii) Receipt by the receiving ICSD of a positive verification communication from the delivering ICSD.

Domestic settlement

The settlement model applied for settlement with external parties may vary on the offer available in each market. Such information is available in the Market Link Guides on Clearstream's [website](#). Any external receipt or delivery instruction is only released for settlement after successful provisioning of the securities or cash obligation. DvP transactions involving a domestic counterparty are final depending on the receipt of expected settlement results in accordance with local market regulations and practices and in particular under consideration of the processing mode (batch, real time) of the relevant local market and its time zone. Upon successful validation of respective settlement results received from domestic markets, real-time processing will take place in CBL's system in order to reflect the full transfer of securities and cash.

The finality of instructions is further described in [Principle 8](#). The order in which transactions are considered for provisioning and settlement is generally determined by the transaction priority (assigned by the customer or by CBL), and the settlement sequence option on the customer's Creation settlement account with CBL.

Principle 13: Participant-default rules and procedures

An FMI should have effective and clearly defined rules and procedures to manage a participant default. These rules and procedures should be designed to ensure that the FMI can take timely action to contain losses and liquidity pressures and continue to meet its obligations.

Key consideration 1

An FMI should have default rules and procedures that enable the FMI to continue to meet its obligations in the event of a participant default and that address the replenishment of resources following a default.

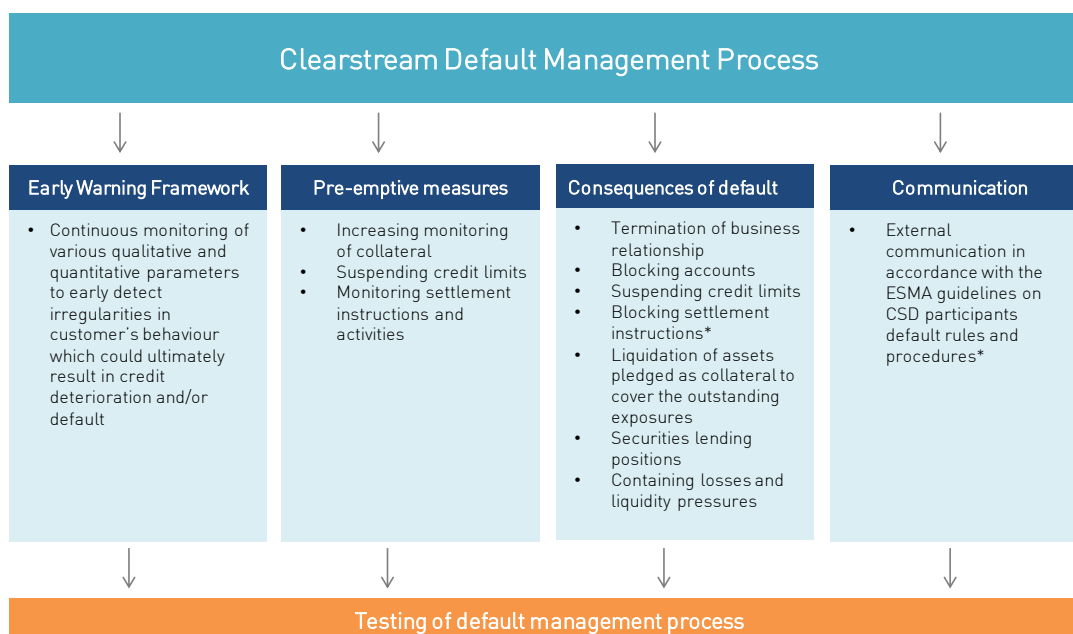
CBL has default management process (DMP) rules and procedures in place which define the circumstances under which a participant is considered to be in default, the measures implemented to mitigate the risks arising from a participant default and the testing activity to ensure its continuous improvement.

Referring to its products and services offered, CBL defines two types of default:

- (i) General default: When a participant is unable to fulfil its contractual obligations according to an agreement with CBL where insolvency proceedings, as defined in Article 2 (j) of the SFD, are opened against a customer. "Insolvency proceedings" shall mean any collective measure provided for in the law of a EU Member State, or a third country, either to wind up the participant or to reorganise it, where such measure involves the suspending of, or imposing limitations on, transfers or payments.
- (ii) Contractual default: When a participant is unable or unwilling to fulfil, in a timely manner, one or more of its scheduled obligations according to an agreement with CBL.

In order to identify a default and classify it in accordance with the abovementioned default types, CBL has established the Early Warning Framework which is based on early warning indicators and their monitoring thresholds which have been determined based on identified risks in the various business areas like Custody and Settlement, Treasury, Securities Financing etc. The continuous monitoring of these indicators and their thresholds ensures an early detection of irregularities in a participant's behaviour, which could ultimately result in the participant's credit deterioration or default. As such, CBL could take pre-emptive measures even before the default occurs.

The DMP of CBL has been implemented in accordance with [Principle 13](#) and Article 41 of CSDR. The following chart describes different phases of the DMP, which consist of (i) monitoring (identifying a participant's default at an early stage and taking preliminary measures in order to eliminate/reduce the exposures), (ii) taking corrective measures (liquidation of defaulting participant's pledged collateral in order to cover the outstanding exposure) and (iii) communicating, as per ESMA guidelines, the competent authority and the defaulting participant of the actions to be taken or taken by the CSD following the default and any other persons of the actions taken following the default.



*applicable only to insolvency

Key consideration 2

An FMI should be well prepared to implement its default rules and procedures, including any appropriate discretionary procedures provided for in its rules.

The Clearstream Default Management team (CDM) is the owner of the DMP. The process is initiated and coordinated by CDM, which regularly reviews, tests and amends the process, where necessary, in order to be well prepared to act if needed. In case of a participant default CDM would initiate the DMP. Upon approval of default, the DMP foresees the suspension of the credit limits (if not already implemented as a pre-emptive measure) and the liquidation of the defaulting participant's collateral for the purpose of covering the outstanding exposures (if any). Liquidation of collateral is a corrective measure in the process. The key objectives of liquidation are to (i) minimise the losses for CBL, (ii) limit disruptions to the market by ensuring a smooth collateral liquidation and a timely completion of settlement even under stressed market conditions and as a result avoid impact on the normal settlement activity of non-defaulting CBL participants, as well as (iii) sell collateral in a prudent and orderly manner.

CBL's settlement system ensures a clear segregation of the participants' proprietary and their underlying clients' assets. Only participants' proprietary assets pledged as collateral are subject to liquidation in case of default. The underlying clients' assets are segregated on dedicated accounts. They cannot be pledged under the pledge permitted by CBL's GTCs and therefore underlying clients' assets are not subject to liquidation or off-setting in case of a participant default (if not specially agreed otherwise).

Upon default of a CBL participant, there are two types of treatment for the underlying clients' assets:

- (i) In general, should a CBL participant default contractually, this participant will be able to continue its operations at CBL once the outstanding exposure of CBL, on the given participant, has been covered in accordance with the rules and procedures of the DMP. As such, the defaulting participant will also be able to continue the operations of its underlying clients as its assets remain on the accounts opened with CBL. However, CBL could decide on a case-by-case basis to terminate the relationship in accordance with the GTCs and its Customer Access and Acceptance Policy.
- (ii) Should a CBL participant default legally, CBL would follow the instructions of the appointed administrator in order to transfer the remaining proprietary assets of the defaulted participant as well as the assets of its underlying clients to the dedicated accounts opened by the insolvency administrator. Should an underlying client wish to open a direct account with CBL, CBL would apply the standard due diligence under the participant acceptance criteria and decide whether an underlying client meets the criteria to be accepted as a new CBL participant.

With regard to a participant's underlying client transactions, CBL applies the settlement finality rules, provided the provisioning rules are respected. Should a participant of CBL default, the DMP would be activated and the accounts of the defaulting participant would be blocked. Under the settlement finality rules, CBL would allow manual release of pending transactions.

CBL's GTCs and its uncommitted intraday Technical Overdraft Facility (iTOF) agreement govern the right of pledge over participants' proprietary assets and their enforcement of those assets in case of a participant's default. Based on this, CBL's DMP defines the operational processes which enable the company to promptly access the abovementioned pledged assets in case of a participant's default and liquidate them in order to cover the outstanding exposures of the defaulted participant.

Additional financial resources that can be used for avoiding liquidity pressures or covering potential liquidity gaps are defined in [Principle 7, key consideration 10](#). In addition, the Clearstream Recovery Plan states that financial resources are to be used for recovering from a major potential loss.

In compliance with the ESMA guidelines on CSD participants default rules and procedures, CBL would communicate the participant's default and/or the measures taken following the default, to all relevant stakeholders. CBL's default management procedures define the communication path in case of a participant's default to the relevant internal and external stakeholders. The communication of default to the competent relevant authorities of CBL is part of the communication plan. In order to inform the non-defaulting participants of the actions taken following a participant's default, CBL will publish a press release on its website as well as an alert on Xact Web Portal.

All default management processes and procedures are reviewed, tested, updated and approved by CBL's Executive Board at least annually in order to ensure their quality and functionality.

Key consideration 3

An FMI should publicly disclose key aspects of its default rules and procedures.

CBL publishes an overview of its main default management rules on the Clearstream [website](#).

Key consideration 4

An FMI should involve its participants and other stakeholders in the testing and review of the FMI's default procedures, including any close-out procedures. Such testing and review should be conducted at least annually or following material changes to the rules and procedures to ensure that they are practical and effective.

CDM conducts the default management testing in order to ensure a continuous improvement of the DMP and the best possible level of preparation for a crisis situation, which can be triggered either by a participant default or a market crisis. In addition to the regular maintenance of the DMP, CDM undertakes the default management testing following any substantial changes to CBL's default rules and procedures or upon request from its competent authority. In accordance with the ESMA guidelines and depending on the type of test, CDM can invite different participants. These can be CBL participants, relevant FMIs and any other entities, as appropriate, for the securities settlement system it operates. The competent authority may also request to take part in such tests. CDM tests the default management process also to ensure that all relevant participants are familiar with their roles and responsibilities in the DMP. Additionally, the objective of default management testing is to provide training and guidance to CBL personnel on how the default rules and procedures should be implemented.

CDM also discloses on Clearstream's [website](#) at least a summary of the result of the performed tests and the contemplated changes to its default rules and procedures, if any. Additionally, CBL offers participants the opportunity to be involved in the Clearstream default management framework by going through the company's default rules and procedures as well as the testing activity with the Clearstream Default Management unit.

Principle 14: Segregation and portability

A CCP should have rules and procedures that enable the segregation and portability of positions of a participant's customers and the collateral provided to the CCP with respect to those positions.

Not applicable to CBL.

Principle 15: General business risk

An FMI should identify, monitor, and manage its general business risk and hold sufficient liquid net assets funded by equity to cover potential general business losses so that it can continue operations and services as a going concern if those losses materialise. Further, liquid net assets should at all times be sufficient to ensure a recovery or orderly wind-down of critical operations and services.

Key consideration 1

An FMI should have robust management and control systems to identify, monitor, and manage general business risks, including losses from poor execution of business strategy, negative cash flows, or unexpected and excessively large operating expenses.

For CBL, business risk reflects the sensitivity to macroeconomic evolution and vulnerability to event risk arising from external threats, such as changes in the competitive, macroeconomic, regulatory or political environment or internal weaknesses (including erroneous strategic management decisions). It comprises, for instance, threats from competition, a negative economic environment and other aspects, which lead to revenues that are lower than projected or costs that are higher than projected.

Revenue risk arises if the competitive environment deteriorates as a result of the demand situation on the market, or a change in this situation; for example, due to an inability to sell the services, changes in customer requirements, missed trends, a change in business areas, overpricing, or a lack of production efficiency.

Major cost drivers for cost risk are, for instance, labour, hard- and software or external providers. Moreover, CBL has direct and indirect dependencies on earnings before interest, tax, depreciation and amortisation (EBITDA) like interest rates, the gross domestic product, interest or foreign-exchange rates which could result in risk from macroeconomics. Besides the obligation to fulfil all current regulatory requirements, the risk of changing laws may additionally impact CBL in a negative manner.

Overall, business risk describes the unexpected residual loss which arises when earnings at risk (EaR) exceed anticipated net income after tax. EaR are calculated using a Value-at-Risk (VaR) model and are based on the variance-covariance approach using a historical time series of profit and loss figures. The model uses a historical time series of more than eleven years. The confidence level is of 99.9% in the economic perspective of the internal capital adequacy assessment process (ICAAP) over a specified time horizon of one year. The methodology is based on quarterly relative deviations – positive as well as negative – between expected and actual profit and loss figures. Based on these deviations, a quarterly mean and standard deviation is calculated. For the annual calculation of business risk the quarterly mean is multiplied by 4 and the standard deviation is multiplied by 2.

For CBL, the framework to manage and control business risk comprises several instruments including an early warning system based on key risk indicators (KRIs).

Details on responsibilities, process and procedures with regards to risk management are documented in Clearstream's Business Risk Handbook. The Handbook is reviewed annually and updated on an ad-hoc basis.

Furthermore, as an additional level of assessment, Clearstream Risk Management performs stress testing. The objective of the Business Risk stress test is to identify current and relevant threats for CBL in order to derive the potential impacts of these events to the revenue and cost situation.

In general, all business risk scenarios are eligible for stress testing. Therefore, the stress test storyline takes into account a plausible combination of the business risk scenarios, covering the key business risk drivers. It is assumed that these scenarios will occur at the same time. They are selected based on their likelihood, maximum loss and other economic/business influence factors that are important to CBL's business strategy implementation.

In order to ensure completeness and the timely update of the business risk stress testing framework, CBL regularly monitors the main business risk stress test drivers, analysing the information received by different organisational areas.

Key consideration 2

An FMI should hold liquid net assets funded by equity (such as common stock, disclosed reserves, or other retained earnings) so that it can continue operations and services as a going concern if it incurs general business losses. The amount of liquid net assets funded by equity an FMI should hold should be determined by its general business risk profile and the length of time required to achieve a recovery or orderly wind-down, as appropriate, of its critical operations and services if such action is taken.

Liquid net assets funded by own funds

CBL's own funds are used to fund CBL's investment portfolio. This portfolio is composed of issuers whose bonds have a remaining life to maturity below ten years as described in the Clearstream Treasury Investment Policy. These assets are EUR or USD denominated. Only highly liquid financial instruments with minimal market and credit risk, and hence minimal adverse price effect, where public update of the prices is available, are eligible. The high quality of the assets ensures that in times of stress same-day monetisation may be achieved by either using the ECB marginal lending facility or by using committed repo lines (EUR and USD) or accessing CCP-cleared repo markets in EUR (that is Eurex), GBP (LCH) and USD (FICC). In addition to uncommitted repo lines, CBL currently has a number of committed FX facilities to convert into a number of currencies including EUR and USD.

Capital requirements under CSDR

In order to be compliant with Article 6 "Capital requirements for business risk" of the Commission Delegated Regulation (EU) 2017/390 ("DR 2017/390"), CBL applies all of the following measures:

- Estimate the capital necessary to cover losses resulting from business risk on reasonably foreseeable adverse scenarios relevant to its business model, hereinafter described as scenario analysis;
- Document the assumptions and the methodologies used to estimate the expected losses in the scenario documents;
- Review and update the scenarios at least annually.

The capital requirements of a (I)CSD for business risk shall be whichever of the following is higher:

- 25% of the CSD's annual gross operational expenses;
- Estimated amount resulting from the application of the scenario analysis, minus whichever of the following is the lowest:
 - Net income after tax for the last audited financial year;
 - Expected net income after tax for the current financial year;
 - Expected net income after tax for the previous financial year where audited results are not yet available.

CBL's capital model

The required capital for business risk is calculated based on the results of a statistical model. The overall objective of the business risk model is to simulate a loss distribution for a period of one year. The actuarial technique applied is modelling the occurrence of a business risk event (the frequency) and the impact of such an event (the severity). Simulating risk events and respective losses with the Monte Carlo simulation gives the required aggregate loss distribution. From this loss distribution the several risk figures are derived:

- Expected loss: defined as the statistical mean of the aggregated loss distribution. It indicates which annual loss CBL might face on average over a long period of time.
- Value-at-Risk: defined as the amount that is not exceeded in q% of the cases of all years. For economic capital purpose the 99.90% percentile is calculated; for internal purposes the 99% percentile is calculated. Any other percentile can be derived from the aggregate loss distribution.
- Expected shortfall to the q percentile: defined as the statistical mean of the loss distribution above the q percentile. It is used as a proxy for the loss amount CBL could face if the q percentile is exceeded.

KRIs are used as an early warning system for business risk. The reports received by Clearstream Risk Management include detailed information on CBL's profit & loss figures, operational expenses, cash flows, project controlling, etc. Through a regular monitoring and analysis of the information received, Clearstream Risk Management is able to identify trends and evolutionary changes related to CBL's internal/external business environment. Through the identification and measurement of leading indicators, for example, deviation from projected revenues or costs, information on changing risk levels are received at an early stage. This methodology relies on the monthly review of a defined set of KRIs. The KRIs and thresholds should be linked to existing risk scenarios and are reviewed with the business areas at least in the course of the scenario analysis process. All KRIs are collected and analysed by Clearstream Risk Management on a monthly basis. KRI information is analysed for trends and monthly breaches. The results of KRI analysis are used to proactively update the scenario database and/or trigger a re-assessment of the company's business risk estimations.

The length of time of achieving a recovery of critical operations and services is outlined in Clearstream's recovery plan. In the said plan, CBL estimates for each recovery option, the length of time necessary to complete the relevant process steps. An estimation of the time span required for winding-down or restructuring is also done for those scenarios (events) taken into account in CBL's restructuring and winding-down plan. An estimated time is provided for each of the process steps. The associated operating costs are determined based on the annual gross operational expenses, divided by twelve and multiplied by whichever period is longer between six months and the estimated time span for the restructuring or orderly wind-down. CBL calculates its capital requirements for winding-down or restructuring based on Article 7 of EBA RTS.

Key consideration 3

An FMI should maintain a viable recovery or orderly wind-down plan and should hold sufficient liquid net assets funded by equity to implement this plan. At a minimum, an FMI should hold liquid net assets funded by equity equal to at least six months of current operating expenses. These assets are in addition to resources held to cover participant defaults or other risks covered under the financial resources principles. However, equity held under international risk-based capital standards can be included where relevant and appropriate to avoid duplicate capital requirements.

CBL distinguishes between requirements for a recovery plan (mitigating a near-default situation), a restructuring and wind-down plan (ensuring solvent wind-down) and a resolution plan (insolvent wind-down).

The recovery, restructuring and wind-down plans are drawn up and maintained by CBL. Their purpose is to set out available tools of CBL to overcome severe financial and operational shocks that could potentially undermine the viability of CBL and sustainability of its business. Ultimately, the plans aim at ensuring the continuity of CBL's critical services and operations, also preventing significant adverse effects on the financial system.

At present, the recovery capability of CBL is considered to be given. A suitable number of viable recovery options has been identified for the case CBL is exposed to severe stress. The range of identified recovery options ensures that CBL can raise sufficient capital or funding to withstand severe stress affecting its capital and liquidity profile. In addition, there is a range of recovery measures aimed at restoring the company's operational capacity or strengthening the risk profile.

Operational capability has also been proven to be stable, even in crisis situations. This is the result of robust and efficient crisis management processes and procedures as well as detailed business contingency measures, which are partially also reflected in the recovery plan.

Both risk and financial profiles of CBL prove to be robust and only an extreme event would trigger a near-default situation. As aforementioned, CBL has a number of recovery options, which would be implemented as an appropriate response to a severe stress. In addition, CBL has adequate crisis and default management procedures to deal with anomalies and emerging crisis situations. These procedures are regularly tested to ensure their effectiveness and that all relevant stakeholders are familiar with their roles and responsibilities. Hence, CBL is able to respond very quickly to a crisis event and implement the necessary mitigating tools in a timely manner.

The recovery plan is reviewed at least annually and approved by the Executive Board of CBL as described in [Principle 3, key consideration 4](#).

In the restructuring and wind-down plan, several tools are identified as being applicable in restructuring and wind-down scenarios. The scenarios are differentiated on the basis of the criteria and requirements stipulated by the CSDR and considering the applicable tools accordingly. These tools vary in their applicability and feasibility depending on the scenario.

The restructuring and wind down plan of CBL defines a restructuring and wind-down timeline based on the relevant scenario and the applicable tools. Accordingly, the necessary amount of capital is derived to ensure that critical operations and services can be continued during the restructuring or wind-down period.

Key consideration 4

Assets held to cover general business risk should be of high quality and sufficiently liquid in order to allow the FMI to meet its current and projected operating expenses under a range of scenarios, including in adverse market conditions.

CBL's investment portfolio is composed of issuers whose bonds have a remaining life to maturity below ten years. These assets are exclusively ECB eligible HQLA Level 1 assets denominated in Euros (CBL's equity is only in EUR currency). They are kept unencumbered on a separate account under the direct management of CBL's Treasury team as the company's liquidity management function. The assets may only be used as a source of contingent funds during stress periods and qualify as qualifying liquid resources (QLR) under CSDR (please refer to [Principle 7, key consideration 5](#) for more details). During such stress periods, cash would be generated via the ECB's marginal lending facility or alternatively by using the repo market.

Key consideration 5

An FMI should maintain a viable plan for raising additional equity should its equity fall close to or below the amount needed. This plan should be approved by the board of directors and updated regularly.

The recovery plan of CBL includes a range of measures that CBL could take to restore its equity profile or raise additional equity should it fall close to or below the amount needed to ensure going concern. The recovery options identified in the recovery plan in order to raise equity are: (i) retaining earnings, (ii) increasing equity by parent company, (iii) equity increase by third-party investor, and (iv) syndicated loan.

As mentioned in [key consideration 4](#), the recovery plan is subject to approval by CBL's Executive Board. In the event of a crisis, the company's Credit Crisis Management team (CCMT) or the Recovery and Resolution Planning (RRP) core team will prepare a recommendation to CBL's Executive Board if measures to raise additional equity capital are needed. The Executive Board confirms or rejects the recommendation by the CCMT and approves the recovery event and the recovery options to be implemented.

Furthermore, the plan is tested at least annually to ensure its effectiveness and continuous improvement.

Principle 16: Custody and investment risks

An FMI should safeguard its own and its participants' assets and minimise the risk of loss on and delay in access to these assets. An FMI's investments should be in instruments with minimal credit, market, and liquidity risks.

Key consideration 1

An FMI should hold its own and its participants' assets at supervised and regulated entities that have robust accounting practices, safekeeping procedures, and internal controls that fully protect these assets.

CBL operates a large number of links (both cash and securities markets) across the globe. All CSDs and other suppliers (CCBs, agent banks or sub-custodians) appointed by CBL in these domestic markets are contractually required to obtain and maintain all necessary permits, licences and consents or authorisations required by applicable law(s) to enable them to fulfil their obligations under the agreement. CBL ensures that the suppliers have robust accounting practices, safekeeping procedures and internal controls through a set of assessment measures described below.

Whenever possible, CBL holds its own and its participants' assets in accounts at a local CSD. In these cases, the role of the supplier is reduced to a power of attorney and can be revoked with immediate effect. CBL has established direct links with local CSDs and indirect links via depository banks to more than 60 domestic markets whereby the following types of links qualify as CSD links:

- Direct link
- Direct link with asset servicing provided by a local partner
- Direct link operated by an account operator
- Indirect link
- Indirect and sub-deposited link
- Interoperable link (including Bridge with Euroclear Bank and links between CSDs in T2S for the T2S related aspects)

CBL provides one link type that does not qualify as CSD link: out-of-network link. This is a link where CBL acts as an operator, that means CBL operates the account of a customer/beneficial owner at the supplier or CSD. CBL itself does not hold an account at the supplier or CSD. However, unless otherwise specified, links of this type are treated in the same way as the above types of links that qualify as CSD links under CSDR.

For all of the said link types CBL reviews the elements necessary to asset protection to make sure it is compliant with its obligations towards its customers. These obligations comprise the enforceability of the agreement with the supplier with whom CBL holds its own or its participants' assets as well as the protection of the assets, for instance, in the event of insolvency of the supplier.

How CBL assesses local CSDs and other suppliers

The Clearstream Network Management (NM) function develops and maintains relationships and services with CBL's network of suppliers, such as sub-custodians, CSDs, central banks, cash correspondent banks or market infrastructures. The team also assesses the risks resulting from the relationship with the suppliers. Each market linked to CBL is supervised by a dedicated Network Manager who performs an "end-to-end" role, covering all suppliers and infrastructures for a given market. Relationship management tasks include the following:

- Monitoring and maintenance of legal documentation
- Policies and guidelines (for example relating to risk management and contractual arrangements);
- Process definitions;
- Supplier/market review process;
- Management of statistical reporting and business targets;
- KPI reporting, analysis and action planning;
- Issue management;
- Incident management;
- Benchmark development and maintenance;
- Monitoring and communication of market changes internally across impacted departments and externally towards customers;
- Annual credit review (by Credit department on behalf of NM) for non-EEA CSDs.

Through these measures, the NM team, who is located in Luxembourg, Prague and Singapore, ensures that local CSDs and other suppliers linked to CBL have in place robust accounting practices, safekeeping procedures and internal controls. The CSDs and suppliers are assessed by NM as part of the selection process during the setup of a new market link and on an annual basis for existing links. Furthermore, CBL ranks its suppliers on the basis of MIS data collected by its NM and Operations teams. The rankings are complemented by periodic depository quality assessments for suppliers across the network.

Selection process via requests for proposal/information (RfP/RfI)

When CBL decides to enter a new market, NM performs a request for proposal (RfP)/request for information (RfI) selection process. This process comprises (i) a detailed operational overview of each individual business process, (ii) a legal and compliance overview of the entire infrastructure and (iii) a credit review. NM assesses candidate supplier(s) based on their responses to RfP/RfI questionnaires. Criteria of the selection process include, among others, the candidate's operational efficiency (such as deadlines, turnaround times), creditworthiness (for instance credit assessment of the intermediary's capitalisation, asset quality, management competence, risk profiles, earnings and liquidity), general standing from a compliance perspective (such as ownership, shareholders, market capitalisation), its compliance with regulations regarding the combat against money laundering and terrorist financing, credit lines granted, fees, as well as the candidate's connectivity and STP standards such as ISO 15022/20022 compliance. In addition, CBL includes as selection criteria, the supplier's presence and importance in the market via, among others, the candidate's market share and its presence on the local market forums. Upon review of the proposals received, candidates are shortlisted, and due diligence visits (DDVs) can be performed on the final candidate. Based on the RfP/RfI responses, the collected documents and the output of the DDVs, NM will have a comprehensive view of the key risks identified for CBL

and its participants from the link creation and/or appointment of the new supplier. CBL may, if deemed necessary, also contact clients of the candidate institution. Final approval of the supplier selection is delivered by CBL's Executive Board.

Once a market link has been established, CBL annually verifies the suppliers' compliance with the provisions of the link agreements through a set of tools and measures, of which the most important are outlined below.

Link arrangement review questionnaires

The link arrangement review questionnaires are sent out to each CSD. These questionnaires intend to verify the CSDs' compliance to all key regulatory points of CSDR. It has been based on this regulation and is commonly used by all CSDs in the countries covered by CSDR. For CSDs not covered by CSDR, a more extensive questionnaire is used.

Due diligence inspections including DDVs

Due diligence inspections consist of any verification deemed appropriate in order to ascertain that the supplier fulfils its obligations under the legal agreement pursuant to the professional standards of a securities custodian. Hence, the inspections are based on the AFME industry standard questionnaire and an appendix with a set of additional questions that are specific to CBL as CSDR regulated entity, for indirect and operated links. These questionnaires cover aspects such as, among others:

- (i) Legal and regulatory frameworks;
- (ii) Security and insurance coverage;
- (iii) Operational processes and reconciliation items;
- (iv) Business continuity management;
- (v) AML measures; and
- (vi) Recent and forthcoming market changes.

This assessment allows CBL to monitor and manage any additional risks resulting from the use of an agent bank and to verify that the link and the agent bank meet the regulatory requirements set out in CSDR. Like the link arrangement reviews, DDVs provide CBL's NM team with additional information on the respective markets since the Network Managers also use them to discuss subjects such as regulatory changes, market developments, fee renegotiations or potential business developments (for example the inclusion of a new asset class on the link).

Depending on the link structure, DDVs may additionally include a review, among others, of the sub-custodian/agent or CSD operations site or vaults if applicable, as well as meetings with regulators or market infrastructures. DDV reports and accompanying material are subject to internal and external audit reviews. As part of the annual CSDR review and evaluation process, CBL shares the outcome of the DDVs with the regulators.

Service reviews

In addition to the annual due diligence inspections, CBL conducts service reviews on its various suppliers. These service reviews are organised on an ad hoc basis, sometimes in combination with an annual DDV, and may be established on a recurring, periodic basis if required. Generally, service reviews focus on a specific set of issues or topics whereas DDVs are rather an overall assessment of the supplier and the respective market.

External legal opinions

CBL requests legal opinions from external legal counsels that take into account the requirements of the Luxembourg Law of 1 August 2001 on the circulation of securities (Securities Law). They are considered an independent and neutral confirmation of key legal requirements in respect of the market served. They confirm the foreign depositories' abilities to perform, as required under the respective link agreements, without the risk of being superseded by local regulations or practices. A legal opinion assesses the following aspects, among others:

- CBL's entitlement to securities and the nature of CBL's rights;
- Enforceability of the agent's (and CSD's) obligations;
- Enforceability of the judgement of courts located in relevant jurisdictions;
- Recoverability of assets (cash and securities) in case of insolvency;
- Legal status and authority of the agent (and the CSD);
- Segregation requirements.

The opinions further aim at confirming the relevant and competent regulators of the respective CSDs and/or depositories/agents. They are subject to annual renewal at CBL's expense and in accordance with the agreement made with the respective legal counsel.

Officer's certificates on internal control system

In these certificates, the supplier confirms that an effective internal control system is in place for the securities, that respective controls are reviewed at least annually by the supplier's external auditors and that during the preceding year, no such review has revealed any material deficiencies or made any material objections other than those already notified to CBL, as the case may be.

Further documentation

In addition to the above assessment measures to verify its suppliers' compliance with contractual, legal and regulatory requirements on an annual basis, CBL requests a documentation of their business continuity management and asks for completion of an AML questionnaire.

Key consideration 2

An FMI should have prompt access to its assets and the assets provided by participants, when required.

CBL has immediate access to its own and its customers' assets.

The company's **own securities and cash assets** are kept unencumbered in separate accounts under the direct management of Treasury in its liquidity management function with immediate access.

Prompt access to **assets provided by participants** is ensured by CBL using the right of pledge on its customers' assets. The company's legal framework for its collateral policy is based on Luxembourg Law, in particular Article 11 (1) of the law of 5 August 2005 on the financial collateral arrangements, as amended (Collateral Law). Additionally, CBL's GTCs provide CBL with the legal right to any collateral pledged for credit limit utilisation. CBL has a general right of retention on all assets held on the customers' CBL accounts. For the purpose of securing the credit facilities

granted to its participants, all assets held by participants at CBL are pledged in favour of CBL, as per Article 45 of the GTCs. Nature, size, quality and maturity of the assets provided by CBL customers as collateral are considered in CBL's collateral eligibility guidelines. Furthermore, in its contractual arrangements with its depositories, CBL includes clauses to prevent any losses of assets to the CSD-banking service provider.

CBL assesses the validity and enforceability of collateral pledges of participants domiciled in specific jurisdictions in favour of CBL by requesting external law firms issue legal opinions (see [key consideration 1](#) for details on such legal opinions). Validity, enforceability and recognition of the Luxembourg Law governed collateral arrangements granted by a participant to CBL is also assessed as part of the default management process review.

In the various domestic markets that are linked to CBL, the company holds its assets in accounts at the local CSDs whenever possible. Moreover, where CBL uses indirect links or intermediaries to operate its direct CSD links, it monitors and manages the additional risks from such indirect links and intermediaries (also see [key consideration 3](#)).

CBL only appoints intermediaries that, among others, comply with segregation requirements and ensure prompt access to the securities. In the respective depository contracts, it is specified that no lien and no pledge can affect the assets. The legal opinions as described in [key consideration 1](#) verify this as well.

In case of a participant's default, CBL will ensure that all accounts holding pledged positions will be immediately blocked to avoid any transfer of positions. If the decision to liquidate a participant's portfolio is taken, the pledged assets are segregated to enable the liquidation process. In order to enable prompt access to CBL's own or to its participants' assets, CBL monitors the quality of the services provided by its suppliers and their adherence to the standards defined in the contractual arrangements as outlined in [key consideration 1](#).

Key consideration 3

An FMI should evaluate and understand its exposures to its custodian banks, taking into account the full scope of its relationships with each.

CBL's measures to understand its exposures to its suppliers

CBL's procedure on CSD links and supplier risk management details the activities, documents and stakeholders involved in identifying, assessing, controlling and monitoring risks for CBL and its participants – during the setup of a market link and on a periodic basis thereafter. CBL identifies the following three main categories of risks when assessing new or existing CSD links: (i) financial risk, (ii) operational risk and (iii) business risk.

CBL monitors and manages the additional risks that result from the use of indirect links or intermediaries to operate its CSD links in line with ESMA RTS. These additional risks include custody, credit, legal and operational risks. In accordance with ESMA RTS, CBL's intermediaries shall be credit institutions as defined by CRR or third-country financial institutions that comply with prudential rules at least equivalent to those laid down in CRR. Furthermore, the intermediaries shall comply with CBL's rules and requirements, such as reconciliation frequency or account segregation requirements, including the risk management policies and procedures applicable to CBL.

CBL's measures to evaluate and manage its exposures to its suppliers

CBL achieves optimal reduction of exposure to suppliers by holding assets under custody directly with the respective CSDs. Currently, over one third of CBL's links are held under a direct or directly operated structure and most links benefit from a CBL dedicated account at CSD level (see [key consideration 1](#) for details on the different types of links).

Assets held at central banks are subject to limited or no concentration limits as these entities are considered a risk-free place of deposit for their local currencies and for the financial instruments they accept. For CBL, no concentration limits are reported as applicable to cash held at the central bank of issue, or to securities (assets and collateral) deposited at the central bank of issue. Depositories and CCBs are incorporated in CBL's aggregated credit risk monitoring. Elements regarding the monitoring of the exposure vis-à-vis depositories and CCBs and the collateral concentration limits are described in further detail in [Principles 4](#) and [7](#).

In order to monitor and control concentration limits on an intraday basis and to ensure that CBL is not overly reliant on any individual financial institution, alerts are triggered when specific thresholds are reached. The sufficiency of limits per currency and across all currencies is tested via ex-post stress tests. The accuracy of limits is checked via liquidity stress testing.

CBL reviews its policies and procedures concerning applicable concentration limits towards its liquidity providers on a yearly basis or whenever a material change occurs and affects its risk exposure to any individual financial institution.

Key consideration 4

An FMI's investment strategy should be consistent with its overall risk-management strategy and fully disclosed to its participants, and investments should be secured by, or be claims on, high-quality obligors. These investments should allow for quick liquidation with little, if any, adverse price effect.

CBL's investment strategy has two main objectives: in the first place, the company aims at the minimisation of credit and market risks by managing its own funds and customer cash in order to ensure capital preservation. The second major objective is CBL's access to liquidity to always ensure the company's ability to satisfy payment obligations in a timely manner. The investment strategy forms part of CBL's liquidity risk management strategy and is described in detail in [Principle 7](#). Further information is available in CBL's [Pillar III disclosure report](#) on the Clearstream website.

Risk characteristics of CBL's investments

CBL does not engage in proprietary trading activities and does not maintain a trading book.

Investments in securities as part of the investment or short-term portfolios are only high-quality liquid assets (HQLA) against high-quality obligors. These are purchased by using the "buy and hold" strategy and are recognised in CBL's banking book. They always remain unencumbered and available for an immediate sale or monetisation if required. CBL's Investment Policy defines limits for securities purchase transactions.

CBL's Treasury team invests in highly liquid financial instruments with minimal market and credit risk. To minimise counterparty default risk, placements may only be executed with counterparties that fulfil the high minimum requirements regarding creditworthiness. Credit quality is expressed through an internal rating assigned by the Credit department and described in the Credit Policy.⁶ The policy requires that 90% of available funds are placed on a secured basis, that means, (i) deposited with central banks, or (ii) through arrangements that ensure the collateralisation of cash with highly liquid assets. If no access to a central bank's deposit facility has been granted or if no other alternative secured instrument is available, Treasury places uninvested funds among several commercial institutions to avoid concentration risk.

⁶ Accordingly, placements may only be executed (i) with counterparties with a minimum internal rating of "D" which corresponds to an external rating of BBB+/BBB (Fitch/S&P) or Baa1/Baa2 (Moody's), or (ii) with counterparties exceptionally approved by CBL's Executive Board.

Principle 17: Operational risk

An FMI should identify the plausible sources of operational risk, both internal and external, and mitigate their impact through the use of appropriate systems, policies, procedures, and controls. Systems should be designed to ensure a high degree of security and operational reliability and should have adequate, scalable capacity. Business continuity management should aim for timely recovery of operations and fulfilment of the FMI's obligations, including in the event of a wide-scale or major disruption.

Key consideration 1

An FMI should establish a robust operational risk-management framework with appropriate systems, policies, procedures, and controls to identify, monitor, and manage operational risks.

Identification of operational risk

Operational risk is generally defined as the risk of losses resulting from inadequate or failed internal processes, people and systems or from external events. More specifically, CBL has adopted a definition that is in line with Basel definitions of operational risk which is the risk that deficiencies in information systems or internal processes, human errors, management failures, or disruptions from external events will result in the reduction, deterioration, or breakdown of services provided by CBL.

CBL established appropriate systems, policies, procedures and controls which are described within the adopted risk management framework. The company applies a five-step process for risk management, described in [Principle 3](#). Risk identification involves, to the most complete extent possible, all operational risk issues relevant to CBL, as well as risk drivers. Risks may arise as a result of internal activities or external factors. The risk examination must be performed with regard to existing or new processes, when concluding new business or entering new service areas. The identification can be reactive, following an operational risk event, but it should also be pro-active, based on regular reviews of processes in order to identify weak areas, or based on scenarios taking into consideration all potential sources of issues.

Operational risk contains the following sixteen risk clusters: compliance risk, contagion risk, corporate tax risk, custody risk, information security risk, information technology risk, legal risk, model risk, operational project risk, people risk, physical security risk, processing and execution risk, product tax risk, risk management risk, secondary reputational risk, and third-party risk.

CBL also distinguishes between four main operational risk classes, for labelling purposes:

- **Availability risk:** This risk class contains losses arising from disruption of service delivery due to unavailability of technical or human resources, for example, disruption or unavailability of IT systems, staff unavailability, due to an epidemic, or unavailability of facilities, among others.
- **Service deficiency:** This risk class covers losses arising from impaired processes or execution due to product, process or execution deficiencies, for instance, internal human errors or omissions, supplier deficiencies, product flaw, or loss or destruction of customers' assets. The biggest risks for this category are internal human errors. However, CBL could also suffer from an operational loss due to human errors in external sources' internal procedures.

- **Damage to physical assets:** This risk class comprises losses arising from damage to physical assets of CBL, for example, due to natural hazards, accidents, terrorist attacks or sabotage. Risks such as terrorist attacks with potential far reaching destruction of facilities or killing of some mission-critical people are assumed as possible threats to CBL.
- **Legal risks and risks associated with business practices:** The risk of losses arising from acts or omissions offending laws, regulations, guidelines, and contractual commitments or from improper products or business practices, for instance, fraud, employment regulation, money laundering, anti-trust, corporate governance, or contract risk. Violations against laws/regulations and other compliance risk related topics represent the biggest threat to CBL. The company is exposed to damages including legal costs, monetary penalties including fines, disgorgement of gains and/or forfeiture of assets and potential business interruption or other consequences arising from requirements of cooperation or other measures imposed by the regulating entity.

The categorisation of operational risk into risk classes and risk drivers supports the internal collection of data on operational risk events. As well as the scenario analysis exercises, and the regular collection of KRIs.

IT tools support the identification, monitoring and management of operational risks and ensure the technical environment of CBL remains stable (for example, ensure processing and monitoring of the infrastructure). With regard to operational risk, CBL is, in particular, using IT tools and processes to manage and monitor its systems to minimise operational risks for the settlement systems.

Furthermore, CBL has in place a wide range of various controls set up with the aim to minimise the impact of sources of operational risk. The control environment includes IT controls themselves but also covers several other types of controls (cybersecurity, local access management, physical access management, stress testing/VaR, BCM, project management process, 4-eyes principle etc.). Some of these controls are detailed and documented in the “Mitigation actions and controls” section of CBL’s operational scenarios which lists information on controls and procedures (which may also be supported by IT tools). The other control types are further detailed in the policies and procedures used by CBL to minimise the impact of sources of operational risk.

After the risk identification step, the risks are notified to Clearstream Risk Management in the **notification stage**. All risks are centrally recorded. All organisational units and individual employees must timely notify Risk Management on risks which they have identified and evaluated. Depending on the materiality two forms of notification can be distinguished: Periodic and ad hoc.

The next stage is the **assessment**: All operational risk events or potential new risk developments are assessed qualitatively or in financial terms. The assessment of an incident or a potential risk development aims at quantifying the risk in financial terms using the Value-at-Risk methodology and comparing the result with the available risk cover. It takes into account mitigation measures currently in place.

After the assessment, the stage of **controlling/management** follows. The most adequate treatment is applied to the identified risk in order to mitigate them or actively control/manage them. In general, mitigation encompasses the following: risk avoidance, risk reduction, risk transfer and intentional risk acceptance. All organisational units and employees must perform risk control, implement mitigating action, and monitor these actions according to the established processes.

The last stage of the process is **monitoring and reporting** of the identified risks to the Executive Board. The Executive Board is at least on a quarterly basis and in addition on ad hoc basis – if required – and consistently informed about material risks and the related risk control measures.

CBL employs several policies, processes and controls that are designed to ensure that operational procedures are implemented appropriately:

- Risk strategy
- Operational Risk Handbook: The objective of the Handbook is to give a comprehensive description of the processes and methodologies that constitute CBL's AMA.
- Operational Risk Procedure: This Procedure describes the approach and major instruments applied within the process of managing operational risk on a high level. Furthermore, CBL has established a segregation of duties and follows the "three lines of defence" governance concept for operational risk management (the business functions as first line, the Risk Management function as second line and Internal Audit as third line).
- Reviews: CBL also conducts reviews of its risk management framework to identify the necessity or possibilities for amendments and improvements. This is performed at least once a year in the context of the Internal Capital Adequacy Assessment Process (ICAAP).

Change management and project management policies

CBL follows a stringent project management process which consists of three steps:

- Project planning and initiation, including the creation of a project charter, a project management plan, and other key project management deliverables.
- Project monitoring control and reporting: This describes the series of activities involved in managing a project against its approved project plans, managing scope and costs, managing relationships with suppliers to the project, managing stakeholders and communications, risks, issues and dependencies, project change, configuration management and quality, as well as reporting performance.
- Project closure: This describes the series of activities involved in closing a project appropriately, inclusive lessons learnt.

A dedicated Market Member Readiness (MMR) team is involved in projects from their initial set up. Their task includes the review of the business requirements analysis (BRA) to identify any impacts on customers and other market participants, with the objective to communicate these as early as possible and ensure the readiness of these external shareholders. This avoids the risk of customers and other external stakeholders not being able to perform their business activities with CBL.

Software change management takes place according to a defined and documented process. The purpose of this process is to control changes to the application software in an organised manner by implementing approved changes with minimal disruption. Its scope covers the full life cycle of changes, including the correction of software incidents, requests for software change, approval of the change, development activities to realise the change, the initiation of software configuration management activities, testing activities and approval to launch the change in production environment. The standards mentioned above and used by CBL stipulate minimum requirements for availability and service continuity management.

As per CBL's methodology processes, an acceptance, being functional and/or technical, is always mandatory for any change or fix in order to guarantee that the change functions correctly in a replica of the live environment, performs in the manner that was expected, does not cause degradation of other systems, and meets the needs of the business. This is complemented by:

- A system and technical acceptance test: System performs as per technical requirements; no negative impact on other systems; performance check. This can involve testing with external parties, such as depositories.
- A business acceptance test: Development is according to business requirements.

Key consideration 2

An FMI's board of directors should clearly define the roles and responsibilities for addressing operational risk and should endorse the FMI's operational risk-management framework. Systems, operational policies, procedures, and controls should be reviewed, audited, and tested periodically and after significant changes.

Roles, responsibilities and framework

CBL has adopted a two-tier board structure and is therefore currently managed by an executive board (EB) which is supervised by a supervisory board (SB). Please refer to [Principle 2](#) for a detailed description of CBL's governance structure. Effective and efficient risk management is vital to protect CBL's interests and it enables CBL to achieve its corporate goals and safeguards its continued existence.

CBL's Executive and Supervisory Boards approve the company's risk strategy according to the [Articles of Association](#) of the legal entity in Luxembourg. CBL's Risk Committee receives the risk strategy for acknowledgement.

The EB of CBL is ultimately responsible for the company's risk strategy. The risk strategy reflects the risk appetite, which defines the maximum loss the EB is willing to take in one year, the tolerance in the light of the risks, as well as the performance levels aspired. The Board ensures that the risk strategy is integrated into the business activities throughout CBL and that adequate measures are in place to implement the strategies, policies and procedures. The EB holds the responsibility to determine and communicate the risk appetite and that the risk management framework is adapted accordingly.

CBL's EB has the ultimate responsibility to ensure a strong risk management culture. This includes the ultimate responsibility for risk management, including operational risk and the determination of an appropriate level of aggregate risk tolerance and capacity. The Board also establishes a risk management framework that is consistent with the risk tolerance and capacity.

The EB is timely and consistently informed about material risks and the related risk control measures. The reporting is an essential part of risk management and is designed to give the EB and SB timely and accurate information about the risks that CBL has encountered. All relevant data and information are collected, assessed and prepared by Clearstream Risk Management.

The risk management framework of CBL, as stated in the Operational Risk Procedure, aims at ensuring that all threats, causes of loss and potential disruptions are properly identified as soon as possible, centrally recorded, assessed (that is, quantified in financial terms to the largest possible extent), reported in a timely manner and consistently, together with suitable recommendations to the EB, and controlled.

The risk management framework is constantly challenged by internal auditors, external auditors and regulators. In addition, to make sure that operational risk management approaches and systems are up to date, employees in the Risk Management function are members of different associations of risk management professionals that are engaged in the further development of respective operational risk topics. They regularly check for and take part in risk management conferences or seminars in this area.

Key consideration 3

An FMI should have clearly defined operational reliability objectives and should have policies in place that are designed to achieve those objectives.

From a business perspective, CBL's operational reliability objectives are documented within a large set of key performance indicators (KPIs) that allow a quantifiable and qualitative view of service delivery provided by Business Operations. Such KPIs deliver information on effectiveness, efficiency, degree of automation, turnaround times, operational quality and operational risks for business processes. The operational reliability objectives are, among others:

- Automate processes and operate in STP mode wherever possible, that is, in the areas of income, corporate actions, tax, reconciliation;
- Reduce operational errors to a minimum in all areas;
- Provide competitive deadlines;
- Reduce reversals to a minimum;
- Set up new customer accounts as soon as possible;
- Meet the recovery time objective (RTO) of two hours for time critical systems;
- Provide self-explanatory documentation to decrease number of calls to Client Services.

The abovementioned KPIs are both of qualitative and quantitative nature and can be classified in three different categories with focus on:

- Quality and risk aspects,
- Capacity and volume aspects,
- Process efficiency aspects.

Key consideration 4

An FMI should ensure that it has scalable capacity adequate to handle increasing stress volumes and to achieve its service-level objectives.

All of CBL's reliability objectives stated in [key consideration 3](#) aim at delivering services to customers at the highest level possible while ensuring a robust service resilience. This also includes the operation of systems at defined service levels.

CBL ensures continuously highest levels of system availability for its core systems. (Occasional downtimes are scheduled on weekends for essential system maintenance.) The Creation and ClearstreamXact platforms are designed to cope with settlement volume peaks 50% greater than the average daily activity. Higher peaks can be directly handled by assigning further infrastructure capacity.

CBL has set up a monitoring of volumes in business and IT. Volume information is collected on a daily basis. This is supported by the monitoring of KPIs and deadlines, as defined in the service level agreements. In case of deviation, an analysis is performed. If deviation is due to increasing volumes (changes in the market environment), capacity increases are performed immediately and backed by capacity-on-demand arrangements with infrastructure providers in order to ensure the performance. Changes follow the IT change management process (see [key consideration 1](#) for details) including impact assessments and subsequent stress tests if necessary.

CBL monitors the capacity of its systems to ensure that a capacity buffer (also known as “headroom”) is maintained. The following key internal indicators are used to monitor the ICSD’s IT system performance: system availability, external deadlines and load/resource consumption. Each month, a capacity management report including volume trends analysis is produced. If one or more of the said indicators fall below specific thresholds, CBL will take appropriate actions to improve or upgrade its systems in order to maintain the capacity buffer.

From a control perspective, during each application audit, KPIs and latest capacity management reports are reviewed and compared with the latest incidents reports. The capacity management process itself is also part of the audit plan.

Thanks to a comprehensive change management and release management process, IT systems go through a structured development and testing process before being put into production. Robust tests are also performed throughout the lifetime of the IT systems, for example, whenever material changes are implemented to a system or when a system has suffered a major operational disruption, as applicable on the basis of the underneath root cause.

CBL practices a BCM risk mitigation and avoidance strategy by identifying and assessing the risks and taking preventive precautionary measures to address and mitigate adverse effects in infrastructure or data centre services in the form of developing and upholding business continuity and disaster recovery procedures. By maintaining a dual data centre strategy and keeping all key components redundant and identical between the two data centres for Clearstream-hosted applications, it is warranted that mainframe servers operated under full sysplex, enterprises disk storage systems and the tape library infrastructure including peripheral hardware such as storage area network and network components are always fully operational in both locations. This is perpetuated by continuously employing both data centres with running production and test workloads. Running production workloads in both locations will always fully allocate and demand the underlying infrastructure in its entirety for both data centre locations.

Business volume is monitored throughout the day and during night-time batch operations. Systems are equipped with additional headroom of unallocated resources to accommodate to higher workloads, should this be necessary due to a significant increase in business volume.

Business Operations has a high level of process automation and therefore a massive, sudden jump of settlement volumes has only a limited impact on Business Operations. Key mitigation actions will be limited to resource measures like extended working hours or temporary allocation of resources from non-impacted business areas to impacted areas.

Key consideration 5

An FMI should have comprehensive physical and information security policies that address all potential vulnerabilities and threats.

Physical security

CBL's physical security objectives are defined in Deutsche Börse Group's Corporate Security Policy and Physical Security Standard.

Various sources, such as internet and media research, security information providers and governmental institutions are consulted when evaluating physical vulnerabilities and threats. These vulnerabilities and threats, as well as resulting risks thereof and adequate counter-measures are defined on an ongoing basis.

A major component of the defined processes derived from the Corporate Security Policy is the Group-wide Security Manual which describes operational and administrative tasks, divided in a general part and a location specific part. In addition to this Manual, various other processes and procedures are established to ensure the highest possible level of safety for people and assets.

All processes are subject to permanent monitoring and verification which is guaranteed, among others, by security assessments, intelligence and monitoring, risk analysis, internal and external auditing, penetration testing as well as awareness campaigns and trainings.

CBL's IS second line of defence is the control function responsible for ensuring adequacy of the designed policies as well as compliance with the defined framework.

The main corporate security elements are listed hereafter:

- An access control system is in place for all premises and respective logs are kept. A card access system is in place for all areas, monitored 24 hours, 7 days per week (24/7). There are additionally armoured doorways to high-sensitivity areas, CCTV cameras are installed inside and outside the buildings. They operate in real time 24/7. Security guards are on site 24/7 and all entrances are checked by cameras.
- A security management system (SMS) is connected to the fire control centre and its fire detectors. Furthermore, the SMS is connected to an intrusion alert system. Surveillance of technical installations (temperature etc.) is also installed. Visitors are required to sign in at reception providing valid proof of identity, and must be accompanied by staff on site. Thus, the building is restricted to authorised personnel and accompanied visitors.

All projects have to follow the Corporate Security Policy framework to address sources of - physical vulnerability as described in the Security Manual, like the monitoring of third-party providers (for example, access to buildings), information security and data protection principles, fire protection guidelines etc.

Information security

CBL has implemented a comprehensive information security (IS) control environment comprised of a set of policies, standards, processes and structures to provide the basis for carrying out IS internal control across the organization. The following sections outline the key components of this IS control environment.

(i) Cyber resilience strategy

The cyber resilience strategy, approved by CBL's Executive Board, sets the vision, mission, strategic objectives and governance for successfully achieving cyber resilience. The strategy defines CBL's approach to cyber security and resilience for the medium term (2021–2023) based on the Group-wide IS initiatives, while responding to the challenging threat environment ahead. Moreover, the strategy emphasizes the need to effectively and proactively identify, protect, detect, respond and recover from insider and external attacks. The strategic objectives were structured considering the ECB's Cyber Resilience Oversight Expectations (CROE).

(ii) Cyber resilience and information security governance

Cyber resilience and information security governance, respective objectives, oversight accountabilities and organisational structures, are in place to support conscious, proactive and effective risk-based decisions that ensure high standards of information security. The governance structure enables a reasonable level of assurance on the design adequacy and operating effectiveness of cyber resilience measures.

Roles and responsibilities are structured in line with the three Lines of Defense (LoD) model for effective management of information security and adequate control mechanisms:

- Third line of defence (3rd LoD): Internal Audit, acts on behalf of CBL's Executive Board and external stakeholders (for example, supervisory authorities) to provide an independent, objective and critical review of the first and second LoD by conducting regular and event-triggered audits/reviews;
- Second line of defence (2nd LoD): includes the company's Information Security function, holds a steering function and sets, with the support of the Group, the information security requirements for legal entities of Clearstream Group. Furthermore, it oversees the cyber risks and monitors compliance through reviews of the first LoD.
- First line of defence operationalises the second LoD information security requirements and is responsible for protecting the information assets and for managing related cyber risks within pre-defined and appropriate risk appetite.

Executive Board and Senior Management are responsible for setting the "tone from the top" regarding the importance of cyber resilience and IS internal control environment including compliance with internal policies and external regulatory requirements. The EB approves the cyber resilience strategy and ensures that the strategy is regularly reviewed and updated according to CBL's threat landscape.

Clearstream's Chief Information Security Officer (CISO), with the support of relevant internal stakeholders, is responsible for defining the cyber resilience strategy and overseeing its implementation. He ensures that the cyber resilience objectives and measures defined in the cyber resilience strategy, as well as relevant policies, standards and guidelines are properly communicated and implemented both internally and, when relevant, to third parties, and that compliance is reviewed, monitored and ensured. The CISO reports, on a quarterly basis, on the company's security posture to the EB.

The Clearstream Risk Committee, with escalating authority, advises the EB on CBL's overall current and future cyber risk appetite, risk tolerance and the remittance of information security and cyber resilience related risks.

The Cyber Resilience Steering Committee, which is the governing body for cyber resilience, plays a central role in ensuring execution of CBL's cyber resilience strategy, appropriateness, and completeness of the framework, in monitoring the company's cyber risk exposures, and ensuring that CBL remains resilient.

(iii) Information security framework

The information security framework (ISF) is a foundational element of Clearstream's cyber resilience. It specifies the hierarchy of documents to define IS control requirements along the assets to be protected and their implementation as well as their surveillance to reach and maintain an adequate state of cyber resilience based on their risk appetite and disposition. To implement a holistic approach, the ISF is substantiated by the following documents:

- Level 1: IS charter, describes the Group-wide mission to achieve the objectives of the IS function, the three-lines-of-defence model, the components of the ISF, as well as the roles and responsibilities of the IS function.
- Level 2: IS policies, define IS objectives in specific areas as well as major roles and responsibilities within these areas (for example, Access Control, Infrastructure Security, Acceptable Use).
- Level 3: IS standards, focus on what must be achieved, by providing a set of control requirements. These requirements specify organisational, process or technical controls that must be implemented to support the information security objectives of the information security policies and define the concrete target level of IS within Clearstream.
- Level 4: guidelines, ensure uniform appearance and consistency in compliance with respective IS policies and IS standards.
- Supporting documents (processes, procedures etc.).

(iv) IS risk management

The IS risk assessment is a component of the comprehensive Information Risk Management (IRM) framework documented in Deutsche Börse Group's IRM guideline. The key purpose of the IRM framework is to provide a holistic view on risks affecting Clearstream's information assets, to enable the effective treatment of these risks in a targeted and consistent manner as well as to report on these risks to the management and other stakeholders. The IRM is designed to consistently identify, analyse, evaluate, treat, monitor, review, report and communicate in line with internal and external (for example, regulatory or legislative) requirements.

The CISO reports to the EB and supports the colleagues in business, IT, and especially CBL information owners, to adequately protect their information and corresponding facilities from significant loss and to be compliant with legislative, regulatory, and contractual requirements.

(v) Other security aspects

Security tools are in place and cover, among others, access control, intrusion prevention and detection, denial of service, vulnerability scanning (for identifying potential vulnerabilities on IT applications and underlying IT infrastructure), events logging and monitoring etc.

The Computer Emergency Response Team (CERT) is in charge of analysing pro-actively potential impacts of major cyber incidents and determining a regularly updated picture

of cyber situational awareness. The CERT is also in charge of managing information security events and incidents.

Tests are performed for instance before the implementation of new processes and tools, regular penetration tests are performed ensuring the effectiveness of the controls in place.

Key consideration 6

An FMI should have a business continuity plan that addresses events posing a significant risk of disrupting operations, including events that could cause a wide-scale or major disruption. The plan should incorporate the use of a secondary site and should be designed to ensure that critical information technology (IT) systems can resume operations within two hours following disruptive events. The plan should be designed to enable the FMI to complete settlement by the end of the day of the disruption, even in case of extreme circumstances. The FMI should regularly test these arrangements.

CBL's business continuity management

Objectives of CBL's business continuity plan

CBL strives to provide products and services with utmost reliability. It thus gives the highest importance to the resilience of its business to safeguard it against incidents and disasters, as the unavailability of core processes and resources represents a substantial risk for the company and potential systemic risk to the markets as a whole. Therefore, CBL aims to satisfy itself and the markets of its ability to continue to operate under adverse conditions or in the face of unexpected events or disasters.

To achieve that, CBL has developed business continuity solutions to address the loss of significant numbers of staff in one location, including dispersed operations and business transfers.

CBL's Business Continuity Management (BCM) policy states that in case of business interruption, operations must be resumed within appropriate time scales in order to:

- Safeguard CBL from significant losses, maintain revenue generation and shareholder value.
- Maintain customer confidence, market stability and liquidity and minimise systemic risk.
- Maintain management control, fulfil contractual obligations and regulatory compliance.

The policy further defines that the functions, which are indispensable for the critical daily operations in view of the above objectives, are called mission critical and must be resumed within a recovery time objective (RTO) of two hours.

In accordance with the policy, business continuity plans (BCPs) define the processes and resources including systems and the associated RTO, thereby observing the RTO of two hours for mission critical functions. Further RTO classes have been defined for functions which need to be recovered for up to 24 hours, up to one week or more than one week.

The business continuity plans address the unavailability of systems, workspace, staff and suppliers in order to ensure the continuity and rapid resumption of the critical operations in case of major or wide-scale scenarios.

Design of CBL's business continuity plans

BCPs are a collection of information, guidelines and procedures that specify how critical services, processes and resources will be reinstated to a predetermined level within pre-defined time-scales after a business disruption, an incident or crisis affecting one or several of the key resources. CBL's BCPs are compiled, developed and maintained by the relevant organisational units for use in the event of a business disruption, an incident or a crisis to maintain the continuity of critical operations.

Mission critical functions as defined above must be resumed within an RTO of two hours. Each mission critical CBL function must establish, implement, develop and maintain a BCP to describe its time critical business activities, associated business recovery requirements and business recovery action plan.

The BCM framework, and associated BCPs, are designed to be as comprehensive as possible. Events which would lead to the unavailability of key resources (for example, workspace, IT systems, staff, suppliers) fall within the scope of the Clearstream BCM framework. BCPs deal with the direct effects of an event (workspace unavailability, staff unavailability etc.) rather than specific root causes leading to any disruption (for instance, natural disaster, pandemic situations, physical attacks, intrusions, terroristic attacks) as all these events would ultimately lead to the unavailability of facilities, staff, suppliers or technical equipment.

Interface to IT Disaster Recovery

Information and communication technology (ICT) being a fundamental resource to enable the effective and smooth operations of CBL's critical operations, an interface to IT Disaster Recovery has been established.

IT Disaster Recovery plans are established by the respective functions operating the different technology clusters to document the ICT related infrastructure recovery, restoration and continuity to respond to incidents that significantly impact ICT.

Interface to Incident & Crisis Management

An Incident and Crisis Management process is in place to facilitate the coordinated and rapid reaction to an incident/crisis in a controlled and effective manner, in order to contain and resolve the incident, minimise business and market impact and return to normal business activities as quickly as possible.

Incident managers are appointed as the single points of contact in the respective business areas to support in case of incidents and disruptions. This also ensures the proper escalation up to the Executive Board and Executive Committee levels.

An alert system is used to classify incidents and disruptions according to colour codes relating to a respective level of business impact. The alert system ensures an adequate response to incidents and crises, including the potential activation of business continuity plans. The system also provides for the timely notification of relevant internal and external parties, including:

- Communication to customers;
- Communication with external suppliers, other FMIs;
- Communication to the market, as applicable;
- Communication to regulators, as applicable.

Secondary site

Business and IT operations

Clearstream's operations are distributed across several processing sites around the world, in particular: Luxembourg, Frankfurt, Cork, Singapore and Prague. Geographical distance between the mentioned operational hubs ensures diversity in terms of risk profile among processing sites and enables risk mitigation. Processing sites are fully equipped in terms of capabilities, functionalities, staffing arrangements and operational at any time, to ensure that the required RTO can be met in case of incident or crisis.

In addition to the distributed processing mentioned above, in Luxembourg, Cork and Frankfurt backup facilities provide alternative dedicated office space for Clearstream mission critical units in the event their normal office location would become unavailable. Like the main processing sites, the backup locations are fully equipped in terms of capabilities, functionalities, staffing arrangements and operational at any time, to ensure that the required RTO can be met in case of an incident or crisis.

Data centres (DCs)

The systems architecture is designed to satisfy high availability requirements. The systems infrastructure is duplicated between two distant data centres. Components such as network communications, servers and storage are running in parallel in the two centres. Core systems are clustered and load-balanced between the two centres to allow quick take-over in case of failure. Production data is synchronously mirrored in real-time between the two centres, ensuring the preservation, online availability and integrity of transaction data following a disruption without data loss. In addition, data can be restored from off-line data back-ups which are taken at different intervals during the production cycle and are duplicated on libraries located in both data centres.

A failover mechanism ensures that no data is lost. In the event of one component becoming unavailable, the "remaining" data centre can cover workloads on a normal level. Data centre capacities and normal load usage are designed and dimensioned to singly handle full-load operations alone.

Review and testing

BCP testing

The implemented business continuity solutions described [above](#) are tested or exercised regularly to ensure their effectiveness, functionality and to provide assurance that a real incident could be successfully managed. Tests and exercises further provide awareness and training to staff members involved in the execution of activities.

Clearstream has therefore adopted a comprehensive BCM testing framework based on key principles and with ambitious BCM testing objectives in order to be as close as possible to real life, in terms of definition of scope and scenarios, and to be comprehensive, in terms of coverage of critical resources, procedures and plans.

The test objectives are based on the following criteria:

- Functional effectiveness: validate that arrangements are technically functioning;
- Execution ability: ensure that staff are familiar and knowledgeable in the execution of plans and procedures;
- Recovery time: confirm that plans and procedures can be executed within the defined recovery time objective.

BCPs are tested on a regular basis, at least annually, either announced or unannounced to the participants and up to several business days to provide best possible assurances of the BCM preparedness.

As BCP tests are taking place during normal business hours, in the live production environment to be as close as possible to real life, customers, external suppliers and other FMIs are always indirectly participating to the BCM tests.

Examples of tests which are conducted:

- Workspace unavailability tests: simulate the loss of one building or location and require the relocation of staff to the secondary site and/or activation of business transfer plans to other Clearstream locations, depending on what is defined in the respective business recovery plans.
- Staff unavailability tests: simulate the loss of all staff in one location and require the transfer of activities to staff of units in other Clearstream locations, as defined in the continuity plans.

The Incident & Crisis Management process is also tested as part of major/large-scale tests to ensure effectiveness of the end-to-end communication and recovery process.

Test results are consolidated as part of BCM test reports which are then provided to key stakeholders.

IT Disaster Recovery testing

Systems unavailability tests are planned by the respective IT areas and simulate the loss of one data centre. The disaster is simulated by isolating one data centre from the network. All systems are recovered in the second data centre and the capacity and capability to run processing on just one data centre is validated. Customers, CSDs and/or depositories/agent banks as well as critical service providers are invited to participate in these tests (see also [key consideration 6](#)).

Review and continuous improvement

CBL annually checks the business continuity preparedness of the linked FMIs (depositories/agent banks) by collecting information on their business continuity policies, planning and infrastructure including descriptions of the incident and crisis management, training, awareness, testing and pandemic preparedness. The business continuity and disaster recovery plans of the CSDs and/or depositories/agent banks are also reviewed as part of the due diligence process.

Key consideration 7

An FMI should identify, monitor, and manage the risks that key participants, other FMIs, and service and utility providers might pose to its operations. In addition, an FMI should identify, monitor, and manage the risks its operations might pose to other FMIs.

Risks to the FMI's own operations

Potential risks caused by key participants are mainly related to operational problems of the key participants themselves and have no direct and significant impact on CBL. Nevertheless, this may pose risks to their counterparts and subsequently pose risks to CBL's settlement system efficiency. To appropriately identify, monitor, manage and report on the key participants' risks, CBL has implemented a key participant procedure that primarily focuses on:

- Identification of key participants and their related material dependencies;
- Performance of periodic enhanced key participant due diligence reviews (which assess key participants risk control and management capacities to address and manage fraud, cyber, information security, business continuity, disaster recovery, infrastructure technology and application system risk elements);
- Monitoring potential key participant operational risk exposures and assuring appropriate mitigation measures;
- Ensuring that key participants have sufficient measures in place to properly manage and address the risks they pose to CBL and to thereby minimise to the maximum extent possible the potential risks posed for the CSD, other participants and thus the market as a whole.

Additional measures include:

- Clear and stringent criteria to become a CBL participant (please refer to the “[Becoming a Clearstream customer](#)” section – in particular, the Customer Access and Acceptance Policy – on www.clearstream.com);
- Continuous monitoring of system usage and the global settlement efficiency level;
- Detailed Market Link Guides documenting the established rules for participants, market practice across the Clearstream network and instruction specifications as well as potential risks (see the [Market Coverage](#) section on the Clearstream website);
- Choice between CBL proprietary connectivity or SWIFT;
- Customer training support;
- Clear and timely customer announcements for system changes with impacts on customers;
- Periodic enhanced due diligence on identified key participants.

Risks posed by CBL to others

The CSD’s interconnectedness to other FMIs (for example, stock exchanges, CCPs) in principle makes substitution difficult thereby increasing its interdependencies and subsequent potential operational and financial risks that could be posed to others as a whole.

Risk mitigating measures include due diligence reviews performed on the CSD by its customers and service providers to assess their risk and regulatory control framework capacities put in place to manage all related risks. A major element of these reviews is that CBL shares relevant information with other entities that allow them to adequately assess the risks posed to them by CBL.

Furthermore, CBL has implemented many layers of precaution and protection of its processes and services (regular tests of BCPs) and operates a comprehensive risk management framework built on established standards and best practices.

On an annual basis, Clearstream Risk Management issues the [Pillar III disclosure report](#) where it discloses the company’s current risk situation to the public.

Outsourcing of critical operations

For the provision of products and services to customers, CBL uses a system of mainly intra-Group outsourcing agreements to work effectively and efficiently. All entities within the Group are subject to the same requirements on reliability and contingency. The service delivery between two Clearstream entities is subject to a framework agreement and a formal service definition agreement ("SDS"). The latter also defines qualitative requirements (for example, service features, quality and performance standards, escalation mechanisms). The SDSs also contain KPIs to measure the quality of the respective service.

Any outsourcing is to be based on an initial analysis of the proposed outsourcing (including a pre-assessment, initial outsourcing risk assessment) ensuring compliance with at least current standards as well as fulfilling all legal obligations (that is, being compliant with existing regulation, ensuring banking secrecy, data protection requirements etc.).

Outsourced services and documentation are constantly monitored, and a regular risk assessment is done according to the Outsourcing Policy. The Outsourcing Coordinator, as part of the Central Outsourcing Management, discusses the initial score of the risk assessment with the other second line of defence functions, which are Compliance, Risk Management, Information Security, Data Protection and Internal Audit (as third line of defence). After the review of each participant the Outsourcing Coordinator informs CBL's Executive Board of the results.

Apart from the Central Outsourcing Management, Clearstream Risk Management might in regular reviews identify several operational and business risks that could arise from service providers, as well as from other FMIs. The outsourced services are included in an appropriate manner in the operational risk management framework.

Principle 18: Access and participation requirements

An FMI should have objective, risk-based, and publicly disclosed criteria for participation, which permit fair and open access.

Key consideration 1

An FMI should allow for fair and open access to its services, including by direct and, where relevant, indirect participants and other FMIs, based on reasonable risk-related participation requirements.

According to Article 33 (1) of CSDR, CBL's admission and participation criteria are publicly disclosed in the "[Becoming a Clearstream customer](#)" section of its website. The criteria fulfil the requirements of the regulation to be transparent, objective, and non-discriminatory so as to ensure fair and open access to CBL with due regard to risks to financial stability and the orderliness of markets. The criteria are described in detail in CBL's [Customer and Access Acceptance Policy \(CAAP\)](#) that can be found in said section of the company's website.

Participation criteria that restrict access are permitted only to the extent that their objective is to justifiably control a specified risk for CBL: pursuant to Article 33 (3) of CSDR, CBL denies access only where duly justified based on a comprehensive risk assessment. Article 89 of DR 2017/392 stipulates the criteria and risks on which basis CBL may refuse access to a requesting party such as a participant or another CSD⁷. Accordingly, CBL shall only consider legal risk (as defined by Article 89 (2) of DR 2017/392), financial risk (as defined by Article 89 (7) of DR 2017/392) and operational risk (as defined by Article 89 (11) of DR 2017/392) when conducting the risk assessment. In addition, requirements from rules on the prevention of the use of the financial system for the purpose of money laundering and terrorist financing and financial sanctions are taken into account.

The regulatory requirements under CSDR and DR 2017/392 mentioned above are applicable to CBL following its authorisation pursuant to Article 16 of CSDR on 12 April 2021.

Access to CBL and its settlement services is limited to participants as defined by Directive 98/26/EC but with the possibility of Member States of the European Union to designate further participants pursuant to Article 2 (f) of Directive 98/26/EC. CBL considers access requests by applicants who are regulated financial institutions (credit institutions and investment firms), sovereign and supranational institutions (public authorities), and CCPs (trading venues have access rights to allow the trade feed generally to become settled via a CSD). CBL may however accept unregulated entities (other than sovereign and supranational institutions) as eligible for the limited purpose of receiving collateral from participants in the SSS. Pursuant to No. 4.4. of the CAAP, CBL has defined criteria for persons who are prohibited from participating in the securities settlement system (for example, natural persons, residents of any country that is subject of a "call to action" by the Financial Action Task Force (FATF), participation by persons causing CBL to breach sanction regulation). Lastly, CBL does not foresee indirect participation.

⁷ Slightly different rules may apply for deciding on a request for access by an issuer, a CCP or a trading venue.

CBL's admission process

As a first step, CBL ensures that applicants are validly incorporated and existing under the relevant jurisdiction of incorporation and have the capacity to enter into agreements with CBL and to perform the activities provided therein. In this respect, CBL requests from its customers to be provided with the following documents along with the [account opening forms](#):

- Articles of association and, if the articles are not available in German, English or French, a legal English translation;
- Proof of regulation, for example business licence or official authorisation to conduct (financial) business; if the licence is not available in German, French or English, a legal English translation needs to be provided;
- Excerpt of the applicant's register including certificate of residency;
- Applicant's most recent audited annual reports. In the case, the applicant is a subsidiary, the latest audited annual report of the parent company;
- Due diligence questionnaire (Enhanced Due Diligence Questionnaire and ISSA Questionnaire or Financial Crime Compliance Questionnaire or the Wolfsberg CBDDQ or FCCQ) duly filled in and signed;
- FATCA self-certification form, duly filled in and signed;
- Entity's tax residency self-certification form duly filled in and signed;
- Controlling persons' tax residency self-certification form, duly filled in and signed (if applicable);
- U.S. Patriot Act certification (if applicable);
- Ownership/shareholding structure indicating the natural person(s) who own(s) or control(s) 25% or more of the shares and the main shareholders who own 10% or more of the shares;
- Organisational chart (diagram of the high-level management functions);
- Copy of the ID card of the ultimate beneficial owner/notional beneficial owner (if applicable);
- Copy of the ID card of the person acting on behalf of the customer/proxy holders (if applicable);
- General, complete and up-to-date list of all of the applicant company's authorised signatories with specimen signatures.

Key consideration 2

An FMI's participation requirements should be justified in terms of the safety and efficiency of the FMI and the markets it serves, be tailored to and commensurate with the FMI's specific risks, and be publicly disclosed. Subject to maintaining acceptable risk control standards, an FMI should endeavour to set requirements that have the least-restrictive impact on access that circumstances permit.

Justification and rationale of participation criteria

CBL's participation criteria are geared towards avoiding undue legal, financial and operational risk for the safety and efficiency of the SSS CBL operates.

When **assessing legal risks**, CBL will take into account in particular the following criteria:

- Compliance with the legal requirements for participation in the SSS, including any required legal opinions or legal arrangements;
- Assurance with the rules on the confidentiality of the information provided through the SSS;
- Where a party is established in a third country, either of the following:
 - (i) Party is subject to a regulatory and supervisory framework comparable to the regulatory and supervisory framework that would be applicable to a party if it were established in the European Union;
 - (ii) Rules of the CSD concerning settlement finality referred to in Article 39 of CSDR are not enforceable in the jurisdiction of a party.

When **assessing financial risks** following a request for access by a party, CBL will take into account whether said party holds sufficient financial resources to fulfil its contractual obligations towards CBL. CBL will also assess the financial resources of the party in order to ensure it has the capacity to contribute to a sustainable level of settlement efficiency. As to the financial conditions of a potential new customer, the applicant's credit standing is reviewed taking into account various qualitative and quantitative factors such as operating environment, liquidity, capitalisation, asset quality, profitability, financial support by the parent, etc.

When **assessing operational risks** following a request for access, the following criteria are relevant:

- Operational capacity to participate in the SSS, including connectivity, communication and cyber risk considerations;
- Compliance with the risk management rules;
- Existence of business continuity policies or disaster recovery plans;
- Potential changes of its operations and risk management procedures in order to ensure the smooth functioning of the SSS.

As long as the applicant is meeting the criteria defined above, and once the application forms are validated internally, CBL's participants will have in principle access to the full range of services offered by CBL, under the specific terms of each service, subject to credit, operational and legal risk assessments that in some cases are product-specific. For example, a credit vote is given to assess the financial risk involved with a party requesting access and specific assessments are being regularly made for the granting of credit limits for customer relationship.

CBL cannot have relations with indirect participants. Indirect participants would be the underlying client of a customer of CBL whose contractual relation with and contractual obligations to is unique to the CBL customer. Such parties would therefore only benefit from the services CBL offers through CBL's customers, their own custodians, under the same terms. CBL endeavours to identify the participants' clients responsible for a significant proportion of transactions processed by the company and the participants' clients whose transactions, based on their volumes and values, are significant relative to the respective participants' risk management capacity.

CBL considers the risk that an actual or prospective customer may represent and ensures that applicants and customers meet appropriate legal, financial and operational requirements to allow them to fulfil their obligations.

Least restrictive access

The implementation of the above-mentioned access criteria are also geared towards having the least restrictive impact on access that circumstances permit: (i) a non-regulated party may be granted access for the limited purpose of receiving collateral from participants, (ii) enhanced legal, financial operational risk assessment are applied for certain products and a party may therefore be denied access to certain products only, while access to the SSS is generally granted. Additional risk assessments are performed when existing participants seek access to higher risk products. This is typically the case when an existing customer will request the opening of an additional account for a specific purpose. The whole relation will be considered in the decision to open or not such account. Such review process will trigger the review of the level of access restriction for the services offered, and the different requirements that may be imposed, or lifted, on the customer.

Essential required information on CBL's products and services is publicly available in CBL's [Client Handbook](#). The [Customer Handbook for OneClearstream customers](#) is also available on the company's website.

Key consideration 3

An FMI should monitor compliance with its participation requirements on an ongoing basis and have clearly defined and publicly disclosed procedures for facilitating the suspension and orderly exit of a participant that breaches, or no longer meets, the participation requirements.

Monitoring compliance

CBL has the obligation to ensure that the documents, data and information regarding a business relationship are kept up to date at all times. According to CSSF Regulation No 12-02 of 14 December 2012 on the fight against money laundering and terrorist financing, CBL must continuously monitor the business relationship and the transactions carried out within this relationship. In scope of the ongoing monitoring CBL must ensure that the relevant documents, data or information are updated at appropriate intervals considering the level of money-laundering and terrorist financing risk. Therefore, a periodic review cycle applies to all customer relationships and accounts and a prescribed set of documents are collected on an ongoing basis according to the Customer Due Diligence Requirements Procedure. Such documents are also collected to review participation requirements and initial risk assessments (for example re-collection of proof of regulation, extract from company's register, annual reports, financial statements). See also [Principle 16](#) for details on customer assessment measures and tools. The frequency of the review cycle depends on the risk classification of the customer.

Suspension and orderly exit

The termination of business relationship is stipulated in Article 56 of the GTCs of CBL in line with regulatory requirements.

Principle 19: Tiered participation arrangements

An FMI should identify, monitor, and manage the material risks to the FMI arising from tiered participation arrangements.

Key consideration 1

An FMI should ensure that its rules, procedures, and agreements allow it to gather basic information about indirect participation in order to identify, monitor, and manage any material risks to the FMI arising from such tiered participation arrangements.

Tiered participation arrangements

CBL has contractual relationships covering the delivery of its products and services, in particular settlement and custody services, uniquely with its direct customers (or: participants). It therefore maintains only direct participation arrangements. CBL neither opens accounts for, nor recognises any indirect or tiered participants. Hence, no material risks to CBL can arise due to the absence of any tiered participation arrangements.

CBL owes a duty of redelivery or restitution of assets deposited by a direct customer uniquely to that customer or to its legal successor even if CBL is aware that its direct customer owes generally corresponding duties to its clients and that its direct customers routinely deposit securities which are ultimately owed to other intermediary firms and to investors.

CBL's direct customers are obliged under CBL's GTCs to segregate securities deposited for their own account (proprietary assets) from securities deposited on behalf of third parties (client assets). One of the key provisions of the arrangements governing the deposit of client assets is that each customer account opened in CBL's system must be allocated by its direct customer to one of three categories: (i) proprietary, (ii) client – segregated, or (iii) client – omnibus. Please refer to [Principle 11](#) for more details on the account categories.

On specific occasions, CBL has a right to collect information on its customers' clients as defined by Article 38 of the GTCs. CBL may request declarations and representations from a customer's client as to the purpose of an intended transaction and compliance with legal regulations.

CBL gathers information relating to assets deposited on client accounts through three primary mechanisms:

- Customer onboarding process;
- Opening of additional accounts of existing direct customers;
- Regular KYC review;
- Periodic key participant due diligence reviews.

The process is conducted by CBL's Network Management team and reviewed by its Compliance team. In the case of client segregated accounts, CBL seeks to identify the party to whom its direct customer owes the securities deposited on the account and records this information in its KYC file.

In the case of any direct customer depositing assets on client accounts whether in segregated or in omnibus form, CBL collects information relating to the regulatory, business and control arrangements that its direct customer has in place in order to service or to support third-party business. CBL also obtains information on the geography, products and type of client that its direct customer supports through any client accounts held with CBL. CBL aims at updating this information on an annual basis.

CBL evaluates its risks arising from client accounts, in particular with regard to AML obligations and to sanctions compliance. CBL's compliance risk assessment identifies the conduct of its direct customers' clients as a significant component of its overall operational risk. These risks are mitigated in the following manner:

- Upon onboarding and during regular KYC review, the competence and the capacity of customers depositing client assets are assessed, including the regulatory capacity of the direct customer to accept client assets and, in the case of omnibus accounts, to commingle them. That assessment includes a determination of whether or not the direct customer is AML regulated in a jurisdiction applying standards equivalent to those that apply in Luxembourg. New client accounts – whether of existing or of new customers – are subject to the prior review of CBL's compliance officers and the approval of the Executive Board.
- To monitor client data and transactions, Deutsche Börse Group, including CBL, implemented a group-wide sanctions monitoring programme based on industry leading technology. Two times per day, the systems receive updates of sanctions lists in order to screen client and transaction data against the most recent available lists.
- The sanctions monitoring systems screen relevant information such as counterparties, securities, transaction data (settlement and payment instructions, corporate actions etc.) and security prospectuses (issuance of new securities) against EU, U.S., UN and other applicable sanctions lists as well as internal lists.
- Further checks are performed via adverse media lists and lists of politically exposed persons both at the point of onboarding, during regular KYC review and regularly throughout CBL's relationship to its customers.
- A procedure defines roles and responsibilities of compliance teams for 1st and 2nd level review of alerts created by the monitoring tool. Sanctions hits and related issues will be resolved in accordance with CBL's compliance policies and applicable laws and regulations. Risk mitigation measures may include the blocking of transactions, segregation of assets into dedicated sundry accounts and notification to the authorities.
- CBL implemented several quality assurance measures to ensure the effectivity and efficiency of the sanctions monitoring systems such as SWIFT Sanctions Testing Services, alert sampling activities, an independent audit function and others.
- CBL's screening strategy aims to ensure that the identity of such an investor does not expose it to undue compliance risk.

In cases where the identity of the underlying client or information relating to the direct customer's client franchise in general triggers heightened AML, sanctions or related risk concerns, CBL may employ a number of specific mitigation strategies including requiring the direct customer to disclose additional information (including where not previously known, the identity of the underlying client or the beneficial owner), blocking the securities entitlements and disclosure to CBL's regulators, foreign authorities or CBL's sub-depositories or paying agents involved in the custody or administration of specific securities. CBL's contractual right to pursue and to enforce such mitigation strategies is derived from its GTCs.

Lastly, in respect of credit risk for CBL's credit business, the company does not permit assets deposited on client (as opposed to proprietary) accounts to be pledged as collateral to secure credit facilities enjoyed by its direct customers.

Risks to CBL

The principal risks in particular from undisclosed beneficial owners result from potential violations of regulations relating to the prevention of money laundering and terrorist financing, and in particular financial sanctions. Therefore, CBL continuously monitors all of its clients' transactions, including those resulting from underlying clients, with an IT-based compliance monitoring tool, which is supplemented in justified individual cases by manual checks conducted. If the review identifies irregularities, CBL will obtain further clarification as it deems necessary. CBL may cease or temporarily suspend execution of a client's instructions or the provision of other services (such as collection and payment of interest, dividends, repayments of capital or other amounts owed by the issuer to the client), without notifying the client in advance, if:

- Executing the instruction or providing another service violates applicable legal regulations relating to the prevention of money laundering and terrorist financing or financial sanctions (for example, of the UN, EU or U.S.A.);
- Executing the instruction or providing another service would, as a result of legal regulations relating to the prevention of money laundering and terrorist financing or financial sanctions, materially jeopardise the proper provision of CBL's services to its customers or, as a result of such requirements, put CBL's or its customers' assets at significant risk; or
- CBL's customer has not or has not yet provided the declarations and representations that CBL may request.

Key consideration 2

An FMI should identify material dependencies between direct and indirect participants that might affect the FMI.

As an ICSD, CBL is under the obligation to:

- Identify, monitor and manage the operational risks it faces from key participants and ensure that the key participants duly meet the CSD's operational requirements;
- Identify, on an ongoing basis, material dependencies between a customer and its clients that might affect CBL, and are responsible for a significant proportion of transactions processed through CBL's SSS or whose transactions, based on their volumes and values, are significant relative to the risk management capacity of the CBL customer.

In 2022, CBL has revised and updated its key participant identification procedures to fulfil the requirements stipulated by CSDR. The company has also updated its customer documentation procedure and GTCs with the applicable operational standards and measures required from its key participants in order to support settlement efficiency and soundness. Hence, CBL's key participants and related material dependencies (underlying clients who constitute 10% or more of their settlement transaction activity) are identified as follows:

- Identification is driven by volumes and values of the transactional trades settled in CBL's SSS in accordance with the key participant regulatory requirements set out by CSDR;

- Identified key participants and material dependencies are requested to disclose to CBL their underlying clients who constitute 10% or more of their overall settlement transaction activity;
- Once identified as a CBL key participant, this status is held for twelve months;
- An annual recertification of the key participant status is performed.

In addition, CBL made its key participants aware of enhanced due diligence measures applicable to them (including their material dependencies) and of remediation measures to be assured on their side based on the enhanced due diligence reviews performed. Further information is given in [key consideration 3](#).

Key consideration 3

An FMI should identify indirect participants responsible for a significant proportion of transactions processed by the FMI and indirect participants whose transaction volumes or values are large relative to the capacity of the direct participants through which they access the FMI in order to manage the risks arising from these transactions.

Where a client account is segregated, CBL's direct customer is required to disclose to CBL the identity of its underlying client, that is, the party for which the securities were deposited. The account name may or may not incorporate this disclosure at the discretion of CBL's direct customer.

Where a client account is opened in omnibus form, CBL's direct customer commingles the assets of several of its underlying clients. CBL requires that no single interest in a client omnibus account should exceed 25% of the total value of assets deposited on that account over time as represented by its direct customer. When a single interest does exceed that threshold, CBL requires its direct account holding customer to segregate the corresponding assets onto a client segregated account.

In line with CSDR, CBL's key participant procedure (see [key consideration 2](#)) ensures the identification on an ongoing basis of material dependencies between CBL customers and their clients that might affect it. This procedure also covers the performance of monitoring analyses and management of the operational risks that CBL's key participants may pose to its operations.

Analysis reviews

Clearstream's Risk Management function runs a process to identify CBL's key participants and related material dependencies in the SSS on an ongoing basis. Respective reports are assembled at the end of each quarter and cover settlement activities of the preceding six months. The identification process and the resulting reports are based on the following factors:

- Participants' transaction volumes and values;
- Material dependencies between participants and the participants' clients, where the clients are known to CBL and that might affect CBL;
- Their potential impact on other participants and CBL's SSS as a whole in the event of an operational problem affecting the smooth provision of services by CBL.

In addition to the above reports, Risk Management may run ad hoc reports under stressed market conditions or on exceptional events (for instance, when a financial crisis occurs, high volatility is observed or geopolitical changes are expected).

Analysis to identify potential material dependencies of indirect participants is performed at the level of all participants of CBL, that means, by taking into account all settled volumes and values for all participants. Thus, CBL can also identify (i) participants' clients responsible for a significant proportion of transactions processed by CBL, and (ii) participants' clients whose transactions, based on their volumes and values, are significant relative to the respective participants' risk management capacity:

Upon identification of a key participant with material dependencies, Clearstream's Risk Management sends out a formal notification letter to the participants identified as CBL's key participants to duly inform them of their new status as CBL key participant as well as to request them to disclose their underlying clients (material dependencies). This disclosure targets primarily clients that represent a threshold of at least 10% or more of the overall volume/value of transactions processed by the legal entity. In this case, the identified CBL key participant is requested to provide details on those clients and confirm that appropriate measures have been imposed on them to ensure that (potential) operational risk stemming from the key participant's clients is adequately managed. In addition, an enhanced key participant due diligence review will be carried out.

Key participants' operational risk exposures (that means, operational incidents, issues, risk loss history and events) are reviewed for the purpose of assessing the evolutions in the CBL key participants risk profiles. In this regard measures are currently ongoing to create a dedicated CBL key participant operational risk scenario. The purpose is to ensure CBL derives a concise view of its key participants risk profile and can assure relevant mitigation measures to manage the key participant operational risks.

In addition, reconciliation breaks caused by CBL key participants are closely monitored. In the event of reconciliation breaks identified for CBL key participants, a potential provisioning allocation may be required.

Key consideration 4

An FMI should regularly review risks arising from tiered participation arrangements and should take mitigating action when appropriate.

As explained above no tiered participation arrangements are permissible at CBL. However, participants maintaining client segregated or omnibus accounts are reviewed on a periodic basis (KYC review). Periodicity of these reviews depends on the risk classification of the participant:

- High risk → review cycle: one year;
- Medium risk → review cycle: two years;
- Low risk → review cycle: three years.

Key participants are reviewed on a quarterly basis. In addition, ad hoc reviews are performed and mitigating measures are taken when and where appropriate. As an example, when it is detected, that assets deposited by a direct participant and held in an omnibus account might expose CBL to the violation of financial sanctions, CBL can transfer the securities to a separate securities account opened for such participant. Such detection also leads to an ad hoc review of the participant and its arrangements for compliance with regulations in the area of financial sanctions.

Principle 20: FMI links

An FMI that establishes a link with one or more FMIs should identify, monitor, and manage link-related risks.

Key consideration 1

Before entering into a link arrangement and on an ongoing basis once the link is established, an FMI should identify, monitor, and manage all potential sources of risk arising from the link arrangement. Link arrangements should be designed such that each FMI is able to observe the other principles in this report.

CBL establishes links with one or more FMIs in accordance with the principles set out in CSDR, such as Article 48 of CSDR and Chapter XII of RTS 2017/392 (as defined under [Principle 1](#)). The identification, monitoring and management of the risks arising from a CSD link is addressed in particular by Article 48 (1) of CSDR, which requires all CSDs, before establishing a CSD link and on an ongoing basis, to cover: “all potential sources of risk for themselves and for their participants arising from the CSD link and take appropriate measures to mitigate them”.

Accordingly, CBL has implemented processes to identify all potential sources of risk arising from new market links in its internal procedures, such as the Network Management Procedure.

Initial assessment of (potential) link arrangements

Before opening a CSD link, CBL conducts a general assessment of the prospective link that is presented for assessment to the Clearstream Material Change Working Group (MCWG). This working group will then either make a positive recommendation or decline the proposal to develop this link. If the MCWG approves to move ahead with the link development, a full risk assessment process is coordinated by Network Management with input from various departments, for instance, Credit, Treasury and Operations.

During this full risk assessment aspects like the following are covered:

- (i) Criteria on securities registration, ownership restrictions, reporting obligations and disclosure requirements;
- (ii) Market assessment including legal (legal opinion), tax and regulatory issues, as well as risks related to the market infrastructure (CSDs, stock exchanges, CCPs) and operational risks (use of SWIFT, business continuity);
- (iii) Criteria with regard to anti-money laundering, operational readiness, good reputation, financial soundness, access to the local central bank and the capacity to provide liquidity to facilitate CBL’s settlement and payment instructions.

Ultimately, CBL’s Executive Board is responsible for the approval of every new or enhanced link setup and/or appointment of supplier (including CCBs). If the risk assessment identifies significant weaknesses resulting from major risks in the local market that cannot be adequately mitigated and/or should not meet CBL’s criteria, no link will be established with the market.

In line with CSDR provisions, Network Management ensures that the competent and relevant authorities of CBL are informed of the intention to establish a new CSD link. Accordingly, the new CSD link is notified three months prior to the targeted implementation date and generally after the approval of the Executive Board.

Ongoing assessment of (existing) link arrangements

Risks from existing CSD links are assessed through CBL's continuous oversight of market developments in the areas of procedures, practices, regulations or other infrastructure related developments.

In addition to the annual due diligence visits (DDVs), CBL may choose to visit suppliers (other CSDs, CCBs, agent banks or sub-custodians) at any time to review the relationship and ascertain that all governing documents remain relevant to the activities and regulations of the market. CBL may also request a supplier to visit CBL's premises.

Contractual documentation consisting of the legal main agreement and the operational agreements (service level agreement, SLA) are monitored on an ongoing basis. The main agreement is renewed in case of legal or regulatory changes, the SLA is renewed in case of new or enhanced processes.

The legal framework is reviewed at least annually in accordance with Article 84 (1), par. (i) of RTS 2017/392.

CBL also monitors the performance of its network via an annual internal review of operational areas, the results of which can be shared with the CSD, depository or agent operating the CSD link. The Network Management (NM) team also has access to a number of statistic-based reports that provide an overview on the operational performance of the service provider for the link in relation to the SLA and in relation to other providers. CBL also maintains a database of incident reports that are used to document deviations from expected procedure. These statistics and data are used in scheduled service reviews undertaken by CBL's NM team. The above performance monitoring and reviews also include ongoing monitoring of the creditworthiness of CBL's network of suppliers, which is performed by CBL's Credit department.

Risks deriving from existing links are part of the annual risk review conducted in the frame of the DDVs. These are managed by NM in coordination with the Clearstream Risk Management function. Management of risks on links includes the following tasks:

- (i) Updates to contractual arrangements with existing suppliers to emphasize responsibility of the supplier in relation to any risks identified;
- (ii) Establishment of action plans with suppliers and subsequent follow-up to ensure any agreed actions are being undertaken. Such follow-up may be conducted via regular meetings/calls and results in a subsequent update of action plans showing the progress of each action;
- (iii) Ad hoc testing with suppliers to ensure operating effectiveness of processes and related controls;
- (iv) Change of supplier or appointment of second supplier;
- (v) Creation and maintenance of internal procedures and processes to document the actions to be taken as part of the risk management of suppliers.

In the event of any operational, legal, creditworthiness or regulatory changes or changes that affect the appointed supplier, the risk profile of every link is reviewed in the light of the relevant CPMI IOSCO Principles, among others.

Moreover, the ICSDs have, in accordance with Article 84 (3) of RTS 2017/392, (i) agreed on equivalent standards concerning reconciliation, opening hours for the processing of the settlement and of corporate actions and cut-off times for all securities eligible over the Bridge; (ii) established a common communication channel that ensures equivalent procedures and mechanisms for transmission of settlement instructions to ensure a proper, secure and straight-through processing of settlement instructions; (iii) agreed on a common booking scheme that reflects at least daily and without undue delay the results of the settlement in their books after each Bridge exchange (that is, currently 53 times throughout the entire operational day) including overnight; (iv) agreed on joint risk management principles as part of the Bridge Agreement, which ensure equivalent risk management models for the management of credit and liquidity risk and defined a number of joint operational procedures and joint contingency scenarios for dealing with operational risks; and (v) agreed on equivalent contingency and default rules and procedures. Further details on the identification, monitoring and management of the risks are also provided in the context of [Principle 4](#) and [Principle 7](#).

Key consideration 2

A link should have a well-founded legal basis, in all relevant jurisdictions, that supports its design and provides adequate protection to the FMI involved in the link.

All types of links are contractually documented between CBL and the CSD and/or depository/agent and/or cash correspondent bank and generally include the following:

The Link Agreement

- For direct links, the terms and conditions are set out in the CSD rules, which are generally drafted in the form of standardised general terms and conditions governed by the laws applicable to the issuer CSD;
- For direct links operated by a local agent, which contractual framework is composed by the CSD rules and the account operator agreement setting out the rights and obligations of the agent operating CBL's account with the local issuer CSD. These contractual documents are generally governed by the laws applicable to the agent;

The Link Agreement sets forth the contractual expectations and responsibilities of CBL and the CSD, local depository, and/or the agent, as the case may be. It clarifies the choice of law and the rights and obligations of the parties. The Link Agreement with the depository/agent bank furthermore identifies and clarifies:

- Eligible instruments and authorised parties;
- Defined terms and procedures for settlement, safekeeping/recording and administration;
- Required insurance coverage;
- Establishing the depository's/agent bank's standard of care;
- Liability of CSD, depository/agent bank to CBL;
- Representation and warranties and confidentiality requirements;
- Incorporation of service level agreement (SLA).

The legal opinion

The legal opinion is requested from an external counsel on an annual basis to represent independent and neutral confirmation of the CSD's/depository's/agent bank's ability to perform as required under the Link Agreement and the SLA without the risk of being superseded by local regulations or practices.

Further details on the legal opinions and their scope are available under [Principle 1](#).

The monitoring of the legal framework of the linked CSDs and/or depositories/agent banks and/or respective jurisdictions is made by such linked CSDs and/or depositories/agent banks. It is their contractual obligation to keep CBL informed of any changes affecting CBL's deposit with them.

The SLA

This document sets forth the expected action, reaction, deadline and communication format for each individual operational process. It specifies the operational procedures to follow including:

- Authorised instructions and deadlines with regard to settlement and asset servicing;
- Expected actions and contingency action plans;
- Reporting structures related to reconciliation, position management, exceptions with their resolution and inquiries.
- Notification of market information related to custody operations.

CBL's platform makes it possible, at all times, to clearly distinguish between accounts and the financial instruments held by different customers. The assets of CBL's customers are also completely segregated in separate accounts from CBL's own assets. Securities deposited with Clearstream are booked on accounts in the name of CBL.

Further information on market practice for each of CBL's domestic links is available in comprehensive Market Profiles and Market Link Guides in the [Market Coverage](#) section of the Clearstream website.

In addition, based on customer request, CBL has developed a network reporting service to supplement the extensive information. This reporting provided in the form of Domestic Markets Monitoring Reports (DMMR) helps depositories to monitor the performance of their underlying custody chain and support their due diligence obligations.

Key consideration 3

Linked CSDs should measure, monitor, and manage the credit and liquidity risks arising from each other. Any credit extensions between CSDs should be covered fully with high-quality collateral and be subject to limits.

CBL performs an annual full credit assessment of any depository and agent it has appointed. These assessments include but are not limited to an evaluation of annual accounts, the management structure as well as the liquidity, their external credit rating and the quality of assets. On this basis, CBL makes an internal rating.

The company's Treasury Middle Office Luxembourg monitors the nostro balances of all CCBs for CBL based on the thresholds set by Clearstream's Credit department for every nostro account. If a threshold is reached, a report to management is triggered. The system is set up to identify large cash balances to be aware of possible credit risk.

With regard to the Bridge interoperable link, as mentioned above, joint risk management principles have been defined as part of the Bridge Agreement, which ensures equivalent risk management models for the management of credit and liquidity risk. To cover credit exposures arising from the interoperable activity via the Bridge, collateral is provided by Euroclear Bank to CBL, and vice versa, in the form of a letter of credit (L/C) established by a syndicate of international banks. The L/C is renewed at least annually and payable on demand and there can be no limitations imposed by the syndicate on the conditions of such a demand. The L/C can be called upon the issuance of a notice of demand that should be honoured by the participating banks on the third business day after receipt of the notice. Moreover, if Euroclear Bank fails to pay an amount due under the Bridge agreement, CBL is authorised, as per its GTCs, to debit its participants' accounts on a pro-rata basis of the balance existing at the time of Euroclear Bank's failure. The participants will be re-credited depending on the amount received under the L/C. If the funds recovered through the L/C are not sufficient to cover the amount due by Euroclear Bank, the "provisionally debited" amount becomes final and will be borne on a pro-rata basis by the impacted participants.

The Bridge Risk Management Control Framework is designed to ensure that the net credit exposures from settlement instructions between the ICSDs remain under the amount of the L/C (minus the additional buffer as defined in Article 16(k) of RTS 2017/390) put in place by each ICSD in favour of the other. Therefore, credit exposures between the two ICSDs resulting from the settlement of DvP transactions over the Bridge are in principle fully secured. However, while the above mechanisms and operational procedures defined by the ICSDs allow for a mitigation of risks linked to the processing of custody events and ensure a full coverage of resulting exposures in a large majority of cases, some very specific circumstances could however still produce additional risks and potentially lead to unsecured exposures for the ICSDs. Therefore, CBL should perform, jointly with Euroclear Bank, a comprehensive review of the Bridge control mechanisms and relating procedures for the handling of custody events. Furthermore, both ICSDs implement, where appropriate, adaptations to further enhance the mitigation of all relevant risks and secure any potential exposures.

No Bridge L/C has ever been called since the mechanism was implemented and neither system operator has ever failed to meet its payment obligations in their normal course of business.

Key consideration 4

Provisional transfers of securities between linked CSDs should be prohibited or, at a minimum, the retransfer of provisionally transferred securities should be prohibited prior to the transfer becoming final.

Provisional transfers are not part of the services offered by CBL. Only in rare cases, when this is a market practice that cannot be avoided, this will be possible. If CBL was faced to provisional transfers in any case, this would be duly documented, and customers would be informed via the market documentation.

Key consideration 5

An investor CSD should only establish a link with an issuer CSD if the arrangement provides a high level of protection for the rights of the investor CSD's participants.

CBL respects a strict procedure when setting up new links. This procedure includes, but is not limited to, risk, compliance and credit reviews, as well as external legal advice (legal opinion) and a strong contractual framework. Each step of the setup of a new link is reported and approved by senior management committees such as MCWG, CRC and CBL's Executive Board.

Please see [key considerations 1, 2 and 3](#) for more details.

Key consideration 6

An investor CSD that uses an intermediary to operate a link with an issuer CSD should measure, monitor, and manage the additional risks (including custody, credit, legal, and operational risks) arising from the use of the intermediary.

In establishing a link as investor CSD, CBL may choose one of the following options:

- Direct link with another CSD (issuer CSD): CBL typically has to accept the terms and conditions of the issuer CSD, including the liability standards imposed by the issuer CSD in accordance with its local applicable laws and regulations.
- Direct link with another CSD (issuer CSD) operated by an intermediary: CBL is subject to both the terms and conditions of the issuer CSD as well as of the intermediary. The terms of the agreement with the intermediary are defined in agency agreements and, as a standard, CBL requires that the agent is liable for loss, liability, damages or costs due to the agent's negligence. CBL's selection process for the use of an intermediary to operate a link is described in detail in Principle 16, key consideration 1.
- Indirect link with a local custodian: CBL is defining the terms of the liability in depositary agreements and, as a standard, CBL requires that the custodian is liable for loss, liability, damages or costs due to the local custodian's negligence.

CBL reviews its suppliers at least on an annual basis. This review consists of:

- Review of the creditworthiness;
- Review and analysis of the AFME questionnaire and underlying documents. The analysis is based on a fixed evaluation grid to be applied in the same manner to all suppliers;
- CSD link review whereby the analysis is based on a fixed evaluation grid to be applied in the same manner to all CSDs;
- Review of the contractual framework;
- At least annual review of the suppliers' performance related to the services agreed in the SLA by Clearstream Operations. In case of any issues or weak services detected, a close monitoring and follow-up is ensured, until the supplier has reached again the level of agreed services.
- Service review, at least annually or more frequent if needed.

Key consideration 7

Before entering into a link with another CCP, a CCP should identify and manage the potential spill-over effects from the default of the linked CCP. If a link has three or more CCPs, each CCP should identify, assess, and manage the risks of the collective link arrangement.

Not applicable to CBL.

Key consideration 8

Each CCP in a CCP link arrangement should be able to cover, at least on a daily basis, its current and potential future exposures to the linked CCP and its participants, if any, fully with a high degree of confidence without reducing the CCP's ability to fulfil its obligations to its own participants at any time.

Not applicable to CBL.

Key consideration 9

A TR should carefully assess the additional operational risks related to its links to ensure the scalability and reliability of IT and related resources.

Not applicable to CBL.

Principle 21: Efficiency and effectiveness

An FMI should be efficient and effective in meeting the requirements of its participants and the markets it serves.

Key consideration 1

An FMI should be designed to meet the needs of its participants and the markets it serves, in particular, with regard to choice of a clearing and settlement arrangement; operating structure; scope of products cleared, settled, or recorded; and use of technology and procedures.

To ensure that Clearstream Banking S.A. (CBL) meets the needs of its customers (participants) and the markets it serves, the company has adopted an active approach towards its customers by structuring their input in a number of ways. These include a series of industry surveys, organised senior executive sessions, specific customer validation during the product/service developmental cycle and one-to-one customer sessions during due-diligence visits.

Furthermore, CBL works closely with the members of the User Committee established according to the EU Central Securities Depositories Regulation (CSDR). The committee shall advise CBL's Executive Board (EB) on key arrangements that impact its participants, including the products and services it offers to its participants via its Creation securities settlement system (SSS), as well as on service level. Please refer to Principle 2, key consideration 7 for details.

CBL's product management teams engage with customers in order to determine which new products and services require development either in response to the changing market environment or in order to respond to specific customer needs. In addition, CBL assesses its product portfolio inventory and monitors competition on an ongoing basis. Thus, the company can anticipate customer needs. Getting in contact with the customers and obtaining their voice on the development of CBL's offering is an integral part of the company's product teams' activities. New products and services are announced to customers well in advance (in principle six months prior to implementation) to allow customers to thoroughly test new releases with a technical and/or operational impact.

Clearstream's Network Management team ensures that the services provided by the company's suppliers are continuously meeting Clearstream's and Clearstream customers' expectations. To this end, the team has set up procedures to review CBL's operational reliability as described in detail in [Principle 17, key consideration 3](#). In this respect, key performance indicators (KPIs) are monitored on a weekly basis, and any deviations are tackled without delay.

Finally, CBL's efficiency and effectiveness in meeting the requirements of its participants and the markets it serves has been consistently recognised by respected third parties in the form of [awards](#).

Key consideration 2

An FMI should have clearly defined goals and objectives that are measurable and achievable, such as in the areas of minimum service levels, risk management expectations, and business priorities.

CBL's business strategy (referring to objectives and goals) is set out in detail in [Principle 2, key consideration 1](#). It is reviewed on a continuous basis and adapted according to the business conditions the company faces over time. Being part of Deutsche Börse Group, CBL's strategic goals are encapsulated by the group-wide Compass 2023 strategy with implementation focusing on strengthening its services, ensuring regulatory compliance and fostering effectiveness in sales and client services by pursuing innovation and operational excellence. The focus on high-margin business and cost discipline in its core services allows for investment in collateral management and investment fund services.

Furthermore, CBL defines its service levels and consequent goals and objectives in depository service level agreements (SLAs). These agreements reflect market standards and are the basis for operational procedures and publications of applicable operational processes to CBL customers. Minimum service levels are highly variable according to the market rules and time zones for the securities eligible for deposit and delivery within the CBL systems.

CBL's risk strategy is aligned to its business strategy and its goals of continuously developing new services, enhancing the efficiency of its operations and reducing overall processing costs. The risk strategy defines the risk appetite as a risk limitation, which protects and ensures continuity of operations. CBL's risk appetite framework constitutes the tools and concepts that are used to manage risks. The aim is to be able to monitor risks continuously and thereby manage risks according to the risk appetite. See [Principle 3](#) for details.

Key consideration 3

An FMI should have established mechanisms for the regular review of its efficiency and effectiveness.

CBL has engaged and works on the basis of a continuous improvement process and has established a very strict service level measurement discipline. The company measures KPIs including operational and service level indicators. These are regularly reported to CBL's EB and the most significant ones also to the User Committee and constitute the basis for the continuous improvement of the service. The tools used for continuous improvement are the following:

- (i) Forum for structured, systemic and creative solution identification, including post-claim analysis and identification of appropriate measures;
- (ii) Key performance indicators (KPIs): quantified, objective view on service delivery of operations, for example on effectiveness, efficiency, operational quality, and operational risk;
- (iii) Key risk indicators (KRIs): early warning system for operational risk, periodically collected and analysed to observe the trend and, if necessary, initiate mitigating measures;
- (iv) KPI engine: data warehouse, linked to major production systems, enabling standard and ad hoc reporting and detailed data analysis;
- (v) Report on the performance of the settlement system and committed service level targets.

By applying the above tools, a systematic process is set up to ensure a comprehensive detection of quality deficits, leading to their resolution.

KPIs have been defined to measure adherence to the SLA specifications. CBL measures operational KPI straight-through processing target rates to ensure the monitoring of customer instruction processing at the highest possible system standard. The KPIs quantify different dimensions of the operational service delivery, mainly quality (e.g. error rates, degree of automation, turn-around times, etc.) including risk elements and capacity utilisation.

Some IT operations KPIs are also defined to measure business applications availability, response time and adherence to contracted internal and external deadlines. If the KPIs are risk related, they are the basis for key risk indicators (KRIs), which are monitored by Risk Management on a monthly basis. In a continuous process, KPIs and KRIs are measured, analysed and reported to management. At least yearly, target reviews ensure adoption towards a changed market environment, customer demands or a changing internal focus.

Furthermore, CBL strives to provide products and services with utmost reliability. Thus, the company gives the highest importance to the resilience of its business to safeguard it against incidents and disasters, as the unavailability of core processes and resources represents a substantial risk for CBL and potential systemic risk to the markets as a whole. Therefore, CBL aims to satisfy itself and the markets of its ability to continue to operate under adverse conditions or in the face of unexpected events or disasters. In case of business interruption, operations must be resumed within appropriate time scales primarily in order to:

- Safeguard CBL from significant losses, maintain revenue generation and shareholder value;
- Maintain customer confidence, market stability and liquidity and minimise systemic risk;
- Maintain management control, fulfil contractual obligations and regulatory compliance.

The functions, which are indispensable for the critical daily operations in view of the above objectives, are called mission critical and are designed and implemented in such a way that they can be resumed within a recovery time objective (RTO) of two hours following a disruptive incident, crisis or disaster. The RTO is the time period following a disruptive incident within which products, services or activities must be resumed or resources must be recovered.

In order to minimise the impact of unavailability of key resources, that is, information (electronic or other), IT systems and networks, workspace and facilities, staff and suppliers, CBL has implemented and maintains effective and efficient business continuity management (BCM) plans in line with its needs and regulatory requirements. The BCM plans specify how services, processes and resources will be reinstated to a predetermined level within pre-defined time scales after an incident or disaster. Thereby the RTO for mission critical functions must be observed. The resilience and disaster tolerance of critical processes and resources is commensurate with the business impact and the prevailing risks.

BCM plans are used, tested or exercised regularly in the most realistic way, without causing unacceptable business impact, to ensure their effectiveness and viability and in order to provide assurance that a real incident could be successfully managed. All relevant staff is trained to be competent in the execution of incident and crisis management plans and business recovery procedures. To ensure that CBL is able to respond to an incident in a rapid, controlled and effective manner, an incident and crisis management process is in place for the timely detection, escalation and assessment of incidents and the prompt activation of the business continuity plans.

Additionally, CBL implemented a default management process in order to successfully weather the default of a major customer in an orderly manner, even under stressed market conditions. For details, please refer to [Principle 13](#).

The systems architecture is designed to satisfy high availability requirements. The systems infrastructure is duplicated between two distant data centres. Components such as network communications, servers and storage are running in parallel in the two centres. Core systems are clustered and load-balanced between the two centres to allow quick take-over in case of failure. All data is synchronously mirrored in real time between the two centres.

The design described above in combination with the RTO of two hours facilitates the completion of settlement by the end of the day also in extreme circumstances such as the full loss of one data centre. The last systems unavailability test, based on the scenario of the full loss of one data centre, was conducted in October 2022. The availability of CBL's business critical applications was validated within the RTO period and the infrastructure's security was maintained at all times. The average system availability during 2022 was 100%.

Principle 22: Communication procedures and standards

An FMI should use, or at a minimum accommodate, relevant internationally accepted communication procedures and standards in order to facilitate efficient payment, clearing, settlement, and recording.

Key consideration 1

An FMI should use, or at a minimum accommodate, internationally accepted communication procedures and standards.

CBL fully endorses standardisation and has been leading in standards implementations. All connectivity channels are fully ISO 15022 (and ISO 20022 for investment funds) compliant, IP based, and in line with European Post Trade Forum (EPTF) Barrier 2 (former Giovannini barrier 1) on communication protocols as stipulated in the "Giovannini File Transfer Rulebook" of 2007.

In particular, instructions, be it for securities or cash, can be processed via CBL's ClearstreamXact and Creation suites of connectivity products as described below:

- Xact Web Portal: The Xact Web Portal is a screen based, user-to-application (U2A) connectivity channel based on proven, up-to-date portal technology. The harmonised security and user management streamlines customers' access to a range of services. Xact Web Portal is based on ISO 15022 and ISO 20022 message structure and terminology.
- Xact File Transfer offers bi-directional high-volume data transfer, both ISO 15022 and 20022 messages as well as human readable messages. It can be seamlessly integrated with a customer's in-house systems and is fully automated, making it an ideal component in an STP environment. Xact File Transfer can also be used via internet, virtual private networks (VPNs) or SWIFTNet.
- Xact via SWIFT: ClearstreamXact is also available via SWIFT. This solution is preferred by customers that have large transaction volumes and automated interfaces between their in-house back-office systems and CBL. As CBL's processing is fully STP, in the vast majority of cases for correctly formatted instructions, no manual intervention is required.
- CreationOnline⁸ is a secure, web browser based, central management tool available over a choice of public internet or VPN. It is ideal for manual instruction input, corporate action management, query and exception handling and can be used alone or in combination with any of the other connectivity solutions. CreationOnline is based on ISO 15022 message structure and terminology.

CBL's settlement services are fully STP compliant.

⁸ Please note that CreationOnline is planned to be decommissioned. Clearstream Banking strongly recommends that customers migrate to Xact Web Portal as soon as possible to start benefitting from the new and unique features of Xact Web Portal. Please also note that there will be no further enhancements on CreationOnline, although it will still be accessible. Any new or updated functionality will be added to Xact Web Portal.

From a global ISO perspective, CBL is a liaison institution to the Securities Evaluation Group and the Registration Management Group.

When considering messaging standards, CBL has helped develop and has implemented ISO 15022 since its inception. CBL participates in the Maintenance Working Group. This body decides on the yearly evolution of the standard. The other main messaging norm for CBL's industry is ISO 20022. In this area, CBL is already supporting ISO 20022 formats for SRDII Shareholder Identification Requests and will continue to expand its ISO 20022 offering according to the market standards and timelines for adoption of the new format. CBL also participates to the yearly maintenance of this standard.

In terms of reference data standards, CBL has adopted all the main applicable ISO standards. Cross-border operation is at the heart of CBL's activity. The only way to make processes and systems work efficiently in such an environment is to use ISO standards and to mandate its providers to only use such standards. CBL applies the same communication standards for cross-border operations as for all other operational activities.

For CBL customers acting in ICP (Indirect Connected Participant) mode or DCP (Direct Connected Participant) mode, the following connectivity standards are implemented:

- Xact File Transfer for the transmission of ISO 15022 and ISO 20022 messages to CBL;
- SWIFT ISO 15022 messages to CBL via the SWIFT network;
- ISO 15022 messages to CBL via MQ; Xact Web Portal (based on ISO 20022 standards and terminology);
- Xact via SWIFTNet FINplus (also supports Shareholders Identification Disclosure Requests seev.045 and seev.046 in ISO 20022 format).

CBL customers acting in DCP mode can also communicate their instructions online via the web-based T2S GUI via SWIFT or SIA-Colt network. In addition, they can send ISO 20022 messages to T2S via SWIFT or SIA-Colt.

Principle 23: Disclosure of rules, key procedures, and market data

An FMI should have clear and comprehensive rules and procedures and should provide sufficient information to enable participants to have an accurate understanding of the risks, fees, and other material costs they incur by participating in the FMI. All relevant rules and key procedures should be publicly disclosed.

Key consideration 1

An FMI should adopt clear and comprehensive rules and procedures that are fully disclosed to participants. Relevant rules and key procedures should also be publicly disclosed.

CBL's rules and procedures are set out in a series of documents as defined in [Principle 1](#) that enable customers to clearly identify and fully understand the risks and responsibilities of a participant in CBL's system. These documents are written in a comprehensive and clear manner to help customers understand the following:

- Fees applied to the services (the fees are published in the Fee Schedule);
- System design and operations (set out in the Client Handbook, the Market Link Guides and Connectivity Manuals);
- Customers' rights and obligations (stipulated in the GTCs and Special Conditions); and
- Risks of participating in the system (described in the Client Handbook and the Market Link Guides).

The documents are made available publicly to all current and prospective customers and updated regularly and can be found on the company's website www.clearstream.com.

The main indicators used by CBL to determine whether its rules and procedures are clear and comprehensive are the following:

- Customers' feedback: This is collected by relationship managers and the Client Services team. Based on the continuous flow of questions received from the customers, Clearstream assesses whether the current documentation provided to customers is sufficiently clear.
- Training offers: For new products or major changes to the system, relationship managers provide detailed information to customers, via presentations and – if needed – in meetings. During these sessions and via Client Services, CBL collects the comments and takes the necessary steps to rectify any perceived lack of understanding by the customers. Especially for connectivity products CBL offers its customers dedicated training sessions, to which they can subscribe.
- Operational information review: Operational information is reviewed at least twice per year, whenever there is a major IT release bringing new and enhanced product and service functionalities. In addition, updates are implemented on an ad hoc basis, when customers (via Client Services) or internal control bodies request clarifications. The same applies to Market Link Guides as well as Tax Guides.

- CBL publishes webinars and videos on its website in order to provide punctual and specific information on CBL's products and services as well as events organised by CBL.

Furthermore, an overview of CBL's default rules and related procedures, that is the company's [default management process](#), is available online.

CBL also publishes some general information on its business continuity framework in both the [CPMI-IOSCO disclosure framework](#) and the [Association of Global Custodians \(ACG\) questionnaire](#).

Key consideration 2

An FMI should disclose clear descriptions of the system's design and operations, as well as the FMI's and participants' rights and obligations, so that participants can assess the risks they would incur by participating in the FMI.

CBL's as well as the customers' contractual rights and obligations are clearly described in CBL's [General Terms and Conditions \(GTCs\)](#), publicly available on the company's website. These rules comprehensively consider CBL's role as an international central securities depository (ICSD), and a credit institution licensed under Luxembourgish law, as well as a recognised SSS (the main legal provisions relevant for the establishment and the operation of CBL are described under [Principle 1](#)).

The descriptions and information provided in CBL's [Client Handbook](#) are technical rules. Such information can be consulted in conjunction with other CBL online publications ([Xact Web Portal User Manual](#), [ClearstreamXact Security Guide](#), [Xact File Transfer User Manual](#), [Xact via SWIFT User Guide](#)), CBL's announcements and other user manuals on connectivity, which contain further details concerning the use of CBL's services.

The said connectivity manuals provide details of the communication processes and messages supported by CBL, including the messages that customers may use for sending and processing instructions and the messages that CBL uses for reporting to customers (for details on these communication standards, see [Principle 22](#)).

Announcements give details of changes in custody, clearing and settlement, changes in taxation, changes to fees and charges, and other information about changes in the markets, as well as CBL's products and services. The information given to customers in announcements is integrated, where applicable, into the Client Handbook, the Market Link Guides, the Market Taxation Guides and other reference documents as appropriate.

The Market Link Guides, presented in the [Market Coverage section](#) on the Clearstream website, give details of the links that have been established between CBL and domestic markets for which CBL offers settlement and custody services. Details include, among others, types of securities traded, types of link, depositories and agents, cash correspondent banks, settlement rules and times, custody services and foreign exchange. In addition to information on operational arrangements, these Guides provide, in accordance with CSDR, information on the legal terms and conditions of the link arrangements including key elements of the local legislation such as recognition of nominee concept, nature of rights on the securities and impact of insolvency laws. The information is based on legal opinions issued by external law firms appointed by CBL. In this context, the company also provides information on the rules governing the finality of transfers of securities and cash (settlement finality).

Finally, CBL discloses information on its [governance](#) (composition of the management bodies, articles of association, [shareholding structure](#) and [internal control framework](#)), the [regulatory status](#), its [annual accounts](#), the [annual reports of the ultimate holding company](#) as well as its

[ratings](#). This information helps customers to evaluate the risks regarding CBL's services, but also on the company's legal, regulatory, corporate, commercial and operational environment.

On a non-binding basis, CBL also provides [information related to tax regime](#) in connection with the services provided in relation to each market, highlighting that customers shall make their own tax assessment with respect to any aspects of the activities performed with CBL.

Additional information and documentation supporting participants in their risk assessment include:

- [Pillar III disclosure report](#)
- [Default management process](#)
- [Business continuity management](#)
- [CSDR Article 38 disclosure document](#)
- [Internal control framework](#)
- [AFME and AGC questionnaires](#)

Key consideration 3

An FMI should provide all necessary and appropriate documentation and training to facilitate participants' understanding of the FMI's rules and procedures and the risks they face from participating in the FMI.

The documentation made available through the website provides information related to, without limitation:

- Full range of activities and operations performed in CBL's environment;
- Accounts (opening and closing of accounts), the segregation of the assets;
- Type of assets, their eligibility and any circumstances that could affect their fungibility;
- Execution of the instructions and communication means, including the key times and dates;
- Liability regime (including the degree of discretion under which CBL is exercising its rights, the exclusion of liability and the mitigating measures);
- Securities interest that CBL may have over the assets held in custody, such as the rights of pledge, retention and set off;
- Record keeping and data protection regimes;
- Settlement services, including the settlement finality and cancellation;
- Cash financing services;
- New issues and custody business services, including the timelines, the procedures and dates;

- Fees applicable to the services;
- Markets covered and the specificities of each market, including the local settlement rules and times;
- Impact on customers' assets;
- Conditions leading to a suspension or a termination of the services by CBL;
- Termination of the services by the customer;
- Disclosure requirements applicable in each market.

Within its world-wide Client Services structure, CBL maintains a proactive relationship model. Customers are constantly informed about any changes and enhancements to CBL's systems via announcements on the company's website. Customers can also subscribe to receive email alerts of the publication of such announcements. The Client Services team is the general point of contact for daily operational queries. The Client Services Officers – available on a 24-hour basis through Clearstream's global office presence – provide a single point of entry for queries and issues. Customers are also given the possibility to perform a due diligence visit on CBL, which would allow them to increase their understanding of CBL's rules and procedures. CBL's relationship managers meet with their customers in person on at least an annual basis. This provides an opportunity for customers to bring to their attention potential issues. Furthermore, a regular statistical report, showing, for example, the customer's STP rate puts relationship management in the position to address a possible lack of understanding at the customer's side.

Customers are offered training on ad hoc basis on subjects of their choice. Specific training is offered by the Client Connectivity team to help customers understand the technical setup in place and to ensure they are fully aware of the functionalities available and their limitations, contributing to establishing risk awareness on CBL's products.

Relationship managers produce call reports of their interactions with customers. These reports form documentary evidence of the judgement of relationship managers, and where relevant will include elements demonstrating whether customers have a clear understanding of CBL's rules and procedures, as well as an appropriate understanding of risk. The reports would lead to further interaction on the part of the relationship manager or escalation within CBL where any of these elements were felt to be insufficient.

Key consideration 4

An FMI should publicly disclose its fees at the level of individual services it offers as well as its policies on any available discounts. The FMI should provide clear descriptions of priced services for comparability purposes.

Fees are published – in accordance with Article 34 (1) and (2) of CSDR – at the level of individual services in the [Fee Schedule](#) and are intended to help customers understanding the fees applied to the services. The Fee Schedule also contains a statement on CBL's pricing policy and available discounts.

Key consideration 5

An FMI should complete regularly and disclose publicly responses to the CPSS-IOSCO disclosure framework for financial market infrastructures. An FMI also should, at a minimum, disclose basic data on transaction volumes and values.

CBL publishes its [reply to CPMI-IOSCO disclosure framework](#) every second year on its website. The company also publishes its monthly figures; please refer to the most recent publication in the Headlines section of the [Newsroom](#).

Principle 24: Disclosure of market data by trade repositories

A TR should provide timely and accurate data to relevant authorities and the public in line with their respective needs.

Not applicable to CBL.

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