



LUXEMBOURG

FINANCIAL SECTOR ASSESSMENT PROGRAM

DETAILED ASSESSMENT OF OBSERVANCE— ASSESSMENT OF OBSERVANCE OF THE CPSS-IOSCO PRINCIPLES FOR FINANCIAL MARKET INFRASTRUCTURES

CLEARSTREAM BANKING LUXEMBOURG

This Detailed Assessment of Observance of the CPSS-IOSCO Principles for Financial Market Infrastructures for Luxembourg was prepared by a staff team of the International Monetary Fund as background documentation for the periodic consultation with the member country. It is based on the information available at the time it was completed in July 2017.

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DETAILED ASSESSMENT OF OBSERVANCE

July 2017

ASSESSMENT OF OBSERVANCE OF THE CPSS-IOSCO PRINCIPLES FOR FINANCIAL MARKET INFRASTRUCTURES

CLEARSTREAM BANKING LUXEMBOURG

Prepared By
**Monetary and Capital
Markets Department**

This Detailed Assessment Report was prepared in the context of an IMF Financial Sector Assessment Program (FSAP) mission in Luxembourg during December 2016 led by Peter Breuer, IMF and overseen by the Monetary and Capital Markets Department, IMF. Further information on the FSAP program can be found at <http://www.imf.org/external/np/fsap/fssa.aspx>

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Glossary

ACRC	Audit, Compliance and Risk Management Committee
AGM	Annual General Meeting
AMA	Advanced Measurement Approach
ASL	Automated Securities Lending Programme
ASL+	Automated Securities Lending Plus Programme
Bafin	Bundesanstalt für Finanzdienstleistungsaufsicht
BCL	Banque Centrale du Luxembourg
SB	Supervisory Board
Buba	Bundesbank
CBL	Clearstream Banking Luxembourg
CCP	Central Counterparty
CCB	Cash correspondent bank
CEMT	Credit Exposure Management Tool
CEO	Chief Executive Officer
CoBM	Commercial Bank Money
CPSS	Committee on Payment and Settlement Systems
CRCC	Clearstream Risk and Compliance Committee
CRD	European Union Capital Requirements Directive
CRO	Chief Risk Officer
CSD	Central Securities Depository
CSSF	Commission de Surveillance du Secteur Financier
DBAG	Deutsche Börse AG
DRP	Disaster Recovery Plan
DVP	Delivery versus Payment
EB	Executive Board
EBA	European Banking Authority
EBIT	Earnings Before Interest and Tax
ECP	Euro Commercial Paper
ESMA	European Securities and Market Authority
EU	European Union
FMI	Financial Market Infrastructure
FMSA	Federal Agency for Financial Market Stabilisation
FSAP	Financial Sector Assessment Program
FX	Foreign Exchange
GBP	Great Britain Pound
EB	Executive Board
GTC	CBL's General Terms and Conditions

ICSD	International Central Securities Depository
IOSCO	International Organization of Securities Commissions
IRR	Internal Rules and Regulations
ISIN	International Securities Identification Number
IT	Information Technology
iTOF	Intraday Technical Overdraft Facility
KPI	Key Performance Indicator
KRI	Key Risk Indicator
KYC	Know Your Customer
LSI	Less Significant Institution
MOU	Memorandum of Understanding
NCA	National Competent Authority
OTC	Over-the-Counter
PFMI	CPSS-IOSCO Principles for Financial Market Infrastructures
PFS	Professional of the Financial Sector
RTGS	Real Time Gross Settlement System
RTO	Recovery Time Objective
SAP	Systemanalyse und Programmentwicklung system
SB	Supervisory Board
SD	Settlement Day
SI	Significant Institution
SLA	Service Level Agreement
SRB	Single Resolution Board
SSS	Securities Settlement System
SSM	Single Supervisory Mechanism
STP	Straight Through Processing
UCF	Unconfirmed Funds Facility
VaR	Value at Risk

EXECUTIVE SUMMARY

Clearstream Banking Luxembourg (CBL) is a large securities settlement system that is highly interconnected with global securities markets and as such considered to be systemically important. The average daily settlement value of CBL was €480 billion in 2015. CBL delivers its services to an international customer base, comprising more than 1,400 financial institutions, including banks, supranationals, central banks and broker/dealers and central securities depositories (CSDs), with clients from over 110 countries. Among its member base are the largest banks in the world, as well as financial institutions considered to be globally systemically important. CBL currently maintains links to 56 markets with settlement in over 40 currencies. Among its clients are central banks and central counterparties (CCPs). The value of securities held on accounts with CBL is approximately €6 trillion.

CBL contributes to the safety and efficiency of financial markets, but also concentrates systemic risk due to its central position. A failure in the functioning of CBL would entail a major disruption to the markets it serves, and could entail financial losses for its participants. Participants would not be able to access or trade some or all of the securities for which CBL acts as an international central securities depository (ICSD). There may be spillover effects on multiple markets, for example, by affecting the financing activities of banks and corporations and reducing the availability of secured credit. Other financial market infrastructures (FMIs), for example CCPs, may lose access to their financial buffers, or may be indirectly impacted because their participants are not able to provide the CCP with collateral held at CBL.

The assessment of CBL's risk management practices against the CPSS-IOSCO Principles for Financial Market Infrastructures (PFMI) reveals that a range of principles are found to be in broad observance (8 out of 21). Settlement activities in Luxembourg are governed by a consistent set of laws, regulations, and contractual arrangements that form a sound legal foundation. Luxembourg's implementation of European directives also provides a solid statutory basis for netting, finality of settlement, and securities lending, consistent with other member states. CBL uses a comprehensive risk management framework to manage operational, business and liquidity risks, and has developed a business continuity plan. CBL also has in place a detailed default management framework with defined rules and procedures to manage a participant default. Nevertheless, there are certain issues of concern that need to be addressed.

A key priority is to reduce the dependencies of CBL on commercial banks in its daily operations. There are important dependencies on a limited number of depository and cash correspondent banks, in particular for the U.S. and U.K. markets, that could be more actively mitigated through an increase in the number of contracted banks, or, where possible, the establishment of direct links with local CSDs and central banks.

Additionally, all credit exposures should be fully collateralized. CBL is exposed to credit risk through its offering of uncommitted credit lines (mostly secured) and securities lending. Though CBL manages these credit risks through limits, collateralization, and stress testing, currently not all

exposures are fully collateralized as the executive board can extend uncollateralized credit to individual participants. The advancement of income payments and certain features of the Bridge with Euroclear Bank may create further uncovered exposures. The collateral policy of CBL should be improved by applying haircuts to cash collateral, including foreign currencies, and ex ante collateral concentration measures. Also, the haircut model should be subject to independent validations to ensure they are sufficiently robust.

The independence of the risk management function should be strengthened to ensure that public interests are properly addressed. The chief risk officer (CRO) of CBL should be responsible only for risk management and not for operational activities. Also, the Clearstream Holding A.G. board committee on risk management should be chaired by an independent board member. CBL's dependence on parent funding of DBAG needs to be explicitly recognized and managed, given its relevance for CBL's recovery plan.

The systemic importance of CBL calls for further measures in operational risk management. Business continuity plans and back-up facilities are in place to allow for timely recovery of operations and completion of settlement processes. Operations can switch between CBL's two datacenters without data loss in case of an emergency and this procedure is tested regularly. However, the close proximity of the data centers combined with CBL's systemic importance justify the need for a third (more distant) data center as a contingency against extreme circumstances in which both are impacted simultaneously. CBL has conducted a partial, but not full, failover test where operations are concurrently assumed by remote sites. It is therefore not clear as to whether or how swiftly these locations can assume all critical operations conducted in Luxembourg.

The oversight and supervision of CBL is conducted prudently by the Banque centrale du Luxembourg (BCL) and the Commission de Surveillance du Secteur Financier (CSSF). Oversight and supervision are based on a clear and transparent legal framework. The CSSF supervises CBL as a bank and has no specific requirements for CBL as a CSD. The implementation of the EU CSD Regulation (CSDR) and related regulatory technical standards is expected to strengthen the application of the PFMI in the day to day supervision of CBL. The resources of the authorities are considered sufficient for the time being, although additional resources may be needed in the future to address increased regulatory responsibilities. Under the respective laws the authorities have powers to obtain relevant and comprehensive information in a timely manner and enforce corrective action. Although BCL's reliance on moral suasion works well in in this area, enforcement powers could be further strengthened through the adoption of a general legal sanctioning power in its organic law.

The authorities are encouraged to strengthen their cooperation arrangements at both the domestic and international level. Formalizing the modalities of cooperation between the BCL and CSSF in relation to their supervisory activities for CSDs would be a welcome step, through a Memorandum of Understanding (MoU) and ex ante arrangements in relation to crisis management. Although interagency cooperation functions well in practice, a formal agreement would support transparency, accountability, and in times of crisis, efficiency. The authorities should also consult international authorities and central banks as part of their assessment of CBL against the PFMI.

Finally, the existing cooperation between the Belgian and Luxembourg authorities with respect to the link with Euroclear Bank needs to be formalized and enhanced as planned, with the involvement of the ECB. This would facilitate coordination in the requirements imposed on the two ICSDs and allow for parallel implementation of risk measures in both entities.

Notwithstanding the effective supervision at the national level, there is a strong case that CBL be designated as a Significant Institution (SI) under the Single Supervisory Mechanism (SSM) supervision alongside Belgium's Euroclear Bank.¹ Both ICSDs are highly relevant for global financial stability, and a consistent implementation of supervisory requirements would also yield harmonization benefits, thus ensuring a level playing field. Although the harmonization of national supervisory approaches is expected to increase with the implementation of the EU CSD Regulation, there is still ample room to increase harmonization through SSM supervision. Similarly, the CBL should be under the remit of the Single Resolution Board (SRB).

¹ See the 2013 Euro area FSAP for a similar recommendation.

BACKGROUND, KEY FINDINGS, AND FOLLOW UP

A. Introduction

Assessor and objectives

1. This report contains the assessment of Clearstream Banking S.A., Luxembourg (CBL) and its supervisory and oversight authorities. The assessment was undertaken in the context of the IMF's FSAP in Luxembourg in December 2016. The assessor was Froukelien Wendt of the IMF's Monetary and Capital Markets Department. The assessor would like to thank the Banque centrale du Luxembourg (BCL), the Commission de Surveillance du Secteur Financier (CSSF), CBL and other financial institutions for the excellent cooperation and hospitality.

2. The objective of the assessment was to identify potential risks related to CBL that may have implications for financial stability in Luxembourg and abroad. While CBL contributes to maintaining and promoting financial stability and economic growth, it may also concentrate risk as a consequence of its central position in global financial markets. Appropriate management of its credit, operational and other risks is essential, as its failure could precipitate financial shocks or act as a major channel through which shocks are transmitted across international financial markets and institutions.

Scope of the assessment

3. CBL and its authorities are assessed against the CPSS-IOSCO Principles for Financial Market Infrastructures (PFMI). CBL is assessed against all relevant principles for securities settlement systems (SSS) and CSDs of the PFMI, which are Principles 1–5, 7–13, and 15–23. The BCL and the CSSF are assessed in their capacity as overseer and supervisor of CBL, using the five responsibilities for authorities of the PFMI. CBL was earlier assessed as part of the Luxembourg FSAP in 2011.

B. Methodology and Information Used for the Assessment

4. This assessment is based on different sources of information. The BCL and CSSF provided the IMF with an assessment of CBL against the PFMI and a self-assessment against the five responsibilities. These assessments have been a major input to the report. In addition, the assessor took into account responses of the authorities to a dedicated questionnaire as well as relevant EU directives, national laws, regulations, rules and procedures governing the systems, and other available material. The assessment benefited from discussions with the authorities, CBL, the ECB, banks, and other market participants.

5. Ratings are determined based on the methodology described in the CPSS-IOSCO Disclosure Framework and Assessment Methodology (December 2012). This methodology prescribes that ratings are built on the gravity and urgency of the need to remedy the issues of concern identified during the assessment. The ratings reflects the assessors' judgment regarding the

type or impact of the risks and other issues associated with each identified gap or shortcoming. Plans for improvements are noted in the assessment report, where appropriate, but have not influenced judgments about observance of the principles. The ratings are assigned to reflect conditions at the time of the assessment. The cutoff date for the information to be considered as part of this FSAP was set at December 10, 2016.

C. Overview of Clearstream Banking Luxembourg

Core activities and systemic importance

6. CBL is an ICSD, whose core activity is to operate a multi-currency SSS and CSD.² Where CSDs are primarily created to serve their domestic market, ICSDs were created in the 1970s to settle Eurobonds.³ Over the years, ICSDs have extended the scope of their services to cover all types of internationally-traded financial instruments, such as bonds, warrants, short-term paper and equities. CBL and the Belgium based Euroclear Bank are the main ICSDs worldwide. In addition to operating a CSD, CBL's strategy increasingly focuses on expanding the provision of collateral management services worldwide.

7. CBL is one of the largest securities settlement systems worldwide with a daily average settlement value of around €480 billion (more than 9 times Luxembourg's annual GDP). The value of securities held on accounts with CBL is approximately €6 trillion, representing over 300,000 domestic and internationally traded bonds, equities and investment funds. Figure 1 illustrates the interconnectedness of CBL with global financial markets. Table 1 provides key settlement statistics.

8. The systemic importance of CBL relates to its size and interconnectedness with global securities markets. CBL performs the role of an important global market infrastructure delivering services to an international member base, comprising more than 1,400 financial institutions, including banks, supranationals, central banks, broker/dealers and other CSDs, with clients from over 110 countries. Among its member base are the largest banks in the world, as well as financial institutions considered to be globally systemically important. CBL currently maintains links to 56 markets with settlement in over 40 currencies. More than 60 central banks have opened an account with CBL, with some central banks using CBL for credit operations and related services. CBL is also linked to some of the largest CCPs in the EU.

9. CBL contributes to the safety and efficiency of securities markets. CBL eliminates the physical movement of securities by providing book-entry deliveries of securities through electronic

² A SSS enables securities to be transferred and settled by book entry on securities accounts according to a set of predetermined multilateral rules. A CSD provides securities accounts, central safekeeping services, and asset services, ensuring the integrity of securities issues. In this report CBL is referred to as an international CSD, while recognizing that it also operates a SSS. The report only refers specifically to CBL as an SSS when particular SSS issues are discussed.

³ Eurobonds are international bonds denominated in a currency selected by the issuer and issued in a jurisdiction, via the ICSDs, which is different to that in which the issuer is located. They are usually sold to investors outside the country of the issuer

transfer of the ownership of securities. This contributes to safe and efficient securities markets. In addition, it provides services to securities issuers, such as distributing payments to shareholders. It eliminates principal risk through the use of a delivery versus payment mechanism, ensuring that delivery of securities occurs if and only if the corresponding payment occurs.

10. However, a failure of or a disruption to the functioning of CBL itself would likely induce major disruptions to the markets served by CBL, as well as potential financial losses for its participants.

Market participants would not be able to access or trade some or all of the securities held in CBL. In addition, the payment of dividends, principal and interest to investors may be delayed or halted. There may be spillover effects on multiple markets, for example, by affecting the financing activities of banks and corporations and reducing the availability of secured credit. Other FMIs, in particular CCPs, may lose access to their financial buffers, or may be indirectly impacted because their participants are not able to provide the CCP with collateral assets kept at CBL. Appendix 1 describes the impact of CBL's failure on different stakeholders.

11. CBL provides settlement and custody services for securities transactions in three main ways.

12. First, CBL provides 'internal settlement', which is the matching and settlement of securities transactions conducted between two counterparties that are both a participant of CBL. CBL settles transactions conducted over the counter (OTC) as well as transactions conducted on stock exchanges and trading platforms.⁴ CBL is linked to major CCPs, including Eurex Clearing, LCH.Clearnet SA, and LCH.Clearnet Ltd. A wide range of securities is eligible for internal settlement, such as bonds, warrants, short-term debt and equities. These securities are issued in CBL and in linked CSDs. In 2015, the value of internal settlement amounted to €55 trillion equivalent (approximately 250 billion on a daily basis).

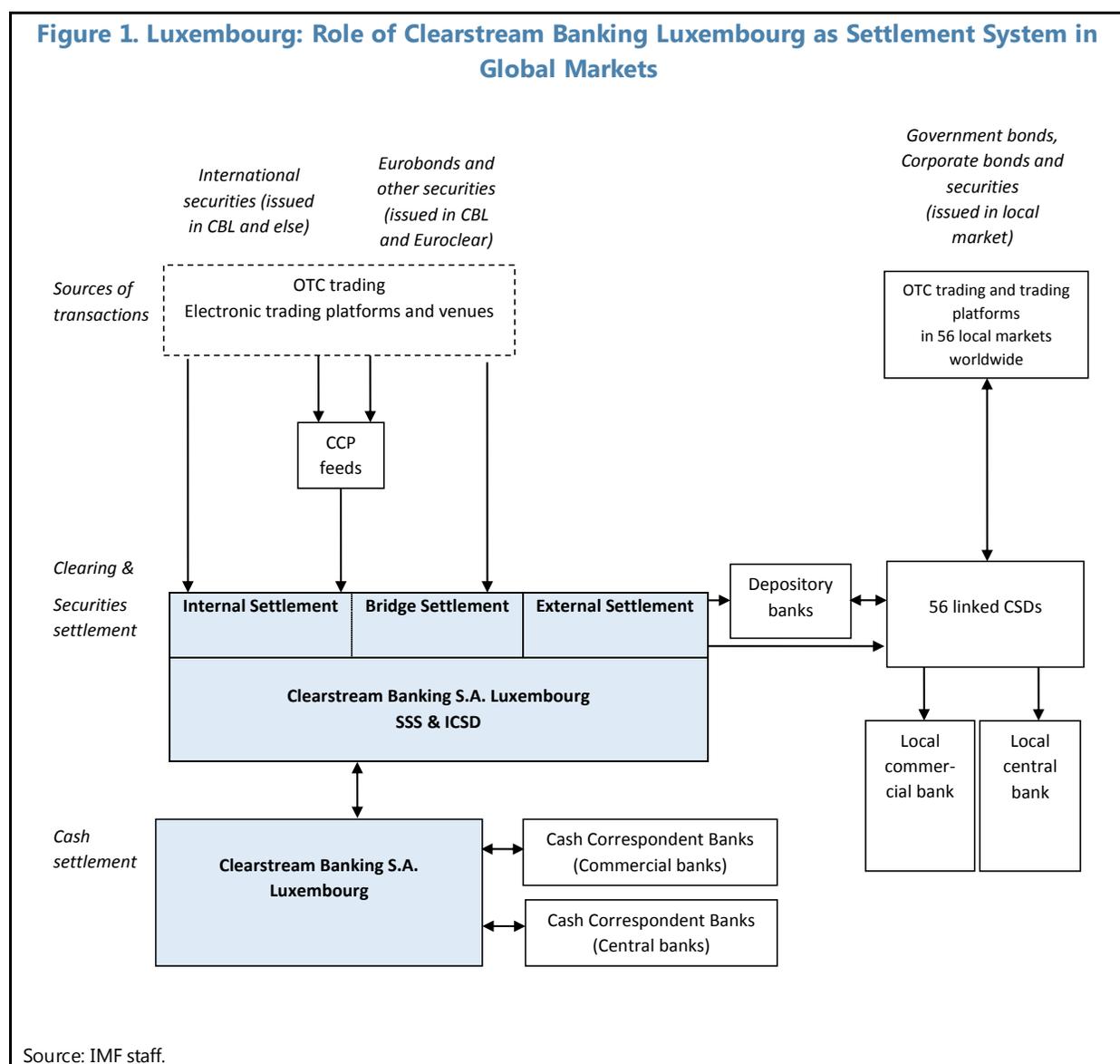
13. Also, CBL offers settlement through the so-called 'bridge' with Euroclear bank. The bridge is an interoperable direct link between CBL and Euroclear Bank that permits cross-system settlement of trades between participants of CBL with participants of Euroclear Bank. Both ICSDs have a securities and cash account with each other. A wide range of Eurobonds and international securities are eligible for settlement across the bridge, as well as a wide range of foreign securities issued in local CSDs for which both Euroclear and Clearstream have established links. In 2015, the value of bridge settlement was €25 trillion equivalent (approximately 115 billion on a daily basis).

14. A third settlement service, 'external settlement', is the settlement of securities transactions conducted between CBL participants and external counterparties in local markets abroad, in line with the rules of these local markets. The links facilitate settlement in securities which are issued, traded and safekept in the local, or "domestic" market. The securities are accepted by CBL at participants' request (provided that certain criteria are met). CBL can have direct links with the local CSD, or access the local CSDs through depository banks, the latter being local or

⁴ CBL settles for more than 20 trading venues, including Bourse du Luxembourg, Eurex Repo, Eurex Bonds, and various MTS trading platforms.

international commercial banks. The depositories serve CBL for the process of domestic settlement and any activity related to asset servicing. They can be an agent, servicing CBL's account in the local CSD, or a subcustodian, in which case CBL holds the securities at an account of the depository bank. The links can be 'outbound', with CBL acting as custodian on behalf of its participants to allow its participants to settle transactions in local markets abroad.⁵ Types of securities are money market instruments, including short- and medium-term notes, commercial paper and certificates of deposit, domestic bonds (government, municipal and corporate, including convertibles), equities, depository receipts, investment funds and warrants. In 2015, the value of external settlement was more than €25 trillion equivalent (more than 115 billion on a daily basis).

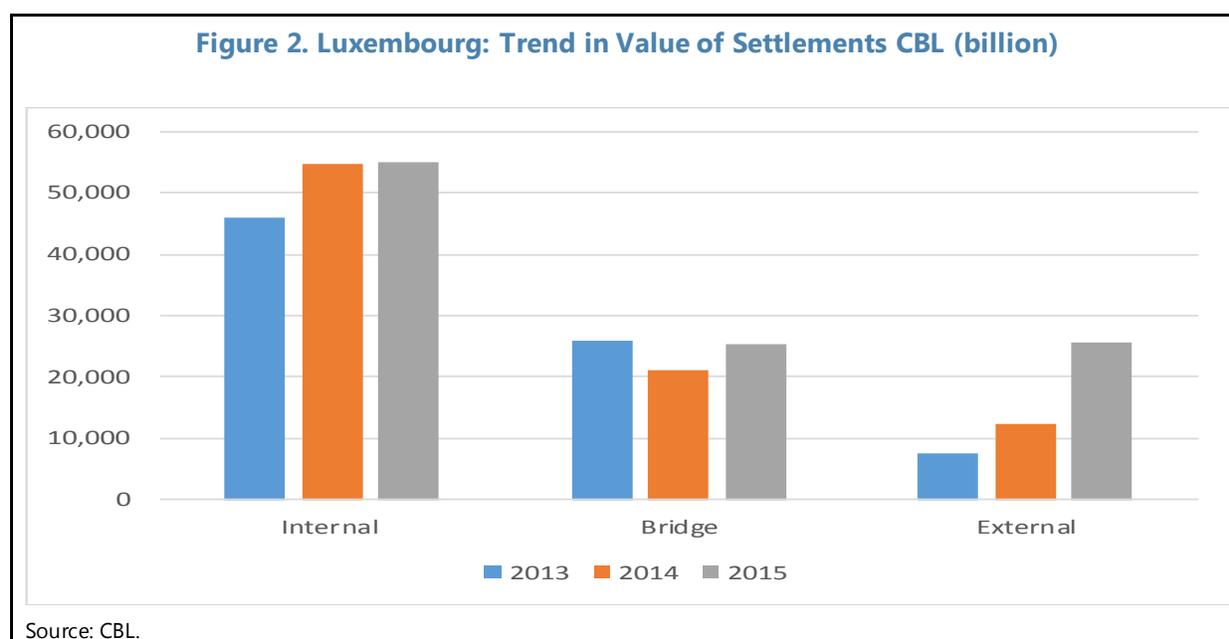
Figure 1. Luxembourg: Role of Clearstream Banking Luxembourg as Settlement System in Global Markets



⁵ The links can also be 'inbound', where the local CSD or depository bank act as custodian to offer their clients access to securities settlement in CBL.

Table 1. Luxembourg: Total Volume and Value of Settlement Instructions CBL, 2015		
Type of settlement	Number of instructions	Value in billions EUR equivalent
Internal	15,421,756	54,992
Bridge	6,683,784	25,355
External	1,872,658	25,614
Total	23,978,198	105,961

Source: CBL.



15. CBL settles transactions in multiple currencies in its own books, which is commercial bank money. CBL offers cash settlement in over 40 currencies with most trades settled in euros (45 percent), U.S. dollars (40 percent) and British pounds (5 percent). All CBL members have multi-currency cash accounts in the books of CBL. Currencies can either be full settlement or denomination only, where an instrument is issued in one currency, but the redemptions and settlement are conducted in another. Settlement is conducted on a transaction by transaction basis (delivery versus payment model 1). Participants use cash correspondent banks (CCBs) to fund their accounts at CBL. CCBs are appointed by CBL and should comply with several selection criteria. CCBs can be commercial banks and central banks (BCL). During the last couple of years, BCL has been increasingly used and is now funding around half of the EUR-denominated settlements.

16. For its cash settlements in external markets, through outbounds links, CBL is using central bank money where feasible. This is currently the case in three markets, namely Germany, Greece, and Belgium. For such cash settlements in external markets, CBL uses its central bank cash account at BCL. This cash account is linked to the omnibus securities accounts opened in the specific market. For other domestic markets, CBL uses depositories for cash settlements according to the

local market practices. This will change for the euro payments with the migration of these markets to Target2Securities (T2S), as described below.

17. Under its banking license CBL provides credit lines to participants in order to facilitate settlement and increase settlement efficiency. CBL offers credit facilities to selected participants. Credit is extended only for the purpose of enabling the settlement of securities transactions, within the limits of the participant's credit limits and in principle to the extent that there is sufficient collateral available to secure the participant's obligation. Credit facilities can be intraday and overnight.

18. In addition, CBL offers securities lending and borrowing services, in which it may act as agent or as principal. CBL acts as agent in the Automated Securities Lending and Borrowing (ASL) linking securities lenders and borrowers enabling borrowers to avoid settlement failures. The ASLplus facility provides securities lenders with the opportunity to enhance their revenues by offering access to the wholesale trading market (so not necessarily related to CBL settlements). In the ASLplus service, CBL is the principal counterparty to the trade to both the borrower and lender of collateralized loans, providing its participants with the certainty that they are protected against credit losses, even if their counterpart would fail. Credit risks are managed through the application of haircuts on collateral.

19. An important element of CBL's strategy is to provide collateral management services. As a tri-party agent CBL handles the collateral management for its participants to support the collateralizing of their exposures across currencies, asset classes and time zones. The service is driven by the increased demand for collateral in international financial markets. As an ICSD, CBL enables its participants to obtain aggregate views on the entirety of the latter's securities holdings held with CBL, including securities held via the links.⁶ CBL runs its optimization process and may automatically generate collateral allocation instructions for the collateral giver and takers based on the results. The ICSD will also process the movement of securities on the books of the ICSD. CBL's collateral management services amount to around €460 billion on average per month.

20. Finally, CBL offers a range of related services. CBL provides a single access point and standardized processes for all investment fund types, including mutual funds, exchange-traded funds and hedge funds. Other services relate to the collection and processing of interest and dividend payments and payments of principal, with pre-advice of such payments; withholding tax services, corporate actions, proxy voting and FX services.

Governance of CBL

21. CBL is a for-profit entity, wholly owned by Deutsche Börse AG (DBAG). CBL is a société anonyme incorporated under the laws of Luxembourg. It is wholly owned by Clearstream International S.A., the Luxembourg parent company of CBL and Clearstream Banking AG in Frankfurt, but also of Clearstream Services, the IT service provider for these entities. Clearstream International

⁶ See also CPMI 'Developments in collateral management services, September 2014.

on its turn is owned by Clearstream Holding AG, a financial holding company as defined in the German Banking Act (Kreditwesengesetz). DBAG, a publicly listed company, owns Clearstream Holding AG. Clearstream Holding AG was established in 2009, effectively ringfencing the Clearstream Group within the DBAG Group. Figure 3 illustrates the ownership structure.

22. CBL is dependent on the Clearstream Group and DBAG in various regards. CBL has outsourced its IT and operations to Clearstream Services within the Clearstream Group. Also, the credit, legal, HR, audit and the risk management functions are provided by the Clearstream Group. The outsourcing of IT and operations is governed through service level agreements (SLAs). Shared services with the broader DBAG group are HR, risk management, accounting, audit, compliance, risk management and a few IT services, such as office automation. Also, if needed CBL may receive parent funding from DBAG.

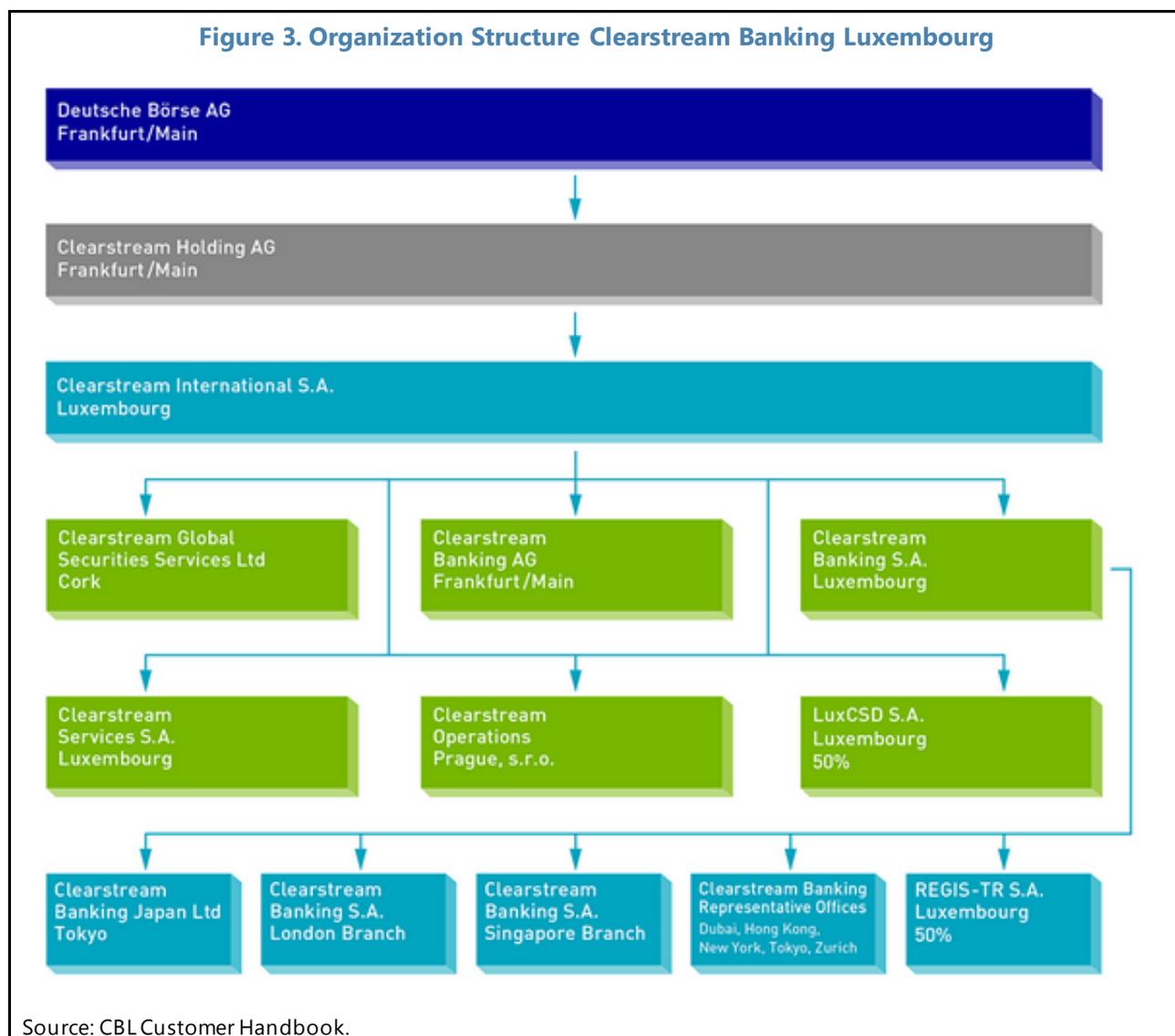
23. Locations worldwide allow for local customer services and replication of Luxembourg operations. CBL has two branches, i.e. in London and Singapore, a subsidiary in Tokyo, as well as representative offices in Dubai, Hong Kong, New York, Tokyo and Zurich. These locations typically manage local customer relations. In addition, the Singapore branch, together with the Prague and Eschborn locations (with Prague being a subsidiary of Clearstream International), replicate all critical operations of the Luxembourg site.

TARGET2SECURITIES (T2S)

24. CBL will participate in T2S through Clearstream Banking A.G. in Frankfurt. CBL will not migrate to T2S. Rather, CBL's cash account at the BCL will be linked to the securities accounts opened by Clearstream Banking AG in Frankfurt within T2S and with other CSDs participating in T2S. CBL is already settling the cash leg of securities transactions and asset services proceeds in Greece through its central bank account. CBL will add additional markets as T2S waves progress. The migration of Clearstream Banking AG Frankfurt to T2S is planned for February 2017.

25. T2S will impact CBL's settlement model as far as European securities are concerned that are eligible in T2S. CBL will offer T2S settlement as an option to settle in central bank money (Target2). However, clients will keep the option to settle securities according to the existing links with European CSDs and as such keep the option to settle in commercial bank money. All non-T2S securities will still be settled according to the current CBL settlement arrangements.

Figure 3. Organization Structure Clearstream Banking Luxembourg



D. Regulatory, Supervisory and Oversight Structure

26. CBL is regulated, supervised and overseen by the BCL and CSSF. CBL is licensed as a credit institution in accordance with the law of 5 April 1993 on the financial sector. In addition, CBL is considered as a market operator as well as a systemically important FMI based on the law of 23 December 1998 concerning the monetary status and the Banque centrale du Luxembourg (BCL Law). Accordingly, CBL is supervised and overseen in three ways:

- As a credit institution CBL is supervised by the CSSF: Article 2 of the law of 23 December 1998, establishing the CSSF (CSSF Law), states that the CSSF is the competent authority for the prudential supervision of, among others, credit institutions and professionals of the financial sector.

- As an FMI CBL is overseen by the BCL: The BCL is responsible for the efficiency and safety of payment systems and securities settlement systems, as well as the safety of payment instruments, based on Article 2 (5) of the BCL Law. According to Article 2(1) of the Regulation concerning the oversight of payment systems, securities settlement systems and payment instruments in Luxembourg (BCL Oversight Regulation), the BCL "shall carry out the oversight of the systems which it designates and which operate in Luxembourg in accordance with Article 2 (5) of the Organic Law".
- As a credit institution CBL is subject to liquidity supervision by the BCL: The BCL is responsible for supervising the general liquidity situation in markets as well as evaluating market operators for this purpose, based on Article 2 (4) of the BCL Law.

27. Given CBL's global systemic importance the authorities cooperate with several foreign authorities. As CBL is owned by a German financial holding company (via a Luxembourg financial holding company, which is licensed as professional depository of financial instruments) and supervised on a consolidated basis in Germany. The Luxembourg authorities cooperate with the German authorities Bundesanstalt für Finanzdienstleistungsaufsicht (Bafin) and the Bundesbank in the supervision and oversight of the Clearstream Group. Also, the German Federal Agency for Financial Market Stabilisation (FMSA) has responsibility for the group resolution planning. At a European level the authorities cooperate with the Single Supervisory Mechanism (SSM) as CBL is a credit institution under EU regulation, which has been identified, according to the SSM Regulation, as a Less Significant Institution (LSI) with high priority. Although the CSSF is the national competent authority, the ECB-SSM receives regular reportings and other information. Also, the BCL cooperates with the ECB Market Infrastructure department in the assessment of CBL as SSS that is used by the ECB for its credit operations (the so-called user assessment). In addition, the authorities have concluded several MoUs with individual foreign authorities.

28. The EU CSD Regulation will modify the supervisory practices for CBL. The implementation of the Regulation of the European Parliament and of the Council on improving securities settlement in the EU and on CSDRs adopted in September 2014 will be a dedicated law governing CSDs. The CSDR prescribes that there should be a designated National Competent Authority (NCA) appointed for CSDs. The Luxembourg legislator has not yet designated the NCA for CBL and other CSDs in Luxembourg. The NCA will be responsible for performing the duties under the CSDR, in particular for the authorization and ongoing prudential supervision of CSD.

29. The CSDR also prescribes the involvement of and cooperation with other competent and relevant authorities in the supervision of CBL. Although the respective delegated acts have not yet been adopted, it is expected that CBL will be considered of substantial importance for a number of EU Member States under article 24 of the CSDR. Besides this, in line with article 12 of the CSDR, the following authorities will become relevant for CBL: (i) the authority responsible for the oversight of the SSS operated by the CSD in the Member State whose law applies to that SSS; (ii) the central banks in the EU issuing the most relevant currencies in which settlement takes place; and (iii) where relevant, the central bank in the EU in whose books the cash leg of a SSS operated by the CSD is settled. Furthermore, pursuant to Article 55, the authorization to provide banking type of

ancillary services shall involve a significant number of authorities. For article 55, the ESMA and EBA will receive the authorization file, but the CSDR does not request them to issue a reasoned opinion. Most probably the NCA of Luxembourg will set up a college for the cooperation under the CSDR that will include the authorities of the EU Member States for which CBL will be considered of substantial importance. The CSDR is expected to harmonize the supervisory approach and practices towards CSDs in the EU.

E. Key Findings and Follow up for Clearstream Banking Luxembourg

General organization (Principles 1–3)

30. Legal risk within CBL is mitigated through a sound and enforceable legal basis for its settlement, custody and banking activities. The settlement activities in Luxembourg are governed by a consistent set of laws, regulations, and contractual arrangements that form a sound legal foundation for settlement and custody activities. Luxembourg’s implementation of European directives provides a firm statutory foundation for finality, netting, and securities lending, consistent with the other member states. Collateral arrangements are governed by a sound legal framework. Both securities and payment transfers, when finalized, are protected from the ordinary operation of Luxembourg insolvency law. CBL identifies and mitigates risks arising from its activities in various jurisdictions through legal opinions.

31. CBL’s governance arrangements are comprehensive, but the independence of the risk management function should be strengthened. The roles and responsibilities of CBL’s supervisory and executive boards are clearly described and publicly disclosed. CBL has established a board committee covering audit and risk management issues, which is chaired by an independent board member, the Audit Compliance and Risk Management Committee (ACRC). The CRO is responsible for the risk management of CBL. However, the independence of the risk management function can be further improved. The CRO should be responsible only for risk management and not for operational activities. As most risk management issues are discussed in the Clearstream Risk and Compliance Committee (CRCC) at Clearstream Holding level (and not at the ACRC at CBL level), the CRCC should be chaired by an independent board member. Also, all risk management models should be subject to an independent validation by technical experts, including the haircut calculation model. CBL can further improve its governance by conducting a regular review of the performance of its supervisory board (SB).

32. CBL has in place risk management policies, procedures and systems that enable it to identify, monitor and manage risks. Within this framework the coverage of credit risk could be enhanced. CBL has an effective risk management framework in place through the use of key risk indicators (KRIs) for the management of operational and business risks. The risk management function is also involved in the calculation of financial buffers in line with Basel capital model requirements and liquidity stress tests. Risk management, in the areas of credit, liquidity and market risks, could be further enhanced, for example, through the development of KRIs in these areas and ensuring that risk models are subject to an independent validation by technical experts.

33. CBL should more actively manage its dependencies on commercial entities. CBL is able to assess and mitigate risks from different stakeholders, in particular from banks that fulfil multiple roles (participant, depository bank, CCB, liquidity provider, investment bank). There are important dependencies, however, on a limited number of depository banks and CCBs, in particular in the U.S. and U.K. market, that could be more actively mitigated through an increase in the number of depositories, or, where possible, establishing direct links with the CSDs and central banks. CBL has a comprehensive recovery plan, which heavily relies on DBAG financial support in extreme but plausible circumstances. This dependency could be more explicitly recognized and managed.

Credit and liquidity risk management (Principles 4–7)

34. CBL has a framework in place to identify, monitor and manage credit risks, which needs modifications to ensure full collateralization of credit exposures. CBL offers uncommitted credit lines (mostly secured) and securities lending. It also places funds held by its participants in its books. As a bank, CBL is subject to regulatory limits on its exposures and must maintain its solvency and liquidity ratios above the mandatory threshold. Not all exposures are, however, fully collateralized as the executive board (EB) of CBL can decide to extend uncollateralized credit to individual participants. Also, credit losses may occur through the advancement of income payments in case the issuer and investor fail simultaneously. Uncovered exposures may also occur as part of the transactions settled through the bridge with Euroclear Bank. CBL should take measures to further mitigate risks stemming from these credit exposures. CBL is also encouraged to invest, as planned, in a credit risk management tool that will, on a fully automatic basis, collect and display all credit exposures resulting from entities that fulfil multiple roles (participants, depositories, CCBs and investment banks). This reduces the risks related to manual comparisons, such as human errors or delays.

35. The use of collateral to limit credit exposures is subject to a collateral policy covering haircuts and concentration limits. The securities of participants, held at accounts in the CBL system, are used as collateral to cover exposures resulting from their use of credit lines and securities lending facilities. CBL has defined collateral eligibility criteria and applies conservative haircuts to securities collateral, however, haircuts are not applied to cash collateral due to technical limitations of the collateral system. The collateral arrangements do not explicitly take into account potential pro-cyclical adjustments, which may exacerbate financial instability in crisis situations. Furthermore, tools to monitor and limit concentration can be further strengthened and applied ex ante. As previously mentioned, the haircut model should be subject to independent validation by technical experts to ensure it is sufficiently robust.

36. CBL has a comprehensive and generally sound risk management framework in place to manage liquidity risk from its participants, cash correspondent banks, liquidity providers, and depository banks in various currencies. It holds sufficient liquid resources in euros and U.S. dollars and is able to obtain liquidity in other currencies through reverse repo contracts with a range of counterparts. CBL conducts a number of different stress tests daily, monthly and quarterly to assess the liquidity impact of several scenarios, including the default of the two participants with the largest exposures. The results of the stress tests are compared with the available liquid resources in euros

and U.S. dollars. CBL is encouraged to diversify its CCB base for British pounds and other larger currencies and continue discussions with relevant central banks to obtain direct access. CBL should also prepare contingency plans to manage a crisis event in which it cannot access FX markets to obtain liquidity in GBP and other currencies.

Settlement (Principles 8–10)

37. Internal settlements are final under the CBL securities settlement system rules. Internal instructions that have settled in the CBL settlement system are final in accordance with the CBL rules. The Payment Services Law provides the statutory basis for the finality arrangements. Settlements over the bridge with Euroclear Bank are final after completion of the checking process by the receiving ICSD during day time, and after completion of the verification process by the delivering ICSD during night time. External settlements are final according to local market rules and practices.

38. Money settlements are conducted in commercial bank money via the cash accounts in CBL's systems. For internal settlement, settlement in central bank money is not considered practical as (i) CBL settles more than 40 currencies and (ii) many of its clients do not have access to central bank money in these currencies. Money settlements take place at the cash accounts at CBL (i.e. in commercial bank money). CBL's cash accounts are funded through CCBs, which in most cases are commercial banks. CCBs are supervised banks that comply with a range of criteria as defined by CBL. CBL is monitoring its risks towards CCBs on an ongoing basis, including the concentration of exposures.

39. For external settlement CBL uses a combination of commercial and central bank money. For outbound links CBL uses depository banks/CCBs to fund settlements in local markets. CCBs execute payments and may provide CBL with free and mostly unsecured intra-day liquidity facilities, as well as overnight credit if need be. For some markets the accounts are funded through central banks. The use of central banks in this regard is expected to increase with the full migration to T2S. Nevertheless, in many markets exposures are very concentrated in only a few CCBs. This exposes CBL to credit, liquidity and operational risks in case the CCB would default. Risks are particularly significant in the U.S. and U.K. markets. CBL is therefore encouraged to continue diversifying its CCB base in these markets and generally strive for direct access to local CSDs and central banks where possible (see also Principle 3).

Central securities depositories and exchange-of-value settlement systems (Principles 11–12)

40. Securities in the systems of CBL are immobilized and held in book-entry form. CBL has arrangements in place to secure the integrity of securities issues. CBL segregates its own assets from assets belonging to its participants. In addition, participants should segregate their own assets from the assets of their clients. In order to be able to distinguish between proprietary and third party assets CBL requires its participants to indicate whether the assets are proprietary or client assets and maintains a list with this information. For some types of participants CBL requires participants to rely on a segregated account structure for CBL own risk management purposes. CBL requires from all its

depositories a strict segregation between these depositories' own assets and the latter's client assets. CBL further reduces risks by not permitting overdrafts of securities accounts and daily reconciliation for all its securities accounts.

41. Principal risk is eliminated through the use of a DVP mechanism that ensures that none of the counterparties is able to own both the cash and the securities for a certain time.

CBL uses a DVP model 1 mechanism, meaning that the settlement of the cash and securities leg take place on a trade-by-trade (gross) basis with the settlement of securities conditioned upon the final settlement of the cash and vice versa. Securities are earmarked and blocked in the pre-settlement run on the value date.

Default management (Principles 13–14)

42. CBL has an effective default management framework with defined rules and procedures to manage a participant default and should test these with external stakeholders.

The default of a participant may cause losses to CBL and other participants through credit and securities lending. CBL has therefore developed default rules and procedures to manage a participant default in an orderly manner. CBL has appropriate discretionary power to implement these rules. CBL tests its default procedures on an annual basis, mainly with internal stakeholders. The tests include the participation of all relevant hierarchical levels within the organization. There is limited involvement of external stakeholders in the testing, such as supervisory authorities, Euroclear Bank, depository banks or CCBs.

General business and operational risk management (Principles 15–17)

43. CBL has in place robust arrangements to manage and control general business risks.

CBL has sufficient resources available to cover at least six months of operating expenses through capital as the difference between the total volume of own funds and the amount of own funds needed for satisfying the CRR/CRD requirements is sufficient for this purpose.

44. CBL has a well laid-out custody and investment policy. CBL prudently manages the custody and investment risks related to its participants' and own assets. It keeps the assets at supervised and regulated entities and ensures it has prompt access to the assets when required. Custodian and investment banks are incorporated in the aggregated credit risk monitoring. CBL's investment policy is publicly disclosed.

45. CBL has in place appropriate systems, policies, procedures, and controls to mitigate operational risk which are reviewed, tested and audited periodically. Operational risks are reviewed through an annual top-down approach and an annual bottom-up risk self-assessment exercise. The system is reliable and secure, and has adequate, scalable capacity, and future capacity needs are regularly reviewed. CBL is actively involved in enhancing its cyber resilience.

46. Nevertheless, business continuity management should be strengthened. Contingency plans and back-up facilities are in place to allow for timely recovery of operations and completion of

the settlement process. Two data centers are in close proximity. Operations can switch between both sites without data loss in case of a contingency. There is, however, no third data center. Given the systemic importance of CBL, the establishment of a third datacenter is warranted and should be pursued to manage extreme circumstances where both datacenters in Luxembourg are impacted. Additionally, CBL has not conducted a full failover test. Although the failover of parts of the critical operations has been tested, no full test has been conducted. It is therefore unclear as to whether and how swiftly other locations can take over all critical operations conducted in Luxembourg.

Access (Principles 18–20)

47. CBL has risk-based and publicly disclosed criteria for participation. These are stipulated in its Customer Handbook. In addition, CBL has defined criteria for granting its participants access to credit lines and other services. The access criteria are risk-based but still grant CBL’s EB substantial discretion to admit or decline participants. The implementation of the CSDR and its accompanying regulatory technical standards are expected to further impose requirements on the formulation of CBL’s access criteria.

48. CBL is not able to identify indirect clients. It has not developed tools to identify monitor and mitigate risks from indirect participant in order to reduce potential exposures towards them that may negatively impact CBL.

49. Risks related to links can be further mitigated. CBL is linked to Euroclear Bank via the Bridge. In addition, it is linked to 56 local CSDs worldwide, often through depository banks and CCBs. Remaining risks should be further mitigated. First, with regard to the bridge, CBL, should continue working on the mitigation of uncollateralized credit risks that may occur as part of the current settlement practices. Also, reconciliation of securities accounts for Bridge settlements happens on a weekly and monthly basis, which should be done on a daily basis. Finally, the moment of finality for outbound links can be more clearly disclosed in the Creation Link Guides.

Efficiency (Principles 21–22)

50. CBL’s products and services cater for requirements of various participants and the market. CBL is efficient and effective in meeting the requirements of its participants and the markets it serves through timely processing of transactions, maintenance of sufficient financial resources to minimize market disruptions in the event of a member default and minimizing systems downtime.

51. CBL uses the relevant international communication procedures and standards in order to facilitate efficient settlement of cross-border transactions. Where necessary, it uses proprietary applications or message converters to translate between proprietary messages and SWIFT messages.

Transparency (Principles 23–24)

52. CBL has clear and comprehensive rules and procedures and provides sufficient information to participants enabling them to have an accurate understanding of the risks.

Fees and other material costs for participants are publicly disclosed, as well as all relevant rules and key procedures. CBL has completed the CPSS-IOSCO Disclosure framework for FMIs.

Table 2. Luxembourg: Ratings Summary of CBL

Assessment category	Principle
Observed	1, 8, 9, 10, 11, 12, 13, 15, 16, 18, 21, 22, 23
Broadly observed	2, 3, 4, 5, 7, 17, 19, 20
Partly observed	
Not observed	
Not applicable	6, 14, 24

F. Key Findings and Follow up for Authorities

53. FMIs in Luxembourg are subject to appropriate and effective oversight and supervision by the BCL and CSSF respectively. BCL’s powers for the oversight of FMIs are derived from the BCL Act. CSSF’s supervision of FMIs, as credit institution (including CBL) or as professional depository of financial instruments, is based on the CSSF Act. In addition, CBL is subject to liquidity supervision by the BCL, based on the BCL Act. The relevant laws are publicly disclosed.

54. The powers and resources of the authorities are considered sufficient. Under the respective laws the authorities have powers to obtain relevant and comprehensive information in a timely manner and enforce corrective action. Both authorities employ sufficient staff resources to fulfill their responsibilities, although additional resources may be needed in the future to address increased supervisory responsibilities. BCL mainly relies on moral suasion in its oversight and liquidity supervision to induce changes or enforce corrective actions. While the available tools in this area have been effective in the past to appropriately induce changes, BCL’s enforcement power could be further strengthened with a general legal sanctioning power in its organic law.

55. BCL’s policies are reflected in regulations, which are publicly disclosed. The authorities’ objectives and roles are defined in the BCL and CSSF laws. In addition, the BCL Oversight Regulation and the BCL Liquidity Regulation specify BCL’s approach. These regulations are available on BCL’s website. The CSSF has no specific policies dedicated to SSS but relies on expert judgement. The implementation of the CSDR, in particular the regulatory technical standards will provide for dedicated requirements for CSDs.

56. Authorities have adopted the PFMI. The BCL takes the lead in assessments of FMIs against the PFMI. For CBL the CSSF contributes to the assessment as well. Authorities may further integrate the PFMI in their day to day supervision, as well as additional guidance of CPMI and IOSCO, for example on recovery planning, critical service providers and cyber resilience of FMIs. It is recommended to apply a two-year assessment cycle of FMIs against the PFMI as suggested in the CPMI-IOSCO Disclosure Framework and Assessment Methodology report of December 2012. The planned implementation of the CSDR, which generally reflects the PFMI, may possibly facilitate this integration through the regulatory technical standards that largely reflect the PFMI.

57. The authorities are encouraged to improve their cooperation arrangements, both domestically and internationally. It is recommended to formalize the cooperation between the BCL and CSSF in relation to their supervisory activities for the four CSDs, through a Memorandum of Understanding. Although the authorities currently cooperate well, the agreement would support transparency and accountability. Ex ante arrangements to manage a crisis should also be developed by both authorities. With regard to foreign authorities and central banks, the BCL and CSSF should consult those as part of their assessments of CBL. Also, the existing cooperation between the Belgian and Luxembourg authorities will benefit from further formalization in a MoU, as planned, with the involvement of the ECB. This would enable the coordination of requirements towards the two ICSDs and allow for parallel implementation of risk measures in both entities.

58. Finally, it is important that the CBL and Euroclear Bank are included in the SSM supervision as significant institution and be included in the SRB list. As both ICSDs are highly relevant to global financial stability, the supervisory approach should be further harmonized by a consistent implementation of supervisory requirements. This will contribute to the stability of both ICSDs and ensure a level playing field. Although the supervisory approaches are expected to be further harmonized with the implementation of the CSDR, this does not address CBL as a bank and does not ensure a fully harmonized implementation of measures. It is therefore recommended that both entities will be subject to direct supervision by the ECB-SSM, beyond the current status of LSI. Similarly, for resolution planning CBL should be under the remit of the SRB instead of the FSMA.

Table 3. Luxembourg: Ratings Summary Responsibilities for Authorities

Assessment category	Responsibility
Observed	A, B, C, D
Broadly observed	E
Partly observed	
Not observed	
Not applicable	

G. Recommendations for Clearstream Banking Luxembourg

List of Prioritized Recommendations				
Principle	Issues of Concern and Other Gaps or Shortcomings	Recommended Action	Relevant Parties	Priority
2	The risk management function is not sufficiently independent.	The CRO should not manage a business unit in addition to the risk management function. The risk management committee at Holding level should be chaired by an independent board member (CRCC).	BCL, CSSF, CBL	High
2	Significant exposures towards depository banks/CCBs.	Reduce CBL's dependencies on commercial banks, through the use of additional depositories, CCBs and direct links with CSDs and central banks where possible.	BCL, CSSF, CBL	High
2	The performance of the SB is not regularly reviewed.	Adopt procedures to regularly review the performance of the SB.	BCL, CSSF, CBL	Medium
3	The risk management functions does not sufficiently address credit risks.	Risk management of credit risks to be enhanced, for example, through the development of KRIs for these areas.	BCL, CSSF, CBL	Medium
3	Dependencies on DBAG not identified and managed.	Identify dependency on parent funding of DBAG in extreme but plausible circumstances, for example, in recovery planning.	BCL, CSSF, CBL and German authorities.	Medium
4	Not all credit exposures are collateralized.	Fully collateralize all credit exposures	BCL, CSSF, CBL	High
4	Manual comparisons are needed because the CEMT is not automatically generating all credit exposures.	CBL is encouraged to invest, as planned, in a fully automated credit risk management control system.	BCL, CSSF, CBL	Medium
5	Cash collateral is not subject to haircuts.	Apply haircuts to cash collateral.	BCL, CSSF, CBL	High
5	Pro-cyclicality is not addressed.	Include provisions in policy on how to address pro-cyclicality.	BCL, CSSF, CBL	Medium
5	Concentration limits are checked ex post.	Apply a more rigorous concentration policy by applying the concentration limits on an ex ante basis.	BCL, CSSF, CBL	Medium

List of Prioritized Recommendations				
Principle	Issues of Concern and Other Gaps or Shortcomings	Recommended Action	Relevant Parties	Priority
5	The haircut model is not subject to independent validation.	Subject the haircut model to an independent validation by technical experts.	BCL, CSSF, CBL	High
7	There is only 1 CCB in the U.K. and only 2 in the U.S.	Diversify the CCB base for GBP, USD and other larger currencies and continue discussions with relevant central banks and CSDs to obtain direct access.	BCL, CSSF, CBL	High
7	The assumption that FX markets will always be available to obtain FX may not hold in extreme circumstances	Prepare contingency plans to manage a crisis event in which it cannot access FX markets to obtain liquidity in GBP and other currencies.	BCL, CSSF, CBL	High
9	Settlement in commercial bank money exposes CBL and investors to the potential failure of the bank.	Continue seeking opening a direct account in central banks.	BCL, CSSF, CBL	Low
13	The testing of default management procedures does not include main external stakeholders.	Include relevant external stakeholders, in particular authorities, Euroclear Bank and the most relevant depository banks and CCBs, in the default management tests.	BCL, CSSF, CBL	Medium
17	No full failover test has taken place with all relevant foreign operational sites.	Conduct a full failover test.	BCL, CSSF, CBL	High
17	The two datacenters are in close proximity.	Invest in a third data site at a location with a significantly different risk-profile than other datacenters.	BCL, CSSF, CBL	Medium
19	The identification and management of risks related to indirect participants is not part of CBL's risk management	Develop tools to identify monitor and mitigate risks from indirect participants to reduce potential exposures of direct participants that may negatively impact CBL.	BCL, CSSF, CBL	Medium

List of Prioritized Recommendations				
Principle	Issues of Concern and Other Gaps or Shortcomings	Recommended Action	Relevant Parties	Priority
20	Reconciliation of securities accounts with Euroclear Bank is done on a weekly/monthly basis.	Conduct daily reconciliations.	BCL, CSSF, CBL	Medium
20	Moment of settlement finality in local markets not clearly disclosed.	Increase transparency in relation to the moment of settlement finality through Creation Link Guides for local markets.	BCL, CSSF, CBL	Low

H. Recommendations for the Authorities

List of Prioritized Recommendations				
Responsibility	Issues of Concern and Other Gaps or Shortcomings	Recommended Action	Relevant Parties	Priority
B	BCL has no legal enforcement tools.	BCL's enforcement power could be further strengthened with a general legal sanctioning power in its organic law.	BCL, MOF	Low
D	PFMI are used to assess FMIs, but not so much in day to day supervision.	Authorities may integrate the PFMI in their day to day supervision. It is recommended to apply a two-year assessment cycle.	BCL, CSSF	Medium
E	The cooperation between BCL and CSSF is not formalized. There is no crisis management framework for handling a crisis related to FMIs.	It is recommended to conclude a national MoU between the BCL and CSSF that covers cooperation and coordination arrangements in normal and crisis times.	BCL, CSSF	Medium
E	BCL and CSSF do not consult foreign authorities as part of assessment process.	Consult relevant foreign authorities and central banks during assessment of CBL against the PFMI.	BCL, CSSF	Medium

List of Prioritized Recommendations				
Responsibility	Issues of Concern and Other Gaps or Shortcomings	Recommended Action	Relevant Parties	Priority
E	No formal cooperation arrangement with Belgian authorities.	Finalize and sign the planned MoU with the Belgian authorities, and the ECB as observer.	BCL, CSSF	Medium
E	CBL is considered a LSI by the SSM.	Recognize the two ICSDs as significant institutions within the SSM.	ECB (BCL, CSSF)	High
E	CBL is not an institution subject to the resolution authority SRB.	Bring CBL under the remit of the SRB.	SRB (BCL, CSSF)	High

DETAILED ASSESSMENT FOR CLEARSTREAM BANKING LUXEMBOURG

Detailed Assessment of Observance of Principles	
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.	
<p>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.</p>	<p>Material aspects to the CBL's custody and settlement activities are the:</p> <ul style="list-style-type: none"> • Legal basis for CBL's activities • Rights and interests in financial instruments under deposit. • Eligibility of financial instruments for book-entry transfer and immobilization/dematerialization of securities. • Settlement finality, netting and arrangements for delivery versus payment (DVP). • Collateral management services. • Securities borrowing and lending services (except made to the Global Master Securities Lending Agreement (GMSLA) terms and conditions as described below). • Default procedures. <p>Relevant jurisdictions for CBL's activities are:</p> <ul style="list-style-type: none"> • Luxembourg: Luxembourg Law is governing, inter alia, the entitlement of CBL's participants, CBL's governing documentation, CBL's liability, the immobilization and dematerialization of securities, CBL's insolvency, default procedures and recovery; and settlement finality of internal instructions, which is the matching and settlement of securities transactions conducted between two counterparties that are both a participant of CBL. • Foreign laws and regulations are applicable to the so-called external settlement instructions, which are settlement instructions following transactions with external counterparties in domestic markets. The settlement rules governing such external instructions and the finality of deliveries of securities to or from a domestic counterparty are determined by the specific domestic market rules. • United Kingdom: In case CBL is acting as lender under ASLplus, CBL is entering into an ISLA Global Master Securities Lending Agreement (GMSLA) 2010 as amended by a specific Schedule governed by English law with borrowers to set out the terms of the lending of the securities. The terms and conditions of the collateral management services remain governed by Luxembourg Law as the collateral accounts are deemed to be located in Luxembourg.

The legal basis for the material aspects of CBL's activities, as specified above, is as follows:

Legal basis for CBL's activities

Luxembourg Law is the legal framework applicable to CBL, as public limited liability company incorporated and existing under Luxembourg Law and as credit institution and SSS supervised by the CSSF and overseen by the BCL.

CBL has set out terms and conditions into *governing documents* binding upon CBL and its participants. These documents are governed and shall be interpreted by Luxembourg Law and any disputes arising in relation to them shall be submitted to the competent courts of Luxembourg. The Governing Documents are applicable to (i) the rights and interests in financial instruments under deposit, (ii) eligibility of financial instruments for book-entry transfer, (iii) registration services, and (iv) settlement finality of the internal instructions.

The Governing Documents of CBL are

- the General Terms and Conditions (GTCs), defining the main terms and conditions applicable to any services provided by CBL,
- the Customer Handbook setting out the technical and operational terms and conditions applicable to the services,
- the fee schedule,
- the Creation Link Guides for each of the 56 markets including, among others, the settlement finality rules applicable by market and,
- the Disclosure Guides, that are compiling the mandatory disclosure requirements applicable for each market served by CBL.

Other material aspects such as (i) payment services related to settlement and repo, (ii) collateral management services and (iii) securities lending services are governed by separate specific contracts. Those agreements are collectively designated as the "*Specific Agreements*" and include, inter alia:

- the CBL Repurchase Conditions governed by Luxembourg Law,
- the Collateral Management Services Agreement for the Collateral Giver and the Collateral Management Services Agreement for the Collateral Receiver governed by Luxembourg Law
- ASL rules governing the program where CBL is acting as agent via the Securities Lending and Borrowing Rules,
- ASLplus program where CBL is acting as borrower via the ASL plus rules or a Securities Lending Principal Agreement governed by Luxembourg Law and
- ASLplus program where CBL is acting as lender based on GMSLA 2000 or GMSLA 2010 which are governed by English law.

	<p>Rights and interests in financial instruments under deposit.</p> <p>Assets deposited by participants in CBL are governed and protected by Luxembourg law. The rights and interests of CBL's participants in financial instruments under deposit are first of all set out in the Civil Code (art. 1915 and ff) and the law of 1 August 2001 on the circulation of securities as amended by, inter alia, the law of 6 April 2013 (Securities Law), mainly articles 3.1 and 4.1. According to Article 4.1 of the Securities Law, securities are acquired by an account holder through the credit of securities to that account holder's securities account. The Securities Law also defines, among others, proprietary rights as well as compensation in case of loss or destruction of securities held in custody.</p> <p>CBL's contractual framework, in particular the general terms and conditions (GTCs), does not replicate the principle set out by the law but it translates these principles with respect to the services provided by CBL, notably, in the articles 3 and 4 of the GTCs.</p> <p>Eligibility of financial instruments for book-entry transfer and immobilization/dematerialization of securities.</p> <p>The dematerialization of securities is governed by the law on the dematerialization of the securities, implemented on 6 April 2013 (Dematerialisation Law). The Dematerialisation Law governs, <i>inter alia</i>, the dematerialisation of securities – both capital or debt securities issued by companies incorporated under Luxembourg law and debt securities issued under Luxembourg law by companies incorporated under foreign law. The dematerialisation of securities is then designed as another option, in addition to the possible issuance of such stock and debt securities in bearer or registered form. The Dematerialisation Law has significantly amended the Securities Law to strengthen the protection and enforcement of the entitlement of the securities holders maintaining their securities mainly in securities settlement systems.</p> <p>The immobilisation of bearer securities has been implemented by the law of 28 July 2014 and is mandatory for bearer shares and units issued by a Luxembourg issuer. The said law provides for the obligation to deposit the bearer shares and units with a depository in Luxembourg. Bearer bonds are excluded from the scope of the law.</p> <p>CBL's legal framework provides that (i) CBL will accept deposits of securities designated as eligible for deposit and delivery within the CBL system on lists published by CBL knowing that these lists may be revised from time to time (Article 4 of the GTCs), (ii) all securities held in CBL shall be deemed fungible (Article 5 of the GTCs), (iii) securities deposited must be of good delivery at the time of deposit and thereafter (Article 6 of the GTCs) and (iv) transfers of securities to or from accounts within the CBL system shall be effected by book-entry only (Article 11 of the GTCs).</p>
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Settlement finality, netting and arrangements for delivery versus payment (DVP).

The settlement finality directive (directive 2009/44/EC of the European Parliament and of the Council of 6 May 2009 amending directive 98/26/EC on settlement finality in payment and securities settlement systems or SFD) has been transposed by the law of 10 November 2009 as amended by the law of 20 May 2011 (Payment Service Law) as well as the law of 15 March 2016 on OTC derivatives. These laws have implemented under Luxembourg law the protection of security settlement systems against a participant's insolvency in the Title V of the Payment Service Law. The SFD also covers the enforceability of netting arrangements in the event of the insolvency of a participant.

The CBL SSS is a designated system under the Payment Services Law. The CBL finality rules can therefore be considered enforceable under the relevant legal framework.

The settlement finality rules are defined in Section 4.2 of the the Customer Handbook and are reflecting the rules set out in Article 111 of the Payment Services Law.

DVP is also covered in Section 4 of the Customer Handbook (Securities Instructions). DVP is defined in the Glossary section of the Customer Handbook as the irrevocable exchange of securities (the delivery) and cash value (the payment) to settle a transaction.

Settlement finality rules differ per type of settlement instruction:

- Concerning the internal instructions, CBL is applying the rules set out in Article 111 (1) of the Payment Services Law.
- Transactions settled via the bridge with Euroclear are subject to specific finality rules.
- The irrevocability of external Instructions and the finality of deliveries of securities to or from a domestic counterparty are determined by specific domestic market rules. Such specific domestic market rules are set out in the Creation Link Guides. They detail domestic settlement requirements and are part of the Governing Documents.

Collateral management services.

The legal framework for the creation, perfection, and enforceability of collateral as well as the conflict of law rule is defined under Luxembourg Law, and in particular the Collateral Law which implemented the Financial Collateral Directive 2002/47/EC.

There are several governing documents and specific contracts that are setting up collateral arrangements. First, there are, the general security interests granted in accordance with the GTCs to secure any present and future obligations of the participants towards CBL under the GTCs. It includes

	<p>a retention right, a pledge over the assets deposited and a set off right in favour of the depository (art. 43, 44 and 46 of the GTCs).</p> <p>In addition, with respect to the services other than CBL's core services (i.e. settlement, custody and notary services), collateral arrangements are also securing the exposures that CBL may have with respect to:</p> <ul style="list-style-type: none"> • Intraday technical overdraft facilities (ITOF) agreement, article 12, stipulates that a pledge is granted in favour of CBL for the payment, discharge and due performance of the secured obligations; • Securities lending services: <ul style="list-style-type: none"> - as agent and guarantor in CBL's fails lending programme ASL: Pursuant to Art. 3.5 of the securities lending and borrowing rules, a first ranking pledge is granted to CBL. - as principal in CBL's strategic lending programme ASLplus: Pursuant to Art. 5 of the GMSLA, CI receives from the relevant borrowers collateral by transfer of title from the relevant borrowers which it pledges onwards to the relevant lenders. <p>The contractual documentation providing for collateral arrangements is subject to legal opinions by external law firms on several jurisdictions, in order to ensure and confirm the enforceability of the right of pledge and/or the security interest in main jurisdictions.</p> <p>Securities borrowing and lending services terms and conditions as described below).</p> <p>Securities lending activities are built upon and supported by the civil code and the Collateral Law which implemented the Financial Collateral Directive 2002/47/EC.</p> <p>Securities borrowing and lending services are further governed, depending on the service, by the GTCs, the ASL rules, the ASLplus rules or the securities lending principal agreement, and the GMSLA. Agreements between CBL and its participants are subject to legal opinions by external law firms on several jurisdictions, in order to ensure and confirm the enforceability of the right of pledge and/or the security interest in main jurisdictions.</p> <p>Default procedures.</p> <p>The consequences of breaches by the participant with its obligations under the relevant applicable laws and regulations and under the GTCs are defined respectively in the articles 52 and 56, paragraph 2 of the GTCs.</p> <p>Regarding specific services other than the core services, the default procedures are described in the relevant contractual documentation applicable for each specific service. For the intraday credit overdraft, the</p>
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	<p>default procedure is provided in the article 17 of the ITOF agreement. For the securities lending programmes:</p> <ul style="list-style-type: none"> - In relation to ASL: it is referred to in article 5, and more particular 5.3, of the ASL securities lending and borrowing rules; - In relation to ASLplus: it is referred to in articles 9 and following of the GMSLA. Defaults result in the netting of the respective obligations (close out).
<p>Key Consideration 2 An FMI should have rules, procedures, and contracts that are clear, understandable, and consistent with relevant laws and regulations.</p>	<p>The GTCs and any amendments to the GTCs are approved by the Executive Board (EB) of CBL by resolution. Once the corporate approval is granted, the document is communicated to the participants in accordance with the terms of the GTCs.</p> <p>Unless a participant informs CBL in writing to the contrary within ten business days following the date of receipt of CBL notice, such participant will be deemed to have accepted such amendments.</p> <p>In order to demonstrate that CBL's rules, procedures and contracts are clear and understandable, CBL undertakes regular internal and external reviews of the documentation. The review of the Governing Documents and the Specific Agreements involves internally the legal department and internal auditors, and, for several aspects, externally independent external law firms of good reputation.</p> <p>The updated versions are accessible for participants on CBL's website in English.</p>
<p>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.</p>	<p>Model agreements for individual services are published on CBL's website in relation to the respective services provided by CBL. CBL also publishes on its website announcements in relation to Customer Information and specific services on a regular basis. Announcements are generally made in English.</p> <p>In addition, CBL's Client Services and the Relationship Managers are collecting questions that the participants may have on the terms of the Governing Documents and on the Specific Agreements. The legal questions are conveyed to the legal department that is providing the necessary clarifications on the interpretation of certain provisions of Luxembourg Law.</p>
<p>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</p>	<p>In the context of link agreements, CBL is requesting for each link an external legal opinion covering, inter alia, (i) the validity of the relevant link agreement, (ii) the description of the nature of entitlement, (iii) liability questions, (iv) a description of the relevant settlement finality rules and (v) the rules on the enforceability of netting, if applicable. CBL requests legal opinions, in particular on the enforceability of the documentation under the jurisdiction under review or to obtain legal memoranda on the impact of specific provisions on the rights and obligations of CBL and/or its participants on the markets.</p>

<p>actions taken by the FMI under such rules and procedures will not be voided, reversed, or subject to stays.</p>	<p>For agreements, that are not governed by Luxembourg law, which is notably the case for sub-custodian links, CBL's practice is to obtain a legal opinion relating to the custody agreement with its sub-custodian. This legal opinion covers also the enforceability of the choice of law provision and jurisdiction clause.</p> <p>With respect to contractual documentation providing for collateral arrangements, the legal opinions have been limited to the main relevant CBL's participants' jurisdictions in which CBL has the largest exposure. The markets are determined by risk and credit and reviewed on a regular basis (at least annually). For the review of the legislative and regulatory changes it is CBL's practice to require from its custodian/sub-custodian or account operator information on any pertinent changes in domestic laws and regulations pertaining to securities, cash, exchange controls or tax issues.</p> <p>In addition, CBL model agreements and rules generally contain clauses on severability to ascertain that the provisions and rules are upheld to the largest extent legally possible.</p> <p>At the date of the assessment, none of the relevant jurisdictions for CBL has so far invalidated its rules, procedures and contracts.</p>
<p>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.</p>	<p>CBL is assisted in the drafting of its Governing Documents, where necessary by external law firms. In case CBL is conducting business in another jurisdiction than Luxembourg, the contractual documentation is reviewed internally and submitted to the assessment of an external law firm of good reputation in the relevant jurisdictions to issue legal opinions covering, among other things, the capacity, the validity and the enforceability of the contracts.</p> <p>In relation to CBL's links, potential areas of conflict of law rules relate mainly to the enforceability of the choice of law provisions in the relevant custody agreement, the liabilities of CBL and the custodian/CSD/agent, the finality of settlement and the determination of the rights of CBL and its participants with respect to securities sub-deposited in a foreign jurisdiction. Such questions are therefore specifically addressed in the relevant legal opinions requested by CBL in this respect.</p> <p>In addition, as per application of the Article 23 of the Collateral Law, CBL considers that any question with respect to any of the matters specified here below arising in relation to "financial collateral" on financial instruments transferable by book entry shall be governed by the law of the country in which the relevant account is maintained, i.e. Luxembourg Law.</p>

	In case there is no possibility to solve the conflict of law issues or to achieve a full legal certainty despite the legal review, CBL is informing its participants in its Governing Documents to ensure that they are informed of all the risks related to such activities (as it is the case for the Creation Link Guides) and/or implementing mitigating measures at the level of its internal procedures and/or by restricting the access of the participants and/or terminating the impacted service.
Key Conclusions for Principle 1	Legal risk within CBL is mitigated through a sound and enforceable legal basis for its settlement, custody and banking activities. The settlement activities in Luxembourg are governed by a consistent set of laws, regulations, and contractual arrangements that form a sound legal foundation for settlement and custody activities. The Luxembourg's implementation of European directives provides a firm statutory foundation for finality, netting, and securities lending, consistent with the other member states. Collateral arrangements are governed by a sound legal framework. Both securities and payment transfers, when finalized, are protected against reversal under the ordinary operation of Luxembourg insolvency law. CBL identifies and mitigates risks arising from its activities in various jurisdictions through legal opinions.
Assessment of Principle 1	Observed
Recommendations and comments	-

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	According to the Articles of Incorporation dated 22 September 2016, the main objective of CBL is the receipt of deposits or other repayable funds from the public and the granting of credits for its own account. To achieve this objective, CBL undertakes the safekeeping, administration, clearing and settlement of securities, precious metals and other financial instruments and the provision of related financial services. An additional objective of CBL is the holding of participations, the acquisition by purchase, transfer by sale, exchange or otherwise, of stock, bonds, debentures, notes and other securities of any kind as well as the ownership, administration, development and management of its portfolio. CBL may lend or borrow with or without security, provided that any
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<p>interest considerations.</p>	<p>monies so borrowed may only be used for the objectives of CBL or companies which are subsidiaries or associated with or affiliated to CBL.</p> <p>In addition, as part of Deutsche Börse, CBL follows the group mission statement, which includes among others:</p> <p>‘We stand for integrity, transparency and the safety of capital markets. We support regulation that advances these qualities.’</p> <p>CBL’s goals as a private company are achieved through the provision of services. The services CBL provides to its participants are designed with these considerations in mind, and as such are designed at all stages to minimize or eliminate risk and accentuate efficiency and stability. This is the case both to support the goal of delivering the best services to participants and thus ensure a growing client base, and also to ensure as neutral market infrastructure the continuation of market stability.</p>
<p>Key Consideration 2</p> <p>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.</p>	<p>Governance arrangements</p> <p>CBL is a 100 percent subsidiary of Clearstream International S.A. DBAG owns 100 percent of the shares of Clearstream International S.A. via Clearstream Holding AG (see Figure 3 in the Introduction). The two Co-CEOs of CBL are members of the Executive Board (EB) of Clearstream Holding AG and therefore participate in the monthly EB meetings for Clearstream Holding AG.</p> <p>On 22nd September 2016 Clearstream Group changed its government structure from one-tier to two-tier structure. As part of this change the Group Executive Management was transformed to an EB and the Board of Directors to a Supervisory Board (SB). Every Clearstream Entity has its own EB and its own SB. (EB and SB in this report are the EB and SB of CBL, unless mentioned otherwise.)</p> <p>The annual accounts are approved during the Annual General Meeting (AGM) of CBL via a resolution of the sole shareholder of CBL, which is Clearstream International S.A.</p> <p>The governance arrangements under which CBL’s SB and EB operate are detailed and documented in the (i) Articles of Incorporation, (ii) the internal rules and regulations and (iii) the internal policies:</p> <p>(i) <i>the Articles of Incorporation</i> (in particular Articles 11 “Powers of the Executive Board” and 15 “Powers of the Supervisory Board”) state that the SB, which is appointed by the general meeting, is vested with the broadest powers to perform all acts of administration and disposition necessary or useful to</p>

	<p>accomplish CBL's interests. Therefore, it administers the company and can delegate the day-to-day management to the EB. The EB determines and coordinates the various departments of CBL and also represents CBL. The EB reports to the SB.</p> <p>(ii) <i>the Internal Rules and Regulations (IRR)</i> include inter alia (i) the tasks and responsibilities, (ii) the role of the Chairman of the SB respectively the role of the Co-CEO's, (iii) the cooperation with the SB, and (iv) transactions subject to approval.</p> <p>(iii) <i>the internal policies</i> cover the different functions and responsibilities. Processes for ensuring performance accountability are defined in the respective internal rules and regulations as well as other internal policies, such as the remuneration policy. Furthermore, the design of the risk management and internal controls are defined in the corresponding risk management, internal audit and compliance policies/charters in order to provide clear and direct lines of responsibilities and accountability for key functions.</p> <p>Disclosure of governance arrangements</p> <p>CBL is publicly disclosing information about its governance structure on its website in the "Governance" and "Regulation" section. CBL's Articles of Incorporation are been published in English and German, whereas the English version is the binding one.</p>
<p>Key Consideration 3</p> <p>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</p>	<p>Roles and responsibilities of the board</p> <p>Article 15 of CBL's Articles states that the SB has the responsibility to permanently monitor and supervise the EB. The duties and responsibilities of the SB are further described in IRR of the SB, which sets out the procedures for the functioning of the SB, including the procedures related to conflicts of interest. The IRR describe in detail the functioning of the SB such as, among others, (i) the process of election, succession and revocation of directors by the shareholders, (ii) the role and power of the Chairman and Vice-Chairman, (iii) the election process and role of the secretary, (iv) the process for organizing and conducting meetings, as well as, (v) the attendance process and the voting rights of the SB.</p> <p>The IRR are reviewed at least once per year and may be amended or supplemented from time to time by the SB. They are available to all members of the SB and the EB.</p> <p>The SB of CBL includes both non-executive as well as independent members. In line with the applicable CSSF circulars, CBL considers a director as independent when he/she has no significant business relationship with the company, close family relationship with any EB member, or any other relationship with the</p>

<p>of its individual board members regularly.</p>	<p>company, its controlling shareholders or EB members which is liable to impair the independence of his/her judgment. Based on this definition, CBL considers two of its SB members as independent.</p> <p>Conflicts of interests for board members</p> <p>The law that is applicable to the SB in relation to conflicts of interest is the law on the commercial companies dated 10 August 1915 as amended by the law of 10 August 2016.</p> <p>The conflict of interest issues are covered by the internal rules and regulations of the relevant corporate bodies as well as the group conflict of interest policy. Article 4.12 of the IRR details the procedure to identify, address and manage conflicts of interest. CBL currently runs annually a survey about related parties, where the members of the SB and the EB have to confirm whether they have been related to an entity of DBAG.</p> <p>Board committees</p> <p>To facilitate its functioning, the SB has established the Audit, Compliance and Risk Management Committee (ACRC), which reports to it. The responsibilities of the ACRC are to</p> <ul style="list-style-type: none"> • review the company's financial statements and make recommendations to the SB; • approve annually the internal audit functions and the audit plan; • review the staffing and financial budgets; • ensure true and proper accounting and reporting of financial results; • oversee the proper financial management of CBL; • review the adequacy and effectiveness of accounting systems and internal financial controls; • monitor the efficiency and independence of the internal audit function; • meet regularly with the external auditor; and • review, at least on a yearly basis, the compliance status report obtained from the EB. <p>The ACRC is composed of 3 members who are appointed by the SB. In addition, the CBL Head of Internal Audit, the CBL Chief Compliance Officer, the Chief Risk Officer and the External Auditor will attend the meetings as permanent guests as well as the two Co-CEOs. The chair of the ACRC is an independent board member as he has no significant business relationship with the company, close family relationship with any Board member, or any other relationship with the company, its controlling shareholders or Board members which is liable to impair the independence of his judgement.</p>
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	<p>At the level of Clearstream Holding AG, an advisory sub-committee to the Clearstream Holding EB, the Clearstream Risk and Compliance Committee (CRCC) has been set-up. Its role is among other to</p> <ul style="list-style-type: none"> • ensure the efficient dissemination of compliance and risk management information to the senior management of Clearstream Holding and the Clearstream group; • ensure that compliance and risk management topics are discussed openly and thoroughly at senior management level of CBL; • provide guidance on the business topics of relevance for compliance and risk management policy and decision-making in order to make positive recommendations or to decline to propose them to the senior management of Clearstream Holding AG and the Clearstream group; • to prepare compliance and risk management decisions of the senior management of Clearstream Holding AG and the Clearstream Group and • to coordinate with the relevant group compliance and risk management bodies. The CRCC covers activities of the Clearstream group. <p>CRCC meetings are held on a monthly basis and are chaired by the Chief Compliance Officer.</p> <p>The ACRC and CRCC only develop recommendations. The final decision power remains with the respective EB or SB.</p> <p>Review of performance</p> <p>The performance of the SB of CBL is assessed each year at the time when the shareholder approves the annual financial statements of CBL and relief (“quitus”) is granted to the directors. Apart from the above, no detailed review of the SB’s performance is carried out at the date of the assessment.</p>
<p>Key Consideration 4 The board should contain suitable members with the appropriate skills and incentives to fulfill its multiple roles. This typically requires the inclusion of non-executive board member(s).</p>	<p>To ensure that the SB and the EB have the appropriate skills to fulfil their multiple roles, CBL adopted a policy for the assessment of the suitability of member of the management bodies and key function holders. The objective of the policy is to ensure that members of management bodies and key function holders of the affected companies are suitable in terms of reputation, experience and with respect to the governance criteria stipulated in the EBA guidelines on the assessment of the suitability of members of the management bodies and key function holders.</p> <p>CBL also adopted a side letter to the policy for the assessment of the suitability of members of the management bodies and key function holders. This document contains a job description of the members of the SB and the EB as well as of the key function holders.</p>

	<p>The Chairman of the SB performs a suitability assessment of the other SB members and of the SB as a whole. The Vice-Chairman performs such assessment on the Chairman. The suitability assessment is conducted according to a predefined process. If the suitability assessment concludes that a member of the management bodies is not compliant with requirements in total, CBL will take appropriate measures to rectify the situation and will inform the competent authority (CSSF) accordingly.</p> <p>CBL has performed a suitability assessment in October 2015 which concluded that both the SB and the EB of CBL are suitably skilled to perform the responsibilities entrusted to them.</p> <p>Furthermore, according to EBA guidelines, the SB and the EB of a credit institution are obliged to continuously maintain the required knowledge and expertise. To ensure this is actually the case, a training plan has been developed for 2016, and appropriate quarterly training will be held at the date of the respective SB or EB meetings.</p> <p>Selection criteria for board members are described in the IRR. For members of the SB and for high level management positions, CBL's HR department will conduct a structured leadership interview and pass a Hogan personality inventory to assess the candidate's suitability for the job. Finally, once an appropriate candidate is selected by the CEO and prior to approval by the shareholders, the board member candidate will need to be approved by the CSSF. Based on this approval, shareholders may decide to appoint a board member.</p> <p>The members of the SB do neither receive a base salary nor a variable remuneration for their position as board member. The independent members of the SB only receive an attendance fee.</p>
<p>Key Consideration 5</p> <p>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</p>	<p>Roles and responsibilities of management</p> <p>The roles and responsibilities of management are specified in the Articles of Incorporation as well as the IRR, along with a side letter to the suitability assessment policy for the appointment of individuals to the SB and the EB.</p> <p>The tasks and competencies of the EB include:</p> <ul style="list-style-type: none"> • to manage and monitor daily operations; • to retain and grow the participant base, taking into account pricing strategies, credit decisions and compliance requirements;

<p>necessary to discharge their responsibilities for the operation and risk management of the FMI.</p>	<ul style="list-style-type: none"> • to develop product strategies in the context of changing market and participant requirements, competitor’s moves and regulatory developments, including the necessary budget releases; • to prepare, adopt and approve policies and procedures; • to make HR related decisions, such as hiring and promotions, in accordance with the relevant group-wide policies; • to manage interfaces with the different interest groups (internal and external); and • to prepare and consult the Executive Board of DBAG in substantive decisions concerning the banking, settlement and custody area. <p>Annually, own targets are discussed and acknowledged by each EB member with the Chairman of the SB. The targets are aligned with the company objectives and reflect the role and responsibilities of the respective EB members. Those targets are then approved by the full SB. As required by CRD IV, the targets always include multi-year and “Risk/Compliance” targets.</p> <p>Performance is measured annually, documented and tracked in the appraisal system for Executives. The individual performance assessment of the EB members is executed by the SB. At the end of the year the targets are assessed during a meeting between the EB member and the Chairman of the Board. The final assessment is submitted for approval to the full SB.</p> <p>Experience, skills, and integrity</p> <p>Members of the EB are subject to the same suitability assessment as the SB to ensure they have the appropriate experience, mix of skills and the integrity necessary for the operation and risk management of CBL.</p> <p>A member of the EB can be removed at any time by a decision of the members of the SB. Decisions to remove members from management are the result of a long thought process, in which the Chairman of the SB and his SB colleagues will discuss alternatives before they take the final step to remove a member.</p> <p>The members of the EB receive a fixed remuneration (base salary) and, under performance conditions, a variable remuneration. According to the remuneration policy, the payment of variable remunerations can be executed only if a certain number of performance criteria reflecting long term achievements are met by the institution.</p>
<p>Key Consideration 6 The board should establish a clear,</p>	<p>Risk management framework</p> <p>The risk management policy documents CBL’s enterprise wide risk management concept by describing the risk management framework in terms of processes,</p>

<p>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.</p> <p>Governance arrangements should ensure that the risk-management and internal control functions have sufficient authority, independence, resources, and access to the board.</p>	<p>roles and responsibilities applicable to all staff and organizations within all CBL legal entities. The risk management framework aims to record, assess and control risk, and report these on a consolidated basis to the EB. The overall objective of the risk management framework is to enable the EB of CBL to monitor the overall risk profile of CBL as well as specific material risks so that developments that could jeopardize the interests of CBL can be identified at an early stage and suitable countermeasures deployed.</p> <p>In general, the EB of CBL is responsible for the risk management framework. The SB monitors the effectiveness of the risk management system. In addition, CBL's ACRC monitors CBL's risk strategy, the effectiveness of the risk management system, and examines the quarterly reports.</p> <p>CBL appointed a Chief Risk Officer (CRO) who is responsible for the risk management of the daily business and reports to all concerned committees of CBL. The quarterly risk reports issued by the CRO contain assessments of existing and new risks that are identified from ongoing interaction between the business and the Risk Management function. The EB of CBL is informed of the contents of these reports.</p> <p>Risk management function is a team, led by the CRO, of nine employees across two Units covering operational, business and project risk, business continuity management and default management. In addition, the team is supported by four employees of Group Risk Monitoring with regard to the development of Basel Pillar I and II models. The scope of the risk management function includes , among others (i) standardized approach to calculate the Pillar I capital figure for credit and market risks, (ii) internal model for Pillar II, and the (iii) AMA model based on the Value at Risk (VaR) methodology for operational risk. The models are reviewed and validated on a regular basis and at least annually. In addition, it receives information from the Group Credit and Treasury functions. The risk management function operates at the level of Clearstream International.</p> <p>Internal Audit is responsible for assessing the organization's framework of risk management, control and governance processes, and among others, for determining whether risks are adequately identified and mitigated by appropriate controls. The Internal Audit team comprises 13 staff members (8 operational auditors, including 2 based in Ireland, and 3 IT auditors), one administration support and the Chief Internal Auditor.</p> <p>Authority and independence of risk management and audit functions</p> <p>The Head of Internal Audit maintains at his own discretion formal lines of communication with the Chairman of the SB, the Chairman of the ACRC, the external auditor as well as, where required, with the relevant regulators and has unrestricted access to all CBL activities, records, property and employees to the extent such access is in compliance with applicable law.</p>
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	<p>The CRO has independent reporting lines to the SB of CBL through the ACRC as well as a reporting line to the SB of Clearstream International through the CRCC. Nevertheless, the independence of the risk function can be improved. The CRO leads not only the risk management function, but also the Group Credit unit. Most risk management topics are handled by the CRCC, a risk management committee chaired by the Head of Compliance and not an independent board member.</p> <p>For all models, the EB validates results and methods prepared by CBL's Risk Management function and the SB reviews them so as to ensure consistency with the broader strategy. However, not all risk models are subject to an independent validation process, such as the haircut models.</p>
<p>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.</p>	<p>CBL uses different approaches to involve relevant stakeholders in its decision making processes, among others:</p> <p><i>(i) Participants and issuers:</i> Accountability to participants is performed both by (i) regular and ad-hoc communication regarding any important decisions or changes in the products offered and the markets served by CBL, and (ii) proactively approaching participants for the development of products and services. All participants are assigned a Relationship Manager who maintains permanent communication with them and may report any present individual issues of participants to the CBL's decision making authorities. In that respect, Clearstream International hosts a user advisory board, the International advisory board which meets at least 3 times per year and gives advice to the SB of the company and its affiliates on, among others, business and marketing strategy, developments of new products and opening of new markets. If needed, dedicated user task forces are taking care of specific topics.</p> <p>Furthermore, Clearstream hosts the Customer Consultation Committee, which is a forum for topics with strategic relevance for Clearstream International and its participants and meets twice a year. The Committee's aim is to anticipate and better understand the needs and expectations of the Clearstream participant base.</p> <p><i>(ii) Stakeholders who provide a service to CBL:</i> Existing relationships with depository banks, CSDs, Cash Correspondent Banks, Transfer Agents, Euroclear Bank and connectivity providers are reviewed on an ongoing basis, and completed by onsite visits. CBL monitors developments in relation to these stakeholders on an ongoing basis. Institutions providing links to domestic markets abroad inform CBL of any changes to market practice and regulation in the markets in question. Similarly, CBL's Network Management</p>

	<p>team informs such providers, of upcoming changes to CBL's services and works with them to develop new service offerings.</p> <p>Furthermore, CBL launches, on an annual basis, a general survey to get participant feedback. Aside from industry groups, CBL does not maintain formal connections with indirect participants. However, CBL does provide a wide array of information to such groups via its website.</p>
Key Conclusions for Principle 2	<p>CBL's governance arrangements are comprehensive, and the roles and responsibilities of its supervisory and executive boards are clearly described and publicly disclosed. It has established a board committee covering audit and risk management issues, which is chaired by an independent board member. The CRO is responsible for the risk management of CBL. However, the independence of the risk management function can be further improved. The CRO should only be responsible for risk management and not for operational activities. As most risk management issues are discussed in the CRCC at Clearstream International level (and not at the ACRC at CBL level), the CRCC should be chaired by an independent board member. Also, all models should be subject to an independent validation in line with the PFMI (art 3.2.16). CBL can further improve its governance by conducting a regular review of the performance of its SB.</p>
Assessment of Principle 2	Broadly Observed
Recommendations and Comments	The independence of the risk management function should be enhanced and all models should be subject to independent validation. In addition, the CBL should implement a regular review of the performance of the SB.

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.	
<p>Key Consideration 1</p> <p>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</p>	<p>Risks that arise in or are borne by the FMI</p> <p>CBL distinguishes between (1) operational, (2) financial, (3) business and (4) project risk:</p> <p>Operational risk: in accordance with the Basel II framework, operational risk is defined as the risk of loss resulting from inadequate or defective systems and internal processes, from human or technical failure, from inadequate or defective external processes, from damage to physical assets as well as from legal risks and risks associated with business practices. It should be highlighted that risks related to outsourcing are also included in this risk category. CBL furthermore divides operational risk into 4 sub-categories namely (i) availability</p>

<p>subject to periodic review.</p>	<p>risk, (ii) processing errors, (iii) the damage to physical assets, and (iv) legal risks and risks associated with business practices.</p> <p>Financial risk: CBL has identified credit risk as main source of financial risk. In addition, CBL is exposed to market price risk and liquidity risk.</p> <p>Business risk: reflects the sensitivity of CBL to market changes, its vulnerability to event risks arising from other external threats and refers to dangers relating to the sales volume on the market. Business risk comprises revenue, cost, macro-economic and regulatory risk.</p> <p>Project risk: arises as a result of project implementation, such as new products, services, processes or systems launches, which may have a significant impact on any of the three other risk categories.</p> <p>Risk management policies</p> <p>The Clearstream risk strategy sets limits specifying the maximum risk permitted for operational risks, financial risks, business risks and overall risks. It is applied at the level of Clearstream Holding, Clearstream International and Clearstream Bank Frankfurt, and is approved by the SB and EB of each entity.</p> <p>Furthermore, Clearstream International has a dedicated Risk Management policy which documents the Clearstream group's enterprise wide risk management framework in terms of processes, roles and responsibilities applicable to all staff and organizations of group entities.</p> <p>In addition, the objectives, overall approach and scope of operational risk are described under the Clearstream Operational Risk Handbook. The objective of the Operational Risk Handbook is to give a comprehensive description of the processes and methodologies to manage operational risk following CBL's Advanced Measurement Approach (AMA).</p> <p>The Operational Risk Procedure serves as a guide in conjunction with the aforementioned Operational Risk Handbook. The procedure describes the approach and major instruments applied within the process of managing operational risks. Furthermore, it sets the internal standards regarding roles and responsibilities as well as the related duties of different legal entities within the Clearstream Group.</p> <p>The objective of the Clearstream Financial Risk Handbook is to provide a comprehensive description of the organizational structure, processes, models and methodologies that constitute its financial risk approach.</p>
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	<p>Clearstream International also established a Business Risk Procedure in which the approach and instruments for managing business risk are described.</p> <p>Every year Clearstream International Risk Management, together with DBAG group, produces a structured roadmap with the list of all projects to be developed in the next twelve months, including the development of procedures, policies and systems. This road map is designed to highlight new projects and developments within the Risk Management Framework.</p> <p>Risk management procedures</p> <p>Based on the risk strategy the risk management function controls operational and business risks. It applies a five-step process for risk management, consisting of the identification, notification, assessment, mitigation, and monitoring / reporting of risks, aims at providing aggregate risk exposures across the company. While the identification, notification and mitigation are mainly carried out on the CBL level, the assessment as well as the monitoring / reporting of risks falls under the responsibility of the risk management function at the level of Clearstream International. The identification and notification steps are assigned to the operational units within CBL (business risk owners). The assessment is conducted by the risk management unit, whereas the risk monitoring and mitigation is conducted again by the business units.</p> <p>Key Risk Indicators (KRIs) are used as an instrument that can provide early warning signals for operational and business risk. This approach relies on the (assumed) relationship between effects and their underlying causes that can in certain cases be approximated by leading indicators. The methodology of KRIs is especially useful for those operational risk drivers leading to relatively frequent losses of low individual severity. The indicators are regularly collected, monitored and compared to previously defined thresholds.</p> <p>The reporting of KRIs can be differentiated between regular and the exceptional reporting. Periodically, generally monthly or quarterly, the business risk owners collect the required KRI data for their business units. In cases where a threshold is exceeded, the business risk owners prepare an exceptions report and notify the Risk Management function about the breach. Risk Management will subsequently perform a risk assessment of the situation and the level of risk and evaluate whether this threshold breach triggers an update of an existing risk scenario or the definition of a new risk scenario. If Risk Management sees a significant risk, the Executive Management will be informed.</p> <p>Reliance on the VaR concept furthermore enables to measure and report all operational, financial, business and project risks across the company. The VaR</p>
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quantifies the risks to which Clearstream Group is exposed. It indicates the maximum cumulative loss that CBL could face if certain independent loss events materialize over a specific time horizon for a given probability.

Financial risks are managed through capital based on capital models. Clearstream's models are based, in line with the Basel II / III framework, on a one-year time horizon and correlations between individual risk estimates are recognized when calculating the capital charge for operational risk. Between the individual risk types, the most conservative approach of a correlation of 1 is implemented.

Reporting takes place on a regular basis, i.e. on a quarterly basis to the CBL EB and on a monthly basis to the EB of Clearstream Banking A.G. in Frankfurt.

Risk management systems

Systems, databases and reports are automatically collecting and using information on internal and external loss, scenarios established and KRIs defined.

The risk management function receives internal Production Issue Log on a weekly basis and Production Error Log reports from the operational departments upon occurrence of operational risk relevant events.

In addition, the Credit Exposure Monitoring Tool is enabling Clearstream International to obtain an aggregation of exposures arising from sources such as cash and securities financing as well as treasury activities, every 30 minutes.

Review of risk management policies, procedures and systems

At least on an annual basis, Internal Audit performs thorough checks on all Risk Management documents, including the Operational Risk Handbook and Operational Risk Procedure, to make sure policies and procedures are implemented and compiled. CBL's external auditor performs annual audits.

In the context of Basel II / III, Internal Capital Adequacy Assessment Process (ICAAP) as part of Pillar II, the Risk Management function provides once per year additional risk management information to the EB for the assessment of CBL's capital adequacy.

On an annual basis, Risk Management conducts an annual risk control self-assessment. All departments are involved in this exercise and the aim is to identify and highlight any gaps, risks or shortcomings in the processes in place. One part of the risk control self-assessment process consists in discussing

	<p>current and prospective KRIs. The effectiveness of such KRI's is challenged by the business risk owners and the Risk Management function.</p> <p>All reports, updates and reviews are subject to the approval of the EB. In addition, the SB reviews the risk strategy – including the risk appetite on an annual basis.</p>
<p>Key Consideration 2</p> <p>An FMI should provide incentives to participants and, where relevant, their customers to manage and contain the risks they pose to the FMI.</p>	<p>Information provision to members</p> <p>Credit risks as well as non-compliance of participants with CBL's acceptance or regulatory requirements are the main risks that participants could pose to CBL. CBL is making its participants aware through, among others, the CBL Customer Handbook that credit lines are extended to facilitate settlement only, that its duration is limited and that they are at all times to be fully collateralized.</p> <p>In addition, the CBL settlement and collateral management systems enable participants to monitor the status of their settlement and securities lending transactions and to take mitigating actions if necessary.</p> <p>CBL also provides various reports aiming at enabling participants to better manage the risks they pose to it. In addition, participants are able to make online queries on security and cash transactions and balances and tailor these to their needs.</p> <p>In order to enable participants to manage and contain risks they may pose to CBL related to non-compliance with CBL's acceptance or regulatory requirements, CBL provides definitions of the said criteria and requirements in the Customer Handbook as well as on its website. CBL is also ensuring that static participant-related information is kept up-to-date at all times. CBL Relationship Managers would revert back to the respective participant in case an update of this documentation is needed.</p> <p>Incentives</p> <p>In order to incentivize participants to repay cash advances on the same business day, CBL is charging interest above market rates to participants in case of overnight credit usage. With the entry into force of the CSDR related penalty regime and buy-in mechanism, incentives to settle on intended settlement date will be established in the near future, such as financial penalties.</p>
<p>Key Consideration 3</p> <p>An FMI should regularly review the material risks it bears from and poses</p>	<p>Material risks</p> <p>Material risks to CBL might occur from different stakeholders, including participants, Euroclear Bank, depository banks, linked CSDs, Cash</p>

<p>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.</p>	<p>Correspondent Banks (CCBs), and external service providers such as data vendors or SWIFT, power suppliers and telecommunication suppliers.</p> <p>In addition, CBL is dependent on DBAG as its parent, as well as services provided by other entities within the Clearstream Group. In particular, Clearstream Services provides IT, operational and risk management services. Clearstream International provides key services in the areas of HR, Legal, Risk Management and Audit. The main risks that CBL poses to and bears from other entities are operational and financial risks. Appendix 1 provides further details on the interdependencies between CBL and its stakeholders.</p> <p>Risk management tools</p> <p>Risks, including interdependencies related risks, are reviewed at least annually during the annual operational risk scenario review, or on an ad-hoc basis if required by business and/or external factors.</p> <p>In addition, CBL is relying on specific risk scenarios review sessions in order to identify and address risks stemming from interdependencies. As a result, scenarios such as an ICSD or SWIFT outage are established and mitigation measures are addressed. CBL also addresses the risks arising from interdependencies with other entities via crisis management arrangements outlining different scenarios of disruptions potentially caused by such interdependencies.</p> <p>More specifically related to the interoperable link with Euroclear Bank, CBL has, in cooperation with Euroclear Bank, established dedicated joint operating procedures for every process performed via the Bridge. These procedures include alert escalation mechanisms, joint key crisis contact lists and joint contingency procedures.</p> <p>Not all types of interdependencies are addressed, such as the dependency on DBAG and services provided by the Clearstream Group. There are also important dependencies on a limited number of depository banks and CCBs, in particular in the US and UK market, that should be more actively mitigated as the failure of such a bank exposes CBL to significant credit liquidity and operational risks.</p>
<p>Key Consideration 4</p> <p>An FMI should identify scenarios that may potentially prevent it from being able to provide its critical</p>	<p>Scenarios that may prevent an FMI from providing critical operations and services</p> <p>Based on the European Banking Authority's (EBA) "Technical advice on the delegated acts on critical functions and core business lines", CBL has identified the following business lines as being critical: Custody, Settlement, Global Securities Financing, Investment Fund Services, Treasury and IT. The assessment was based on qualitative and quantitative parameters including</p>

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.

strategic importance, net revenue, contribution to total net revenue, Earning Before Interest and Tax (EBIT), and contribution to total EBIT.

CBL established six scenarios which could prevent it from providing these critical core services. These scenarios are included in the CBL recovery plan and are based on plausible near-default scenarios, with two idiosyncratic, two systemic scenarios and two scenarios combining idiosyncratic and systemic scenarios, with one of each fast-moving and the other slow-moving. The scenarios test the adequacy of a number of recovery measures available to CBL, each with an execution plan identifying key processes and potential barriers to implementation. Scenarios can be summarized as follows:

	Idiosyncratic shock	Market-wide shock	Idiosyncratic and market-wide shock
Sudden shock	Scenario 1: An OpRisk/litigation event occurs in a cash correspondent bank leading to a temporary blocking of routed funds	Scenario 3: A globally systemically important client defaults	Combination of scenarios 1 & 3: An Op/Risk/litigation event occurs in a cash correspondent bank leading to a temporary blocking of route funds. A globally systemically important client defaults
Gradual developing crisis	Scenario 2: Due to unfortunate circumstances several operational risks materialize at once.	Scenario 4: Breakup of the European Monetary Union (EMU)	Combination of scenarios 2 & 4: Due to unfortunate circumstances several operational risks materialize at once. EMU breakup.

Recovery and orderly wind-down plans

CBL has developed a Recovery Plan, including the identification a number of recovery options, and evaluated those options towards their applicability in times of stress. The recovery options should enable CBL to continue its critical operations in times of stress.

The identification and assessment of CBL's inventory of recovery options were based on the framework laid out in 'EBA final draft Regulatory Technical Standard on the content of recovery plans' (EBA/RTS/2014/11) and follows the requirements of Art. 13 (2) no. 3-5 SAG and Art. 5 of the EU Bank Recovery and Resolution Directive. The recovery options are:

- (i) *Strengthening of capital – raise of equity*
- Retain earnings

	<ul style="list-style-type: none"> • Increasing equity by parent company • Equity increase by third-party investor <p><i>(ii) Strengthening of capital – increase of profitability</i></p> <ul style="list-style-type: none"> • Cost reduction • Increasing fees <p><i>(iii) Reduce risk positions</i></p> <ul style="list-style-type: none"> • Reduce business volume • Liquidation of collateral in case of participant default <p><i>(iv) Divestment of legal entities or business lines</i></p> <ul style="list-style-type: none"> • Sale of subsidiaries REGIS-TR and LuxCSD <p><i>(v) Liquidity options</i></p> <ul style="list-style-type: none"> • Usage of remaining EUR liquidity buffer • Usage of remaining USD liquidity buffer via committed repo facilities • Cancellation of 75 percent of participant UCF/i-TOF lines • Flagging income and redemption proceeds • Revolving multi-currency credit facility • Multi-currency EURO-commercial paper programme • Liquidation of collateral in case of participant default • Intra-group funding <p><i>(vi) Operational recovery options</i></p> <ul style="list-style-type: none"> • Switch to backup data centres in case of system unavailability • Relocating critical business units to backup locations in case of workspace unavailability • Transferring business to units in another location in case of staff unavailability <p>For each recovery option, the recovery plan includes a detailed impact and feasibility assessment. The operational and external impact of the individual options are rated into the categories 'High', 'Medium' or 'Low' depending on the impact the option is expected to have. Feasibility is rated based on the number and magnitude of material impediments as well as on the availability of potential solutions to those impediments. An overall effectiveness rating is given based on assessments of magnitude, operational and external impact as well as the feasibility assessment. CBL's key recovery option is a capital injection by its parent company DBAG. Overall, based on the financial strength of DBAG as well as its variety of contingency funding sources, CBL deems it highly probable that DBAG would be in a position to support CBL in a crisis situation. CBL does not consider the failure of DBAG as a recovery plan scenario.</p> <p>The Risk Management department is responsible for the continuation and update of the recovery plan and the coordination of the actions and measures needed to update the plan at least annually.</p>
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Key Conclusions for Principle 3	<p>CBL has in place risk management policies, procedures and systems that enable it to identify, monitor and manage risks to which CBL is exposed. CBL has an effective risk management framework in place through the use of KRIs for the management of operational and business risks. The risk management function is also involved in the calculation of financial buffers in line with Basel capital model requirements and liquidity stress tests. The scope of the risk management could be further increased to credit risk, for example, through the development of KRIs for these areas.</p> <p>CBL has identified the different interdependencies and related risks and is able to assess and mitigate risks from banks that fulfil multiple roles (participant, depository bank, CCB, liquidity provider, investment bank). There are important dependencies on a limited number of depository banks and CCBs, in particular in the US and UK market, that could be more actively mitigated through an increase in the number of depositories, or where possible, establishing direct links with local CSDs and central banks.</p> <p>CBL's has a comprehensive recovery plan. The recovery plan relies heavily on DBAG financial support.</p>
Assessment of Principle 3	Broadly Observed
Recommendations and Comments	<p>In order to fully comply with Principle 3 CBL should extend the scope of the risk management function to address financial risks more actively, for example, through the development of KRIs for credit risk.</p> <p>Furthermore, CBL should reduce its dependence on depository banks and CCBs, in particular for the UK and US markets by extending the number of depository banks/CCBs in these markets. CBL is encouraged, where possible, to open direct accounts in central banks and local CSDs.</p> <p>It should identify its dependence on service providers within the DBAG group and address any risks, for example as part of its recovery plan.</p>

Principle 4. Credit Risk

An FMI should effectively measure, monitor, and manage its credit exposures 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 participants and their affiliates that would potentially cause the largest aggregate credit exposure to 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 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.

The Group Credit unit, within Clearstream International, manages credit risk as outlined in Clearstream's credit strategy. Specifically, it ensures that credit decisions are based on criteria encompassing the credit taker's creditworthiness, the amount and quality of available collateral, as well as the amount and nature of the resulting credit exposure. The credit strategy covers business activities which might give rise to credit risk, ranging from custody & settlement to securities financing as well as treasury. The credit strategy is set in accordance with the CBL risk strategy and various regulatory requirements, aiming to be consistent with the tolerance for credit risk, as expressed by the credit appetite, and the level of profitability expected to be achieved for accepting credit risk.

The criteria that CBL has adopted for granting credit to participants are reflected and further detailed in CBL's credit policies, procedures and processes.

The credit appetite is defined as CBL's non-binding tolerance for accepting credit risk. It is established by the EB taking into account the business strategy, its role as an operator of a SSS, as well as the overall risk profile that CBL wants to achieve in its credit portfolio, including levels of diversification and concentration tolerances. Numerically it is expressed as the maximum amount of all credit limits available to participants and counterparties.

The Group Credit unit is responsible for performing independent assessments of the creditworthiness of CBL's direct counterparties. It maintains systems and operating procedures for early warning and remedial action on deteriorating credits. Exceptions to credit policies, procedures and limits are reported to the EB and other relevant functions. The Group Credit unit also undertakes at least once a year an internal credit rating review for all participants benefitting from credit limits, as well as for CCBs and subcustodians. The credit review recommends continuing, changing or cancelling the relationship with a participant. In addition,

	<p>ad hoc credit reviews are performed should there be a request for the approval of a new credit limit or a credit limit increase.</p> <p>The Group Credit unit also actively follows market news. The Credit Watchlist process is initiated once a participant is affected by a major event or suffers a sudden change in credit quality but the extent of the change is unknown. Every time a participant is placed on the Watchlist, this is communicated to the EB.</p> <p>The credit strategy is reviewed and approved at least annually by the SB. Other components of the credit risk framework are reviewed annually and amended as required.</p>
<p>Key Consideration 2</p> <p>An FMI should identify sources of credit risk, routinely measure and monitor credit exposures, and use appropriate risk-management tools to control these risks.</p>	<p>Sources of credit risk</p> <p>CBL has identified the following sources of credit risk:</p> <ul style="list-style-type: none"> • CBL grants loans to its participants on a short-term basis (mostly intraday) and solely for the purpose of increasing the efficiency of securities settlement. The main credit product offered is the intraday “Technical Overdraft Facility” (i-TOF), which is an overdraft facility to facilitate the settlement of securities transactions when cash balances in the relevant currency are, for one reason or another, unavailable at the right time. CBL is also granting Unconfirmed Funds Facilities (UCFs) which are intra-day credit facilities, enabling participants to purchase securities based on an anticipated receipt of funds from a pre-advice, a sale of securities over the bridge with Euroclear or a sale over a domestic market link. Over the last two years, overnight participant borrowings across all currencies (i.e. participants not repaying by the end of the business day all of their UCFs or i-TOF used lines) averaged 230 million EUR equivalent with a peak of 2.3 billion EUR equivalent, representing 0.13 percent of the total settlement limits granted by CBL. • CBL is also acting as service provider for its participants for central bank money settlement in the German (Cascade) and Luxembourg (LuxCSD) market. CBL provides liquidity support to participants, subject to provisioning, to enable settlement of securities transactions in central bank money. Settlement prefinancing over the last two years averaged to EUR 909 million with a peak of EUR 5.9 billion. • CBL is also exposed to credit risk arising from its securities lending programs referred to as Automated Securities Lending (ASL) where CBL guarantees the reimbursement to the lender and ASL+ where CBL acts as principal. Since the lenders of securities have no direct access to the collateral—except in case of a CBL default—CBL has no credit risk on the lenders, only on the borrowers. • Additional credit risks are associated with cash investments and cash holdings at CCBs.

- Credit risk also arises from redemption and income payment advances in case of the default of an issuer.
- Finally, CBL is also exposed to credit risk in the context of settlements taking place over the interoperable Bridge link to Euroclear Bank.

Monitoring and measuring credit exposures

The Credit Exposure Monitoring Tool (CEMT) allows the Group Credit unit to aggregate exposures. The system is updated at regular intervals and provides a consolidated view of the credit exposures arising from (i) cash financing services, (ii) securities financing services, as well as (iii) treasury activities including CCB nostro activities. Via the CEMT, the Credit Department has a view on the exposure towards a specific participant, the granted credit limits as well as the available collateral. The CEMT receives feeds from the Creation platform on securities settlement related credit exposures and the Treasury system on treasury cash investments (deposits, Repo, FX).

Un-invested residual cash balances (nostro balances) are monitored separately. Credit exposures on beneficiaries of custody payment advances are also not captured by the CEMT.

Risk management tools to control credit risks

Tools CBL is using to control the different sources of credit risk:

- *Credit limits* which are applied to all participants and counterparts of CBL, irrespective of the nature of credit exposure or underlying business activities. The duration of credit limits for the custody and settlement activity is intraday. Credit exposures which remain outstanding after the end of the business day are reviewed and exceptionally approved by the management of the Group Credit unit. For any exceptionally approved overnight credit line, participants have to pay debit interest. Exposures exceeding two days are subject to enhanced credit supervision and corrective actions. The duration of treasury limits, i.e. the maximum exposure that Treasury can have with one counterpart for placing cash balances, can range from overnight up to 6 months. No time limit applies to securities lending limits, although these can be recalled at any time.
- *Full collateralization*: Collateral should be pledged to CBL to mitigate credit risk, and will be liquidated or otherwise re-financed in the event of a default of the counterpart. Securities collateral is subject to haircuts to take into account potential adverse price movements. Credit limits on securities financing transactions are fully secured. For settlement efficiency related cash credits and ASL, pledged securities are earmarked with status changing from "held free" to "held encumbered for collateral" and will be released only at

	<p>the closure of the borrowing position or if securities are substituted by eligible collateral of similar value.</p> <ul style="list-style-type: none"> • <i>Internal credit ratings</i> reflecting a counterpart's financial standing and assigned by the Group Credit unit based on at least annual reviews. The rating scale ranges from 'AA' to 'J', whereby the 'J' rating reflects the lowest financial standing. 'K' rating is assigned to participants without credit limits, irrespective of their financial standing. • <i>Credit stress tests</i> aiming to gauge CBL's potential losses to exceptional but plausible events, namely the default of the largest participant as well as multiple failures. • Regarding the credit risk stemming from advancing redemption and income payments, CBL is relying on the <i>Income Release Management Application (IRMA) tool</i>. Credit risk on such custody advances is currently managed primarily at instrument or issuer level, and depending on the credit rating of the security or issuer, a custody payment may either be flagged (i) non-Upon Receipt of Funds and automatically advanced to participants on intended payment date, or (ii) Upon Receipt of Funds and only be executed once the funds for the related event have been received by CBL. The flags are determined by the Group Credit unit. In addition, CBL is performing since 2010 a set of daily checks including among others a review of lower-rated participants receiving large payments and a review of certain payments where the issuer and the beneficiary belong to the same group.
<p>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</p>	<p>The above mentioned risk measures allow for a coverage of credit exposure to each participant with a high degree of confidence.</p> <p>There are a few instances in which the credit exposure is not or not fully collateralized:</p> <ul style="list-style-type: none"> • Unsecured cash credit may be offered to the most creditworthy participants on an exceptional basis. At the end of December 2015, 6 percent of custody and settlement limits were granted on an unsecured basis and the bulk of those limits were granted to central banks and supranational institutions. • CBL also invests surplus funds and cash balances left in nostro accounts of participants as part of its investment strategy. The cash is invested in overnight secured and unsecured placements and overnight foreign exchange swaps. Placement limits set the approved amount that Treasury can place with counterparts in the inter-bank market • Advances on income payments are granted on an unsecured basis. However, CBL may rely on certain mitigation mechanisms. In practice, a number of advances occur on accounts which benefit from a credit limit and in this case

<p>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.</p>	<p>the exposure may be collateralized under this limit. Moreover, in most cases, CBL can rely on the right of pledge and the right of retention granted under the GTCs, except where the right of pledge and right of retention have been waived by CBL. Furthermore, the Group Credit unit monitors income payment correlations between issuers and recipients. The probability of loss due to income payment is deemed low since it requires the occurrence of independent events consisting in (i) the issuer defaulting on its payment obligations leading CBL to reverse the payment, (ii) the reversal creating a debit balance in the respective participant's account, (iii) the said participant defaulting on its obligations and (iv) the value securities to be liquidated being not sufficient to cover the amount of the custody payment advance.</p> <ul style="list-style-type: none"> • Under certain circumstances, and despite the existence of an elaborated Bridge Risk Management Framework, uncovered Bridge movements related exposures may arise.
<p>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</p>	<p>Not applicable</p>

<p>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.</p>	
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<p>Key Consideration 5</p> <p>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</p>	Not applicable
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<p>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.</p>	
<p>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,</p>	<p>Not applicable</p>

<p>simultaneous pressures in funding and asset markets, and a spectrum of forward-looking stress scenarios in a variety of extreme but plausible market conditions.</p>	
<p>Key Consideration 7</p> <p>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.</p>	<p>Allocation of credit losses</p> <p>CBL's rules and procedures regarding credit facilities granted to participants, set out a waterfall principle applicable to the allocation of the proceeds after the enforcement of the collateral granted to secure the exposure. In case collateral would need to be enforced, the proceeds of such enforcement shall first be used to cover the repayment of the respective participant's secured obligation towards CBL. In a second step, any amount in excess of the aforementioned secured obligation resulting from the enforcement of collateral shall be transferred back to the pledgor.</p> <p>In case a material uncovered amount would remain once the default management process would be completed, CBL rules and procedures foresee that the CBL Credit Crisis Management Team, with support from Legal will co-ordinate the recovery process and request from Legal, Credit and Risk Management an assessment of the probability of recovery of the loan and from Finance a recommendation with regard to the opportunity to create provisions based on appropriate accounting rules. The team will then escalate the case up to the EB for taking a decision based on the strategy for the recovery including possibility to write off partially or totally the remaining amount.</p> <p>Replenishment of financial resources</p> <p>Depending on the severity of the loss, CBL might breach one or more recovery plan indicators within the categories "capital", "liquidity", "profitability" and "asset quality" which would trigger an action under its recovery plan. Detailed recovery options are illustrated per each risk category as described in Principle 3, KC 4. Measures foreseen in the Recovery Plan consist in (i) raising equity, (ii) increasing profitability, (iii) reducing risk positions, (iv) relying on pre-defined liquidity measures and (v) putting into place operational recovery options.</p>

Key Conclusions for Principle 4	<p>CBL has a solid framework to identify, monitor and manage credit risks arising from its settlement and treasury activities, consisting of credit limits, collateralization, credit ratings and stress tests. CBL offers uncommitted credit lines (mostly secured) and securities lending to increase settlement efficiency. It also invests funds held by its participants in its books. As a bank, CBL is subject to regulatory limits on its exposures and must maintain its solvency and liquidity ratios above the mandatory threshold. Not all exposures are, however, fully collateralized as the EB of CBL can decide to extend uncollateralized credit to individual participants. CBL should improve its framework with regard to advanced income payments to mitigate potential exposures in case the issuer fails to pay. In addition, more rigid credit tools should be applied to mitigate uncovered exposures related to the bridge with Euroclear Bank.</p> <p>CBL is encouraged to invest, as planned, in a credit risk management tool that will on a fully automatic basis collect and display the credit exposures resulting from different credit activities towards participants, depositories, CCBs and investment banks. This reduces the risk of manual comparisons, which are currently part of the aggregate monitoring of credit exposures.</p>
Assessment of Principle 4	Broadly Observed
Recommendations and Comments	To fully comply with this principle CBL should fully collateralize all its credit exposures. CBL is encouraged to invest, as planned, in a fully automated credit risk management system.

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.

<p>Key Consideration 1</p> <p>An FMI should generally limit the assets it (routinely) accepts as collateral to those with low credit, liquidity, and market risks.</p>	<p>The collateral policy of CBL sets out the general principles and framework under which financial assets can be accepted for the collateralization of credit exposures. According to this policy, a financial asset is eligible if:</p> <ul style="list-style-type: none"> • The credit risk on the asset can be properly evaluated and is deemed low; • The correlation between the credit risk on the issuer of the asset (issuer risk) and the credit risk of the borrower (counterparty risk) is deemed low; • The collateral can be liquidated within a short period of time without any significant value depreciation, meaning that market and liquidity risks are acceptable; • Legal risks are known and manageable; • Operational risks are known and contained.
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Cash, although limited to certain currencies, is accepted as valid collateral under the aforementioned collateral policy.

In exceptional circumstances, CBL may give collateral value to securities that would normally be considered ineligible as per the collateral policy. Such exceptions to the collateral policy are considered at the request of participants and needs approval of the EB. The exceptions are monitored on a weekly basis and reported on a monthly basis to the EB. Exceptions are rare. As of 31.12.2015, exceptions to CBL's collateral policy accounted for 0,02% of the total collateral pool value. No pre-set limits are applied on the size and the number of exceptions.

The aforementioned collateral policy is reviewed at least on an annual basis.

For cash loans, CBL applies a collateral pool approach whereby a notional collateral value, based on the positions in collateral eligible securities, is calculated. When extending settlement related loans to a participant, and after having applied the respective haircuts (which can be up to 100 percent), the amount required to fully secure the loan is deducted from the participant's available collateral pool. Positions are revaluated several times a day, taking into account latest price information, exchange rates as well as applicable haircuts, in order to ensure adequate collateral coverage.

For securities lending exposures stemming from the ASL+ programme, CBL is acting as principal and receives collateral via transfer of title on an individual borrower dedicated Clearstream International collateral account. After the allocation of collateral, the collateral management application will, on average, perform re-optimization runs every fifteen minutes. If a participant has not enough collateral to secure the loan, the transaction fails.

CBL mitigates wrong way risk. In principle, CBL does not accept as collateral any instrument issued or guaranteed by the counterpart or any of its affiliates, including entities having close financial links to the counterpart. Affiliations and close links between CBL's participants are identified at participant and issuer level and, are maintained in a mapping table that ensures that correlated securities are not assigned any collateral value. In addition, securities issued by banks carry a larger haircut because of correlation to CBL's participant base.

Within the collateral pool concept, no strict concentration limits are applied, however CBL establishes collateral concentration thresholds for various risk factors and regularly monitors the composition of the collateral portfolio of its

	<p>participants on an ex-post basis. Should CBL consider it justified, CBL may require participants to deliver additional, uncorrelated collateral.</p>
<p>Key Consideration 2 An FMI should establish prudent valuation practices and develop haircuts that are regularly tested and take into account stressed market conditions.</p>	<p>For cash loans, participant positions are revalued 5 times a day, taking into account latest price information received, exchange rates and applicable haircut determined by collateral management systems. In the context of open ASL+ positions, re-optimization runs are performed on average every fifteen minutes.</p> <p>In addition, all collateral is priced on a daily basis. Securities prices are collected from several external information providers, such as Bloomberg, IDC, WSS or SIXFinancial. The most appropriate price is selected based on a defined algorithm. Once a price has been selected, checks are performed to verify whether the change in the value of the price is within standard market variations.</p> <p>CBL determines the final haircut applied to a security through an Automated Collateral Valuation Matrix which calculates the haircut based on ten equally weighted risks factors being the issuer country, the credit rating, the industry, the instrument type, the currency, the time to maturity, the ranking, the ECB eligibility, the pricing age and the pricing source. A haircut is assigned to each of the ten factors and the final haircut applied to a security consists in the sum of these individual haircuts.</p> <p>Currently, due to system limitations, no haircut is applied to cash collateral.</p> <p>CBL tests the sufficiency of haircuts and validates its haircuts procedures, including with respect to the potential decline in the assets' value in stressed market conditions at least on a yearly basis by:</p> <ul style="list-style-type: none"> • Back-testing haircuts by comparing the haircuts with the price volatility of those securities, analyzing the spreads between these two variables; • comparing haircuts with those applied by the European Central Bank; • benchmarking haircuts against those applied by other market participants, clearing houses or competitors; • performing annual stress tests simulating the default of a large participant or default of multiple participants. The stress test includes an assessment of the adequacy of haircuts applied in case of extreme price movements. The stressed value is defined based on actual price movements observed during various financial crises.

	<p>The results are presented to the EB for validation and may trigger a review and amendment of the collateral eligibility rules and haircuts. There is no validation by an independent unit within CBL, nor from personnel external to CBL.</p>
<p>Key Consideration 3</p> <p>In order to reduce the need for pro-cyclical 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.</p>	<p>CBL applies conservative haircut criteria aimed at ensuring the continuity and stability of its policy through various economic cycles even under stressed market conditions.</p> <p>Haircuts are regularly back-tested and calibrated in order to take into account volatility and avoid pro-cyclical adjustments.</p>
<p>Key Consideration 4</p> <p>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.</p>	<p>To identify and avoid concentrated holdings of certain assets, CBL establishes collateral concentration thresholds and regularly monitors the composition of the collateral portfolio of its participants. Concentration thresholds are applied to different risk factors. Specific attention is applied for participants with a lower credit rating and/or located in countries with a higher risk profile. As explained under Key Consideration 1, the Credit Monitoring unit performs collateral and concentration checks on a weekly basis ex post.</p> <p>The adequacy of the management of collateral concentration and correlation risks is assessed once a year during the annual review of CBL's collateral policy.</p>
<p>Key Consideration 5</p> <p>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.</p>	<p>In accepting cross-border collateral, CBL is essentially facing legal risks resulting from conflict of laws regarding the creation, perfection and enforcement of such collateral. The legal framework for the creation, perfection, and enforceability of collateral as well as the conflict of law rule is defined under Luxembourg Law, and in particular the Collateral Law which implemented the Financial Collateral Directive 2002/47/EC. Since relevant accounts are maintained with CBL in Luxembourg and since financial collateral arrangement shall be governed by the law of the country in which relevant accounts are maintained, the governing law is deemed to be Luxembourg law.</p> <p>CBL mitigates legal risks by performing legal assessments with the assistance of external independent law firms of good reputation in order to identify any potential conflict of laws that could have an impact on the creation, perfection and enforcement of the collateral. For such purpose, CBL has obtained legal opinions for the major relevant jurisdictions in which its participants are</p>

	<p>located. These legal opinions have not identified any conflict of law that would limit its ability to liquidate collateral so far.</p> <p>According to the GTCs, CBL has a general right of retention on all assets held on the participants' accounts (Article 43: general right of retention). In addition, all assets held by the participants at CBL are pledged in its favour to secure the entire present or future obligations that the participants have, or may subsequently have, towards CBL in consequence of any services provided by CBL to the participants (Article 44: right of pledge). According to Article 46 of the GTCs, CBL has the right to set off credit and debit balances on any account of the participant at any time; in addition, it is authorized to sell any collateral securities to cover a debit balance without any prior notice. Participants are nevertheless required to notify CBL in case the assets deposited in their accounts are held on behalf of their own clients and must be segregated (for example non-proprietary assets). According to Article 45, such assets may not be pledged and be subjected to a set-off.</p> <p>CBL ensures that cross-border collateral can be used in a timely manner by (i) either requiring transfer of title (ASL+) or requiring a first-ranking pledge on the securities pledged as collateral, which is deposited in CBL's system, (ii) adhering to a strict policy of selection of its network of depository institutions, including the performance of regular reviews (as detailed under Principle 16), (iii) maintaining updated default management and collateral realization procedures (as detailed under Principle 13) and, (iv) monitoring the concentration of collateral per currency.</p>
<p>Key Consideration 6 An FMI should use a collateral management system that is well-designed and operationally flexible.</p>	<p>CBL does not reuse assets received as collateral for settlement efficiency related cash and securities loans granted.</p> <p>The collateral management system is fully automated and collateral valuation and provision processes are embedded in the securities settlement engine and do not require manual intervention. Furthermore, the collateral management function is sufficiently staffed to ensure maintenance or adaptation of the collateral eligibility parameters event in stressed market conditions. The team is part of the credit monitoring team in Luxembourg and staffed with 6 FTEs. The system is part of BCP testing (Principle 17).</p>
<p>Key Conclusions for Principle 5</p>	<p>The collateral that CBL requires to manage its credit exposures is subject to a collateral policy, including haircuts and concentration limits. The securities accounts of participants in the CBL system are used to cover exposures resulting from their use of credit lines and securities lending facilities. CBL applies conservative haircuts to the securities accepted as collateral, however, haircuts are not applied to cash collateral due to technical limitations of the collateral system. The collateral arrangements do not explicitly take into</p>

	account potential pro-cyclical adjustments, which may exacerbate financial instability in crisis situations. Furthermore, tools to monitor and limit concentration can be further strengthened and applied ex ante. As mentioned in Principle 2 the collateral and haircut model should be subject to independent validation.
Assessment of Principle 5	Broadly Observed
Recommendations and Comments	To fully comply with this principle it is recommended that CBL applies haircuts to cash collateral, formally addresses pro-cyclicality and applies a more rigorous concentration policy by applying the concentration limits on an ex ante basis. Also, the collateral and haircut model should be subject to independent validation.

Principle 6. Margin	
A CCP should cover its exposure to its participants for all products through an effective margin system that is risk-based and regularly reviewed.	
Key Consideration 1	N/A
Key Consideration 2	N/A
Key Conclusions for Principle 6	N/A
Assessment of Principle 6	N/A
Recommendations and Comments	-

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.

CBL's framework to manage liquidity risks consists of:

- Its Treasury Liquidity Management policy, that defines the framework for managing liquidity risk, the risk tolerance levels and the related reporting to management, and the Treasury "Intraday Liquidity Controls" procedure that defines the intraday liquidity management operational processes, the timelines and the thresholds for management escalation in case of non-receipt of funds.
- Tools to measure and monitor liquidity risks
- Set of liquidity stress tests to determine the potential largest liquidity needs in each currency.
- Crisis management arrangements, outlined in the Treasury liquidity management policy, stating the roles and responsibilities during a crisis event where day-to-day liquidity generation measures would not be sufficient to cover a liquidity shortage in one or several currencies.

CBL takes a global view and considers the multiple roles of entities involved such as, among others, plain participant role, CCB, or Treasury counterpart. The exposures towards an entity are aggregated daily at participant group level and across the different roles, which is the basis for identifying the entities that take part in various stress test scenarios.

The potential that entities may play multiple roles is also considered in the liquidity stress testing. Exposures towards entities are aggregated daily and across all roles, which is the basis for identifying the entities taking part in the cover 1 and cover 2 stress tests. Should an entity play the role of a CCB, all overdraft limits with this entity will be disregarded (overdraft limits are otherwise stressed at 60 percent). Should an entity play the role of Treasury counterpart, the stress tests will also consider all unsecured interbank placements made with that entity.

The main sources of liquidity risk for CBL:

- A major source of liquidity need arises when cash and or credit lines with CCBs are insufficient to process participant payments within the cash deadline. Concentration of cash exposures to depository banks and CCBs is

monitored and evaluated on a daily basis by CBL's Treasury Department, within nostro and large exposure limits set by Group Credit. Intraday liquidity management is performed by continuously collecting individual participant instructions and compiling the resulting cash positions with the aim to establish expected end of day positions. Throughout the day, risk arising from surplus balances is mitigated (i) by transferring cash where required for settlement purposes or alternatively, (ii) by placing it with creditworthy financial institutions in the reverse repo market or, if applicable (iii) by transferring it to the CBL account at BCL. As a next step, Group Credit is verifying on a daily basis the adherence to the nostro limits by manually comparing the end of day nostro balances in the nostro application to the preapproved limits. Every case where the cash left overnight exceeds these preapproved nostro limits is investigated by Group Credit and notified to Treasury, Risk Management, the Head of Investor Relations and the EB of CBL.

- Liquidity risks also arise through the Treasury activities of CBL:
 - CBL invests excess cash balances of its participants and may be faced with participants demand to repay, for example, in case they need the cash for settlement purposes.
 - Additional liquidity risk is stemming from maturity transformation, i.e. the liquidity risk that participant funds need to be repaid before the maturity date of investments. Maturity transformation is only allowed in three currencies; EUR, USD and GBP. Treasury mismatch limits have been defined through analyzing historical net participant cash balance evolution to determine the maximum balance that may be available for investments with a tenor exceeding overnight.
- CBL is also acting as service provider for its participants for central bank money settlement in the German (Cascade) and the Luxembourg (LuxCSD) markets. CBL provides liquidity support to participants, subject to provisioning, to enable settlement of securities transactions in central bank money.
- CBL is also exposed to liquidity risk arising from its practice of regularly crediting coupons and redemptions to participants before the funds have been credited to CBL's account.

The management of these liquidity risks is outlined in the Treasury Liquidity Management policy, and the Treasury "Intraday Liquidity Controls". Some key principles:

- CBL is in general and as a principle, only placing participant cash balances with a tenor of 1 business day ("overnight").

	<ul style="list-style-type: none"> • Available liquidity is monitored intraday and liquidity in currencies other than EUR and USD is mostly invested towards the end of the respective currency deadline. • CBL has set mismatch limits in each of these currencies, derived from and set in relation to the minimum amount of net participant cash expected to be available on a long-term basis. The liquidity risk out of mismatch is considered low. <p>In addition, there is no obligation to prefinance participant settlement. All participant credit facilities are uncommitted and unconditionally revocable at any time.</p>
<p>Key Consideration 2</p> <p>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.</p>	<p>CBL has operational tools in place to monitor all flows linked to the settlement process in general and the ones linked to Treasury's funding and investment activities. These flows are automatically directed to and compiled in Treasury's cash management tool (Systemanalyse und Programmentwicklung Systems or SAP) through the various interfaced systems. Incoming and outgoing flows are assigned a status allowing Treasury to determine whether or not the expected intraday incoming/outgoing flows are settled. The liquidity position in each currency is followed up accordingly.</p> <p>Treasury cash position analysts have access to internet-based applications allowing them to closely follow-up the intraday position at the BCL and the major CCB's. In combination with the internal systems available, analysts are therefore able to early detect a potential non-receipt of large expected funds.</p> <p>For each currency, Treasury defines thresholds potentially creating a liquidity issue. Whenever a large expected flow does not materialize, early warnings are sent to the relevant unit, such as for instance the Relationship Manager/Client Services in case of non-covered participant pre-advice of funds. In case the expected flow is still not confirmed when approaching the currency deadline, Treasury applies the steps prescribed in the escalation process by taking preventive actions considering various factors like for instance the currently available liquidity in the currency, the number of counterparties available on the market, the timing, as well as the size of the flow potential shortfall.</p> <p>Expected intraday cash position figures are used to realign cash among various CCBs in one currency, to arrange interim Bridge payments with Euroclear or to identify large participant debit balances.</p>
<p>Key Consideration 3</p> <p>A payment system or SSS, including one employing a DNS mechanism, should maintain sufficient liquid resources in all relevant</p>	<p>CBL has developed stress tests that enables CBL to identify its potential liquidity needs for different currencies. The following liquidity scenarios have been stress tested by CBL in 2015:</p> <p><i>Intraday Forward Looking Liquidity Stress Tests (daily, for EUR, USD, and GBP)</i></p>

<p>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.</p>	<ul style="list-style-type: none"> • Scenario 1: Simultaneous default of the participant with the largest credit exposure (at participant family level) and Euroclear Bank as part of a market disruption and idiosyncratic scenario (Cover 1 + Euroclear scenario) • Scenario 2: Simultaneous default of the two participants with the largest credit exposure (at participant family level, including CCB activities) as part of a market disruption & idiosyncratic scenario (Cover 2 scenario). <p><i>Classic Liquidity Stress Tests (quarterly and ad-hoc; all currencies in which CBL provides its participants settlement financing facilities.)</i></p> <ul style="list-style-type: none"> • Scenario 3: Base scenario, which assumes participant cash balances are at their lowest level since 5 years. • Scenario 4: Market disruption scenario, which assumes unfavourable changes in the macro-economic environment, leading to a drop in participant cash balances (from the 5 year historical low), reduction of money market funding lines, and reduction of overdraft lines at CCBs/depositories). • Scenario 5: Market disruption & idiosyncratic scenario, which combines the market disruption scenario with an idiosyncratic event which is characterized by a downgrade of CBL's external credit rating. It assumes a larger drop in participant cash balances (from 5 year historical low), a loss of money market funding lines, and a larger reduction of overdraft lines at CCBs/depositories. <p><i>Reverse Liquidity Stress Tests (quarterly, EUR)</i></p> <ul style="list-style-type: none"> • Scenario 6: Reverse Liquidity Stress Test 1 based on the Market Disruption & Idiosyncratic Scenario (using all available liquidity sources) • Scenario 7: Reverse Liquidity Stress Test 2 based on the Market Disruption & Idiosyncratic Scenario (using limited liquidity sources). <p>The actual EUR and USD liquidity buffers are calculated daily by the Treasury Back-Office and reported daily to the the EB.</p> <p>For smaller-in-size currencies (AED, BWP, CNH, CZK, HKD, HUF, ILS, MXN, PLN, SGD, TRY, ZAR, RON, BGN, QAR, and RUB) and, as a preventive measure to avoid unmanageable excessive credit facility usage from participants, Treasury has established a maximum credit facility usage amount for each currency which is determined by the maximum funding capacity for each of these currencies. A concentration cap is then allocated by Group Credit only to selected creditworthy participants. Concentration caps are reviewed and updated on a monthly basis or whenever the situation changes on these markets for each above-mentioned currency.</p>
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<p>Key Consideration 4</p> <p>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</p>	Not applicable
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<p>payment obligation to the CCP in extreme but plausible market conditions.</p>	
<p>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</p>	<p>To support day-to-day payment activity, CBL relies primarily on:</p> <ul style="list-style-type: none"> • its network of CCBs • a direct access to TARGET2 for EUR payments <p>In addition, CBL relies on different sources of liquidity to manage both day-to-day operations as well as extreme circumstances. CBL's qualifying liquid resources by currency:</p> <p><i>EUR currency</i></p> <ul style="list-style-type: none"> • ECB-eligible collateral pledged to BCL: ECB eligible high quality liquid assets from the proprietary portfolio and/or received as collateral in reverse repo transactions are partly pledged to BCL. A credit line corresponding to the assets value (including haircut) is granted, implying an instant access to liquidity. • Cash at BCL, which is instantly available (when T2 is open). • Cash left at CCBs. Some EUR cash balances at CCBs/depositories are unsecured in order to facilitate the settlement of transactions. Cash left with CBL's CCBs/depositories is available when the CCB/depository starts on the next business day. • Cash invested overnight at creditworthy financial institutions. Cash is invested on a secured basis. Cash is available on maturity date when the counterparty repays the deposit. <p><i>USD currency</i></p> <ul style="list-style-type: none"> • High quality liquid assets from the proprietary portfolio and/or received as collateral in reverse repo transactions. As CBL has no access at the central bank of issue, these high quality liquid assets can be monetized by: <ul style="list-style-type: none"> ○ Using its committed repo facilities. A deadline for drawing is specified in each contract. Access to funding is given the same day. ○ Arranging repo transactions with creditworthy financial institutions.. CBL has around 60 Global Master Repurchase Agreements in place (for USD, EUR and GBP). ○ Selling proprietary assets. Same day liquidity generation is possible against USD-denominated securities issued by US issuers. USD-denominated securities issued by European issuers can be realized in 1 or 2 business days. • Cash left with CCBs. Cash is directly available when the CCB/depository starts its next business day.

<p>relevant central bank. All such resources should be available when needed.</p>	<ul style="list-style-type: none"> • Cash left with creditworthy financial institutions. Cash is available on maturity date when the counterparty pays back the funds. <p><u>Additional qualifying liquid resources</u></p> <ul style="list-style-type: none"> • A syndicated revolving multi-currency credit facility from a banking consortium consisting of 17 lenders. • Intra-group funding. • A Letter of Credit aiming to protect CBL against liquidity shortfall at Euroclear is issued by a broad syndicate of international banks to support the Bridge settlement with Euroclear Bank. CBL and Euroclear Bank each issue in favour of the other a standby letter of credit to cover the daily cash exposure of one operator on the other. <p>To generate liquidity required in a specific currency, available liquidity in another currency can be converted through FX swap transactions with creditworthy financial institutions during market opening hours for the currency pair. ISDA framework agreements are in place with numerous counterparties. CBL conducts FX swaps daily in the ordinary course of business.</p> <p>In the last 5 years, and across all currencies, an average of 85 percent of CBL invested amounts was concluded on a secured basis against high quality liquid assets.</p>
<p>Key Consideration 6</p> <p>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</p>	<p>CBL's supplemental liquid resources are composed of:</p> <ul style="list-style-type: none"> • Uncommitted unsecured credit lines granted by CCBs and depositories: CBL's CCBs and depositories grant uncommitted credit lines to CBL. Significant haircuts are applied in the liquidity stress tests to reflect the uncommitted nature of these lines. • Uncommitted unsecured credit lines granted by money market counterparties: CBL has money market trading relationships with a broad range of financial institutions that allow CBL to draw liquidity. Significant haircuts are applied in the liquidity stress tests to reflect the uncommitted nature of these lines. The most severe stress scenarios assume that no money market lines are available. <p>Euro Commercial Paper (ECP) issuance</p> <p>In the course of its normal business, CCB and depository credit lines are usually used first, as payments from accounts that are not sufficiently funded would automatically cause an overdraft. If additional liquidity is required, CBL would approach its money market counterparties to obtain uncollateralized funding or would issue ECPs under its ECP programme.</p> <p>From the supplemental liquid resources, only the uncommitted and unsecured credit lines granted by CCBs and depositories are used (taking into account a</p>

<p>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.</p>	<p>significant loss of these overdraft lines) in the stress tests for determining the adequacy of CBL's liquid resources.</p>
<p>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</p>	<p>CBL only selects reputable and highly rated creditworthy financial institutions having leading market positions and strong retail franchises granting wide access to stable funding source. Counterparts are also selected upon their high ability to access the capital markets and because they are known for their strong liquidity management capacity. All CBL liquidity providers are institutions that have access to the central bank liquidity of their home countries.</p> <p>The institutions appointed by CBL are reviewed by Group Credit, which will focus on the institution's probability of default and ability to repay credit.</p> <p>Ad-hoc assessments can be made in case Group Credit has information that the financial strength of the counterpart might deteriorate.</p> <p>The capacity of the liquidity providers to fulfil their obligations is regularly tested to the extent possible. CBL also appoints separately a sub-depository and a CCB, in order to have a natural back-up in case of need.</p> <p>Participants to the Bridge Letter of Credit or revolving credit facility are part of large European financial groups with extensive international network and strong liquidity management capability. At the renewal date of the Bridge Letter of Credit, CBL has to validate the list of participants to the facility and reserves the right to reject a participant or request to reduce its contribution.</p> <p>Treasury performs liquidity generation tests on a quarterly basis to test the timeliness and reliability of its procedures. All liquidity generation tests are always unannounced in terms of timing and amount. Except when participating in an ECB tender operation, all liquidity generation tests are agreed on an</p>

regularly test its procedures for accessing its liquid resources at a liquidity provider.	overnight basis. Whenever a maximum amount is pre-determined, the size of the liquidity generation test will be in relation to the maximum funding amount allowed.
<p>Key Consideration 8</p> <p>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.</p>	<p>CBL currently holds an account at the BCL that provides direct access to TARGET2. This account has different purposes:</p> <ul style="list-style-type: none"> • Fulfil reserve requirements and access the European real time gross settlement (RTGS) system TARGET2. • Limit CBL's credit risk vis-à-vis investment counterparties. • Limit CBL's exposure on its local cash correspondents • Perform securities settlement in the local Eurozone markets • Handle all cash transactions arising from T2S, such as the cash leg associated with the settlement of securities transactions as well as corporate actions. CBL is already settling the cash leg of securities transactions and asset services proceeds in Greece through its central bank account. CBL will add additional markets as T2S waves progress. <p>CBL would be keen to open further accounts with the central banks of major currencies, such as USD. Details are currently being discussed with the relevant parties for the USD. For the GBP currency, CBL has opened a full branch in London and is exploring possibilities to open a central bank account at the Bank of England. In addition, CBL has requested opening a cash account with a number of central banks outside the Eurozone. Such requests have so far been refused by the local central banks, e.g. for reasons related to the mandate and policy of the central bank or due to the local rules and regulations not allowing opening of cash accounts for financial institutions that are not incorporated in the country in question.</p>
<p>Key Consideration 9</p> <p>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</p>	<p>Liquidity resources are stress tested on a regular basis using a wide range of scenarios. Stress test scenarios and related frequency of performance are covered in detail in the context of Key Consideration 3. The risk management function conducts the stress tests.</p> <p>The stress tests results show the potential impact that a stress event has on the intraday and end of day liquidity resources in each currency. This is done by assessing the impact of participant defaults in each currency as well as stressing the liquidity sources such as participants' cash balances, money market and CCB limits. As for the classic stress tests, they take into account the lowest available funds per currency in the previous 5 years at a 99 percent confidence interval.</p>

<p>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.</p>	<p>The results of the intraday liquidity stress testing are reported monthly to the CRO, the Treasury Front Office, and the EB of CBL, together with a recommendation from Risk Management, if applicable.</p> <p>The results of the classic stress testing are reported quarterly to the CRO, the Treasury Front Office, and the EB of CBL, together with a recommendation from Risk Management, if applicable.</p> <p>The results of the ad-hoc stress testing are reported on an ad-hoc basis to the CRO, the Treasury Front Office, and the Executive Board of CBL, together with a recommendation from Risk Management, if applicable. Ad-hoc stress tests (of classic stress tests) are prepared and reported by Risk Management, for example, when (i) the average net participant cash of the current month drops more than 30 percent from the previous month average net participant cash level (all currencies together); (ii) CCBs/depositories uncommitted overdraft lines drop more than 30 percent from the previous month level (all currencies together); or (iii) overnight participant debit balances exceed the highest participant credit usage figure from the previous quarterly calculated 2-year horizon by 30 percent (all currencies together).</p> <p>The stress test assumptions and parameters are reviewed regularly. The review process takes place annually, but can be also be triggered interim by Risk Management and/or Treasury in case of significant changes that may impact CBL's liquidity requirements, regulatory requirements or in case new information comes available that is relevant for CBL's liquidity position.</p> <p>At least annually, the Treasury Liquidity Management policy needs to be approved by the EB and the SB. All parameters and limits are reviewed in function of latest data available, including stress test results. Treasury reviews liquidity parameters and limits quarterly and takes into account the latest data available. The review is done by a unit within Treasury that is independent from the unit that developed the model. Supporting rationale is communicated to and reviewed by Risk Management and Group Credit before any change to the liquidity parameters and limits are proposed for approval.</p> <p>On a quarterly basis, Treasury performs a detailed analysis on each parameter set in the CBL Treasury Liquidity Management policy reviewed by Risk Management. Any change to or annual review of the CBL Treasury Liquidity Management policy is approved by the EB and the SB. Treasury reports to the EB latest data on CBL's liquidity situation and evolution on a monthly basis.</p> <p>The CBL intraday liquidity stress testing indicates that significant exposures could still arise if large customers fail. Given that the target GBP buffer is only</p>
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	<p>100m CBL may partly have to rely on FX swap markets to cover GBP liquidity needs (for example, by swapping excess liquidity in another currency such as EUR). As requested by the authorities CBL should therefore prepare a contingency plan in case FX markets are not available. In practice, CBL could most likely relatively easily increase its buffer in GBP subject to the volume of customer cash deposits in GBP. In addition, part of the committed lines are also drawable in GBP.</p>
<p>Key Consideration 10</p> <p>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.</p>	<p>Same day settlement</p> <p>The Treasury "Intraday Liquidity Controls" procedure defines the intraday liquidity management processes, the timelines and the 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.</p> <p>The CBL Treasury 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 EB level which can decide in view of the liquidity crisis event to activate exceptional liquidity generation measures listed in the CBL Treasury Liquidity Management policy and detailed in the CBL Recovery Plan.</p> <p>Replenishment of liquidity resources</p> <p>Concerning the replenishment of liquidity resources employed during a stress event CBL is distinguishing between:</p> <p><i>Stress events not related to defaulting participants:</i> In case of a sudden drop of participant cash due to market disruption and/or idiosyncratic stress, the intraday monitoring, combined with the fact that Treasury invests its cash towards the end of the respective currency deadline would allow Treasury to swiftly adapt to the reduction in available participant cash. Would excessive funds be placed overnight (secured or unsecured) with creditworthy financial institutions on the day the crisis starts, they would be repaid on the next business day. If the crisis lasts more than one day, all available cash would be at CBL's disposal from the next day onwards and Treasury would adapt its investment behaviour according to the new situation. Additionally, credit limits granted to participants could be reduced or cut in one or several currencies with potential funding issues.</p> <p><i>Stress events involving defaulting participants with a CBL credit line:</i> as the credit lines granted to the participants are collateralized, the collateral assets</p>

	<p>would be used to replenish liquidity resources employed during the stress event. Depending on the collateral assets, one or several actions would be performed for this purpose:</p> <ul style="list-style-type: none"> • Deliver ECB-eligible collateral assets to BCL to obtain the BCL credit line. • Sell the collateral assets. • Repo out collateral to reduce the liquidity gap until sold. • FX swaps might have to be transacted in case the currency of the cash received is different from the currency with the liquidity issue.
Key Conclusions for Principle 7	<p>CBL has a comprehensive and sound risk management framework in place to manage liquidity risk from its participants, cash correspondent banks, liquidity providers, and deposit-keeping banks in various currencies. It holds sufficient liquid resources in EUR and USD and is able to obtain liquidity in other currencies through repo contracts with a range of counterparts. CBL conducts a number of different stress tests daily, monthly and quarterly to assess the liquidity impact of several scenarios, including the default of the two participants with the largest exposures. The results of the stress tests are compared with the available liquid resources in EUR and USD. CBL is encouraged to diversify its CCB base for GBP and other larger currencies and continue discussions with relevant central banks to obtain direct access.</p> <p>While being of less relevance, the management of GBP liquidity could be improved. CBL intraday liquidity stress testing points out that significant exposures could still arise if large customers fail. To cover a potential liquidity shortfall in GBP, CBL would partly have to rely on FX swap markets to use excess liquidity in another currency such as EUR. As requested by the authorities CBL should prepare a contingency plan in case FX markets are not available.</p>
Assessment of Principle 7	Broadly Observed
Recommendations and Comments	<p>To fully observe Principle 7 CBL should prepare contingency plans to manage a crisis event in which it cannot access FX markets to obtain liquidity in GBP and other currencies.</p> <p>CBL is encouraged to diversify its CCB base for GBP and other larger currencies and continue discussions with relevant central banks to obtain direct access (see also Principle 3).</p>

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.

Point of settlement finality

Cash settlement

Settlement finality is defined in section 4.2. of the CBL Customer Handbook. As one of the governing documents, the Customer Handbook is published on the CBL website and therefore publicly available. When defining finality CBL is distinguishing between (i) internal, (ii) external and (iii) Bridge instructions.

Internal instructions

In accordance with article 111 of the Payment Services Law, in view of determining the moment of enforceability of an internal instruction against third parties, the moment of entry in the CBL securities settlement system is the moment when they are successfully validated, in view of the matching and the settlement processes. Internal instructions become irrevocable under the CBL securities settlement system rules as soon as they are matched. Internal instructions that have settled in the CBL settlement system are considered *final*.

External instructions

Finality of securities deliveries to or from a domestic counterparty is determined by specific domestic market rules, which are defined in the respective Creation Link Guides. These Creation Link Guides are part of the governing documents. They are available on the "Market Coverage" webpage of CBL's website and are binding upon all participants and upon CBL.

Bridge instructions

For Bridge instructions, a distinction has to be made between the daytime and the night time finality. During daytime, "Bridge delivery" instructions are final when the instructions have settled in the books of the receiving ICSD, i.e. at the moment of the debit of the securities transit account of the delivering ICSD in the books of the receiving ICSD and if against payment delivery, the credit of the cash transit account of the delivering ICSD in the books of the receiving ICSD. The receiving ICSD informs the delivering ICSD in the relevant feedback transmission of the exact time at which credits and/or debits were made.

During night-time, "Bridge delivery" instructions are final upon the completion of the following three events:

1. the receipt by the delivering ICSD of the corresponding feedback transmission from the receiving ICSD;

	<ol style="list-style-type: none"> 2. the receipt by the delivering ICSD of the next proposed delivery transmission from the receiving ICSD; and 3. either: <ol style="list-style-type: none"> (A) receipt of a positive verification communication from the delivering ICSD by the receiving ICSD; or (B) expiration of a period of 15 minutes from the later of the time of the receipt by the delivering ICSD of the feedback transmission; and the next proposed delivery transmission, provided that the receiving ICSD has not received an exposure query notice from the delivering ICSD prior to expiration of this period. <p>The CBL SSS is a designated system under the Payment Services Law. The CBL finality rules can therefore be considered enforceable under the relevant legal framework.</p> <p>Non-cash collateral</p> <p>The finality rules for non-cash collateral movements are the same as for cash settlement described above.</p> <p>Foreign jurisdictions</p> <p>In order to obtain a high degree of legal certainty that finality will be achieved in all relevant jurisdictions, CBL is requesting, for links to domestic markets, legal opinions issued by external law firms confirming that settlement finality can be achieved in accordance with local laws and regulations, notwithstanding any insolvency procedure or an external event.</p>
<p>Key Consideration 2</p> <p>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.</p>	<p>For internal settlement, same-day settlement is enabled by CBL's real-time processing. The CBL settlement day begins at 21:30 on SD-1 and continues until 16:10 on SD for against payment instructions in all currencies except CAD, MXN and USD and until 18:10 for against payment instructions in USD, CAD and MXN. Settlement processing of against payment internal instructions then continues on an optional basis for all currencies until 20:35. The settlement processing of free of payment internal instructions runs from 21:30 SD-1 through to 20:35 SD.</p> <p>Bridge transactions are processed through the exchange of 33 matching batches during the course of the settlement day, referred to as ACE transmissions. The settlement processing of Bridge instructions is possible from 21:30 SD-1 until 13:20 SD for against payment instructions in all currencies except ARS, CAD, EUR, GBP, MXN, PEN and USD and until 15:00 SD for against payment instructions in ARS, CAD, EUR, GBP, MXN, PEN and USD. Processing of Bridge instructions then continues on an optional basis until 17:25 SD. The settlement processing of free of payment Bridge instructions runs from 21:30 SD-1 to 18:30 SD.</p>

	Settlement processing for external transactions via link arrangements is defined by the respective domestic market rules.
<p>Key Consideration 3</p> <p>An FMI should clearly define the point after which unsettled payments, transfer instructions, or other obligations may not be revoked by a participant.</p>	<p>For internal instructions, the moment of unilateral irrevocability occurs upon successful matching of the corresponding settlement instructions. After successful matching corresponding instructions can only be bilaterally cancelled until their extraction from the applicable transactional system for processing in the CBL settlement system.</p> <p>A "Bridge receive" instruction can be cancelled unless it has been reported as settled. A "Bridge delivery" 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.</p> <p>Identical to internal instructions, any 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 participant 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 participant, the 60 calendar-day period (that is, 45 plus 15) starts over again.</p> <p>For the revocation of external instructions, domestic market rules apply.</p>
Key Conclusions for Principle 8	Internal instructions that have settled in CBL settlement system are final in accordance with the CBL securities settlement system rules. The Payment Services Law provides the statutory basis for the finality arrangements. Settlements over the bridge with Euroclear Bank are final after completion of the checking process by the receiving ICSD during day time, and after completion of the verification process by the delivering ICSD during night time. External settlements are final according to local market rules and practices. The moment of finality for external settlements can be more explicitly disclosed in the Creation Link Guides (see also Principle 20).
Assessment of Principle 8	Observed
Recommendations and Comments	-

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 minimize and strictly control the credit and liquidity risks arising from the use of commercial bank money.

<p>Key Consideration 1</p> <p>An FMI should conduct its money settlements in central bank money, where practical and available, to avoid credit and liquidity risks.</p>	<p>CBL conducts money settlement with its clients in commercial bank money (CoBM) in all eligible settlement currencies. Settlements are carried out in the books of CBL itself. All CBL participants have multi-currency cash accounts in the relevant settlement currencies in the books of CBL. Money settlements are effected by crediting and debiting the relevant cash accounts of the clients.</p> <p>For its settlements in external markets with external counterparties, CBL is using central bank money where feasible. This is currently the case in 3 markets, namely Germany, Greece and Belgium. For such central bank money settlements in external markets, CBL is using its central bank cash account at BCL. This cash account is linked to the omnibus securities accounts opened in the specific market. Opening hours of CBL are from 21:30 CET in the evening of the business day preceding settlement day until 20:35 CET on settlement date, with different closing times for different types of securities.</p> <p>In the future, for all operational T2S links, CBL's cash account at the BCL will be linked to the securities accounts opened via/by Clearstream Banking Frankfurt within T2S and with other CSDs participating in T2S. Under this arrangement, CBL participants will continue to fund CBL's CCBs in commercial bank money or through the BCL, which acts as one of the CCBs for settlements in EUR. The said cash funds as well as arranged credit lines can then be used to provision securities purchase transactions. In a second step, CBL will then transfer cash to its account at BCL in order to fund settlement with T2S. For sales transactions, cash received onto the CBL account is transferred to the participants' commercial bank account. Money settlement in other than T2S markets will continue to be executed in commercial bank money through the respective CCB.</p> <p>As settlements take place in more than 40 currencies with participants located worldwide, it is not feasible to open accounts at all the respective central banks of issue.</p> <p>Nevertheless, CBL is currently working on the feasibility to open accounts with the central banks of major currencies, such as USD. Details are in process of being discussed with the relevant parties.</p>
<p>Key Consideration 2</p>	<p>CBL is conducting CoBM settlements on its own books. Credit and liquidity risk stemming from CCBs and depositories is covered under Principles 4 and 7.</p>

<p>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.</p>	
<p>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, capitalization, 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.</p>	<p>CBL is conducting CoBM settlement on its own books and is therefore not relying on settlement banks according to the PFMI definition.</p>
<p>Key Consideration 4 If an FMI conducts money settlements on its own books, it should minimize and strictly control its credit and liquidity risks.</p>	<p>Credit and liquidity risk stemming from cash correspondent banks and depositories is covered under Principles 4 and 7.</p> <p>As settlements take place in more than 40 currencies with participants located worldwide, it is not feasible to open accounts at all the respective central banks of issue. Nevertheless, Clearstream is currently working on the feasibility to open accounts with the central banks of major currencies, such as USD. Details are in process of being discussed with the relevant parties.</p>

	<p>Clearstream relies on a network of CCBs for participants to fund and defund their cash accounts with Clearstream. For funding in Euro Clearstream relies, among others, on BCL.</p>
<p>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.</p>	<p>Not applicable since Clearstream is conducting CoBM settlement on its own books and is therefore not relying on settlement banks according to the PFMI definition.</p>
<p>Key Conclusions for Principle 9</p>	<p>Money settlements take place at the cash accounts at CBL, so in commercial bank money. CBL's cash accounts are funded through CCBs, which in most cases are commercial banks. For some markets the accounts are funded through central banks. The use of central banks in this regard is expected to increase with the full migration to T2S.</p> <p>CCBs should be supervised banks that comply with a range of criteria as defined by CBL. CBL is monitoring its risks towards CCBs on an ongoing basis, including the concentration of exposures. Nevertheless, in many markets exposures are very concentrated in only a few CCBs. This exposes CBL to credit, liquidity and operational risks in case the CCB would default. Risks are particularly significant in the U.S. and U.K. markets. CBL is therefore encouraged to continue diversifying its CCB base in these markets and generally strive for direct access to local CSDs and central banks where possible (see also Principle 3 and Principle 7).</p>

Assessment of Principle 9	Observed
Recommendations and Comments	CBL is strongly encouraged to continue diversifying its CCB base in local markets, in particular the U.S. and the U.K., and generally strive for direct access to local CSDs and central banks where possible (see also Principles 3 and 7).

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.	
<p>Key Consideration 1</p> <p>An FMI's rules should clearly state its obligations with respect to the delivery of physical instruments or commodities.</p>	<p>Physical delivery is nearly non-existent. Nevertheless, CBL has arrangements in place for physical delivery. CBL defines the asset classes eligible for physical delivery in its Governing Documents. Assets accepted for physical delivery are:</p> <ul style="list-style-type: none"> • Financial instruments in bearer form issued by Luxembourg issuers governed by Luxembourg law, deposited with CBL and considered as immobilized; • Financial instruments in bearer form issued by foreign issuers and not governed by Luxembourg law deposited with CBL; • Financial instruments immobilized in other SSSs; • Financial instruments immobilized in the CBL SSS; • Precious metals; • Other physical securities. <p>Asset classes and instrument types accepted by CBL for physical delivery vary by local sub-depositories due to the market practice, local requirements and bilateral agreement between CBL and its depositories.</p> <p>The obligations and responsibilities regarding the safekeeping and delivery of physical instruments and commodities are defined in the CBL Governing Documents, and in particular in the GTCs, the Customer Handbook and the Creation Link Guides.</p> <p>Securities to be received in CBL must be submitted directly to the depository appointed for that particular issue. CBL does not have its own vaults but works with a network of sub-depositories which hold securities in physical form if applicable (note that for global form bearer or registered debt securities issued through the ICSDs, different issuance forms and safekeeping structures exist, involving common depositories, common safekeepers or the ICSD as common safekeeper).</p>

	<p>When submitting securities physically to a depository, participants must ensure, among others that these securities are of good delivery. When receiving securities, CBL sub-depositaries have a duty to verify whether the securities are indeed of good delivery. They shall be liable in the event they do not fulfil this duty accordingly. They must act with due care and diligence and use their best efforts to determine whether securities to be deposited with CBL are of good delivery, both at the time of delivery and while these securities are under their custody. CBL has no duty to verify whether securities are of good delivery. CBL's own obligations and responsibilities for the safekeeping of these securities start once CBL is notified by the depository that registered securities of good delivery have been received and the account of the beneficiary has been credited. Obligations and responsibilities end with the physical restitution of the assets to the participant. CBL, in its relationship with the sub-depository, requires the latter to undertake certain obligations in the Link Arrangements to protect these sub-deposited securities held in the CBL account with the sub-depository from loss due to theft, negligence, fraud or default.</p>
<p>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.</p>	<p>The main risks associated with the 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 storage and delivery of physical instruments or commodities include typically insurance costs, physical handling and registration fees, custody fees as well as postal costs.</p> <p>CBL has defined processes, procedures and controls to monitor the risks and costs associated with the handling of physical instruments or commodities. These processes are defined in the Depository Agreements and the Service Level Agreements that CBL has in place with its depositories, as well as in internal operational procedures and published participant documentation. Processes are in place to minimize the risk of loss of certificate. The receipt of fraudulent certificate is also avoided by undertaking in-depth validation checks upon receipt. In particular and in the context of bilateral agreement with its depositories, CBL performs, on an annual basis, checks related to the physical security, processes and controls in place at the depository as well as insurance coverage.</p>
<p>Key Conclusions for Principle 10</p>	<p>Physical delivery is nearly non-existent. Nevertheless, CBL has arrangements in place for physical delivery. CBL's Governing Documents state its obligations with respect to the delivery of physical deliveries. Also, CBL has identified the risks and cost related to storage and delivery of physical instruments.</p>
<p>Assessment of Principle 10</p>	<p>Observed</p>

Recommendations and Comments	-
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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.

Assets deposited by participants in CBL are governed and protected by the law of 1 August 2001 on the circulation of securities as amended by the law of 6 April 2013 (Securities Law). The Securities Law defines, among others, proprietary rights as well as compensation in case of loss or destruction of securities held in custody.

CBL is offering the possibility to its participants to hold client assets via a segregated account structure or an omnibus account structure. In addition, participants may use omnibus accounts as well as individual client accounts to keep their clients' assets. For some participants CBL requires the use of individual client accounts for its own risk management purposes.

Furthermore, and in line with the requirements under Luxembourg law, CBL segregates its own assets from assets belonging to its participants, both in the books of CBL as well as at local CBL depository level where CBL holds participants' (as well as the latter's clients') assets on an omnibus and its own assets on a proprietary account. In this context, it should also be noted that CBL requires from all its depositories a strict segregation between these depositories' own assets and the latter's client assets.

Specifically for securities issuers, and in line with the Securities Law, CBL holds in its books 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 participants.

Via SAP, all entries resulting from operational processes are automatically transferred to the accounting system via respective interfaces, allowing for a fully automated track of securities movements. The accounting internal audit review is performed on a yearly basis, according to a 3-year audit plan.

The reconciliation process, aimed at ensuring that there are sufficient securities to satisfy participant rights, is audited by internal audit on a bi-yearly basis. The scope includes the full review of the reconciliation process for both, cash and securities. The reconciliation of securities is also part of any operational audits where the creation and monitoring of securities instructions is in scope.

	<p>CBL's policy is to perform an electronic reconciliation with its depositories, for both cash and securities, on a daily basis. CBL will reconcile its records with those provided by the depository, using a specifically developed reconciliation application, the DDR tool.</p> <p>It should be noted that in the context of the interoperable link with Euroclear Bank, securities holdings are generally reconciled only on a weekly and monthly basis between the two ICSDs.</p> <p>CBL maintains direct and indirect links to 56 domestic markets via a network of sub-custodians. Any reconciliation takes place directly with these sub-custodians on a daily basis. If reconciliation needs to be performed with registrars, this will be conducted by the sub-custodians.</p> <p>Prior to authorizing the creation of securities in its SSS, and in conformity with the New Issues procedure established by CBL Compliance, CBL is checking whether such securities creation is in line with applicable anti-money laundering, counter terrorist financing and sanction regimes. An automated screening process aimed at detecting any suspicious entities or sanctions on securities, has also been implemented. The creation of securities positions in CBL system is then only performed upon receipt of securities to be credited to client accounts, either through new issue distribution or settlement of participant transaction. Removal of securities positions is generally performed upon final maturity or in the context of a corporate event.</p> <p>Both creation and deletion are generally processed without manual intervention upon client instruction and depository confirmation, which should reduce the risk of unauthorized creation and deletion of securities. Any manual intervention by Operations requires the application of the four-eyes principle before being further processed.</p>
<p>Key Consideration 2 A CSD should prohibit overdrafts and debit balances in securities accounts.</p>	<p>CBL does not allow securities account overdrafts. The CBL settlement platform performs a provision check before executing a participant delivery instruction to ensure that sufficient securities are available on the participant account. In case not sufficient securities are credited to the account, and the delivering participant is not able to borrow the said securities under the securities lending program, the transaction will not settle.</p>
<p>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</p>	<p>Within CBL, all securities are held and transferred by book entry. For book entry transfer securities must be fungible. A number of countries still make mandatory the issuance of physical evidence of securities, or some countries still allow the coexistence of physical securities to dematerialized securities. The large majority of these physical securities are immobilized at the issuer CSD and are not physically transferable.</p>

to immobilise or dematerialise securities.	
<p>Key Consideration 4</p> <p>A CSD should protect assets against custody risk through appropriate rules and procedures consistent with its legal framework.</p>	<p>CBL has appropriate rules, procedures and controls in place to safeguard the rights of the securities issuers and holders.</p> <p>In addition to the rules, procedures and controls stated in previous key considerations of this principle, CBL's Network Management department has selection procedures in place for depositories and performs due diligence visit and/or vault inspections at the depositories to ensure that CBL network of suppliers has sound and robust process and procedures in place.</p> <p>CBL's Compliance team issued a New Issues procedure that seeks to provide concrete procedural guidance on anti-money laundering, counter terrorist financing and applicable sanctions. It also implemented an automated screening process to detect any suspicious entities or sanctions on securities.</p> <p>According to article 48 of the GTCs, CBL is liable, and the respective participant is protected and indemnified, in case of negligence and willful misconduct of CBL for any loss, claim, liability, expense or damage arising from any action taken or omitted to be taken by CBL in connection with the provision of services or the taking of any action contemplated hereby and by the Governing Documents.</p> <p>As per CBL's Customer Handbook, any request from a participant to recognize a right or to redress a harm is to be addressed to his designated Relationship Manager in writing. The claim will then be handed over to CBL's dedicated Claims team who will investigate it in full in order to assess CBL's liability to the participant. Should CBL be held liable for the loss incurred by the participant, the latter will be indemnified. CBL also has insurance policies in place to cover the aforementioned situations.</p>
<p>Key Consideration 5</p> <p>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</p>	<p>As already stated here above, CBL's settlement platform makes it possible to distinguish between accounts and the financial instruments and cash assets held by different participants. As one of the Luxembourg law requirements, the assets of CBL's participants are also completely segregated in separate accounts from CBL's own assets, both in the books of CBL as well as at local CBL depository level. Within the CBL system, participants can choose to open segregated accounts. The account will be opened in the participant's name and a reference requested by the participant can be mentioned in the name description of the segregated account.</p>

segregation of securities belonging to a participant's customers on the participant's books and facilitate the transfer of customer holdings.	CBL's participants are obliged under the terms of CBL's GTCs to segregate entitlements to securities deposited for their own account (proprietary assets) from entitlements deposited on behalf of third parties (client assets). Participants are in CBL's books the legal owner of the assets held in their account. Consequently it requires a settlement instruction from the direct participant to trigger the transfer from these participants' accounts to another party, either internally to another CBL participant, via a Bridge instruction to a Euroclear Bank participant or via an external instruction into a domestic market.
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, a variety of functions are performed for financial institutions across selected markets and financial instruments. These services are all closely linked to the core services mentioned here above and include, among others, (i) cash financing services, (ii) securities lending, borrowing and collateral management services, (iii) asset servicing, (iv) order routing services for investment funds, and (v) settlement services for investment funds transfer agents.
Key Conclusions for Principle 11	Securities in CBL are kept in book-entry form, which is supported by its legal framework. CBL has arrangements in place to secure the integrity of securities issues. Participants assets are segregated from CBL's assets. In addition, assets of clients of participants are segregated from participants assets. Overdrafts of securities accounts are not permitted. CBL applies daily reconciliation for all its securities. It should be noted that in the context of the interoperable link with Euroclear Bank, securities holdings are generally reconciled only on a weekly and monthly basis between the two ICSDs (see Principle 20).
Assessment of principle 11	Observed
Recommendations and comments	-

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	CBL applies a delivery versus payment (DVP) model 1 arrangement when settling two linked obligations. Principal risk is eliminated through the irrevocable and simultaneous exchange of securities and cash value during the settlement. The legal framework applicable to CBL's services and settlement activities are the Payment Services Law and the Securities Law. The provision that a
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<p>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.</p>	<p>transfer order can no longer be revoked or challenged by a system participant or a third party from the moment of its introduction in the said system, article 111 of the Luxembourg Payment Services Law, together with CBL's DVP mechanism, ensures the elimination of principal risk. The Customer Handbook covers DVP settlement in Section 4.</p> <p>The Creation platform processes instructions in real time ensuring a simultaneous exchange of securities and payments. Securities are matched and provisioned prior to settlement to ensure the adequacy of cash and securities for settlement. 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 minimized.</p> <p>DVP transactions involving a domestic counterparty are final depending on the receipt of expected settlement results in accordance to 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.</p> <p>The legal and contractual framework described here above is also applicable to alternative investment funds. However, from a technical perspective, alternative investment funds are generally not settled DVP. For subscriptions, they are in principle prepaid, so cash is remitted from the participant's account along with the order and fund shares are credited as per the contract note received from the fund administrator. For redemptions, fund shares are debited as per the fund administrator's contract note with cash proceeds paid upon receipt from the paying agent. This appears to be common market practice on which CBL has only, if at all, marginal influence.</p> <p>Concerning the claim of a third party on blocked assets, as held in securities accounts, the assets, be they blocked or not, are protected in accordance with the relevant stipulations of the Payment Services Law as they state that a settlement account may not be seized, sequestered or blocked in any way by a participant (other than the system operator or settlement agent) a counterparty or a third party.</p>
<p>Key conclusions for Principle 12</p>	<p>CBL uses a DVP model 1 mechanism, meaning that the settlement of the cash and securities leg takes place on a trade-by-trade basis with the settlement of securities conditioned upon the settlement of the cash and vice versa. Principal risk is eliminated through the irrevocable and simultaneous exchange of securities and cash value during the settlement.</p>
<p>Assessment of principle 12</p>	<p>Observed</p>

Recommendations and comments	-
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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.

Participant default rules and procedures

CBL has Default Management Process rules and procedures in place to handle the default of participants. The Default Management Process rules and procedures define two types of default, which are a i) legal default following the participant's insolvency/bankruptcy; and ii) contractual default where a participant is unable or unwilling to fulfil in a timely manner its obligations to CBL.

The objective of default management procedures is to avoid or minimize losses for CBL resulting from the outstanding exposures of a defaulted participant, limit disruptions to the market by ensuring timely completion of settlement even under stressed market conditions and liquidate defaulting participant's collateral in a prudent and orderly manner.

The default management procedures are described in the following documentation: Default Definition and Scenarios, Early Warning Indicators and Signals Definition, Liquidation Strategy, Default Management Processes Handbook and Recovery Plan.

The Default Management unit is the owner of the Default Management Process, which will be activated upon a participant's default, and coordinates the default of a participant, including the liquidation of participants' assets, if required. The Default Management Unit regularly reviews, tests and amends the process, where necessary. It reports to the CRO.

The roles and responsibilities of stakeholders involved in the default management are described in the Liquidation Strategy, which is reviewed and updated at least annually. The roles and responsibilities mainly include internal participants and, to a limited extent, external participants such as liquidation agents and interbank counterparties, which would be used for the execution of defaulting participant's assets. In addition, the default management procedures include a close cooperation and communication with the appointed insolvency administrator/liquidator or regulator for the purpose of ensuring a smooth

	<p>transfer of defaulting participant's assets to the dedicated accounts created by the insolvency administrator/liquidator.</p> <p>In order to identify a participant's default and classify it in accordance with the above-mentioned default types, Early Warning Indicators and Early Warning Signals have been developed. They are used for proactive monitoring of participants' stability and early identification of triggers, which indicate a material change in participants' credit profile. The Early Warning Indicators are monitored as a day-to-day activity performed by different functions within the Clearstream group within pre-defined thresholds. A threshold breach triggers a report to the Default Management unit and Group Credit.</p> <p>In order to ensure a protection of non-defaulting participants' settlement, the transactions of defaulting participant will be suspended from automatic transaction processing and therefore will be blocked to allow the manual monitoring of all transactions. They will only be released manually in accordance with the Default Management Process upon request of the responsible regulator, insolvency administrator or legal successor of the defaulted participant.</p> <p>Only participant's proprietary assets will be subject to liquidation in case of a default. The underlying client's assets are segregated on dedicated accounts and are not subject to liquidation or off-set in case of participant default.</p> <p>Use of financial resources</p> <p>The Default Management Procedures define that in case of a participant default the defaulting participant's assets are the first financial resource to be used in order to cover the outstanding exposures and therefore avoid/minimize losses for CBL. The Recovery Plan lists other financial resources which are to be used to recover from a major potential loss. This includes the increase of equity by the parent company and/or third-party investor, intragroup funding and earnings retention.</p>
<p>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.</p>	<p>CBL's default management procedures define the communication path of a participant default to all relevant internal and external stakeholders. The communication of default to CBL regulators will be ensured through Regulatory Reporting.</p> <p>All default management processes and procedures are reviewed, tested and updated, at least annually in order to ensure their quality and functionality.</p>

<p>Key Consideration 3</p> <p>An FMI should publicly disclose key aspects of its default rules and procedures.</p>	<p>The Default Management Procedures rules and procedures are internally accessible to all relevant internal participants, including the circumstances under which the procedures are activated.</p> <p>The circumstances under which CBL may take actions are publicly disclosed in its GTCs, article 56. Article 57 describes what actions CBL may take. Also, the technical overdraft facility (TOF) agreement discloses to CBL participants in Article 16 of the TOF any circumstances under which it reasonably assumes that participant's ability to fulfil their obligations towards CBL could be materially affected.</p> <p>These articles mention that, in such event, CBL will take necessary actions. Given that CBL takes only measures with regards to defaulting participant's assets, there is no specific mechanism to be addressed to non-defaulting clients.</p>
<p>Key Consideration 4</p> <p>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.</p>	<p>For the purpose of testing and continuous improvement, the Default Management unit organizes regular and at least annual fire drills with all relevant internal participants, including the members of the EB. The fire drills cover the testing of the entire Default Management Procedures, including communication between involved business areas, the Credit Crisis Management Team and the EB. After each performed test, all results and feedbacks are documented and shared with the internal participants of the test, as well as the EB and the CRCC to the full extent. The results are used to improve and amend the tested processes, if and where necessary.</p> <p>All above-mentioned tests are mainly performed with the internal participants and partially with external participants such as appointed liquidation agents and interbank counterparties. Other stakeholders, such as supervisory authorities, Euroclear Bank, depository banks or CCBs are not involved.</p>
<p>Key Conclusions for Principle 13</p>	<p>CBL has detailed and comprehensive default management rules and procedures in place to manage the default of a participant. CBL tests these procedures on an annual basis, mainly with internal stakeholders. There is limited involvement of external stakeholders in the testing.</p>
<p>Assessment of Principle 13</p>	<p>Observed</p>
<p>Recommendations and Comments</p>	<p>It is recommended that the testing of default management procedures includes relevant external stakeholders, in particular authorities, Euroclear Bank and the most relevant depository banks and CCBs.</p>

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.	
Key Consideration 1	Not applicable
Key Consideration 2	Not applicable
Key Consideration 3	Not applicable
Key Consideration 4	Not applicable
Key Conclusions for Principle 14	
Assessment of Principle 14	
Recommendations and Comments	-

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 materialize. Further, liquid net assets should at all times be sufficient to ensure a recovery or orderly wind-down of critical operations and services.	
<p>Key Consideration 1</p> <p>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.</p>	<p>CBL is exposed to business risk as CBL's financial performance is directly or indirectly subject to the evolution of a number of macroeconomic factors and the related effects. Business risk is translated into EBIT terms, reflecting both a potential revenue decrease and a potential increase of its cost base.</p> <p>Details on responsibilities, processes and procedures with regards to risk management are documented in the Business Risk Handbook. The Handbook is reviewed annually and updated on an ad-hoc basis. Internal Audit ensures compliance of the Business Risk Handbook procedures within the Clearstream Group.</p> <p>Business experts are responsible for identification and quantification of all business risk scenarios within CBL, supported by the risk management function. They conduct assessments and estimations of business risk scenarios based on the group-wide scenario catalogue. The assessments take into account potential changes into internal and external factors that may impact revenues and cost. Examples of factors are interest rate level, projected</p>

	<p>economic growth of business segments within CBL and rising competition levels.</p> <p>The framework to manage and control business risk comprises several instruments which enables Clearstream Group to fulfil its roles and responsibilities within the business risk management process. These instruments are:</p> <p><i>Scenario analysis:</i> At least on an annual basis, the Risk Management unit organizes joint workshops with business owners and performs scenario analysis workshops to collect experts' opinions on the severity and frequency of business risk events.</p> <p><i>Stress testing:</i> Stress testing is used to compare the outcome of several stress situations with the projected annual EBIT, such as materialization of a worst case scenario and materialization of all scenarios at the same time. In addition, reverse stress tests are performed where the impact on the available risk-bearing capacity is analyzed. Results of the stress tests indicate that potential losses arising from business risk are matched by adequate risk-bearing capacity, which is a buffer to absorb potential unexpected losses resulting from the risks CBL faces in its various activities. The part of the risk bearing capacity designed to cover business risks is separated from the resources designed to cover other types of risks. Stress tests are performed at least annually.</p> <p><i>Early warning system based on KRIs:</i> KRIs are defined in the area of business risks. The KRIs and thresholds are 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 analyzed by the risk management function on a monthly basis. The results of the KRI analysis are used to proactively update the scenario database and/or trigger a re-assessment of the company business risk's estimations. Any KRI breaches are escalated to the CRO and the EB for awareness.</p> <p><i>Capital model:</i> The required capital for business risk is calculated based on simulated risk events and respective losses with the Monte Carlo simulation, which provide the required aggregate loss distribution. From the loss distribution, several risk figures are derived, such as expected loss and VaR.</p>
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<p>Key Consideration 2</p> <p>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 achieving a recovery or orderly wind-down, as appropriate, of its critical operations and services if such action is taken.</p>	<p>CBL maintains liquid assets.</p> <p>The funds are invested in high quality liquid assets issued or guaranteed by euro zone governments, regional governments or supranationals with a minimum rating of AA-. The investment portfolio size exceeds the amount of CBL's equity and is funded first by (i) CBL's own funds, (ii) by issuance of ECP paper and (iii) a stable portion of participant cash observed over a 5 year horizon at a 99 percent of confidence level.</p> <p>There is no internal official calculation of liquid net assets funded by equity to cover general business risks performed by CBL. Nevertheless, CBL assumes that liquid net assets funded by equity correspond to total equity diminished by tangible and intangible fixed assets. As of December 31, 2015, liquid net assets funded by equity amounts to €1,071.7 million. Based on the above figures, this will cover 6 to 12 months of operating expenses.</p>
<p>Key Consideration 3</p> <p>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</p>	<p>Clearstream Holding established a consolidated Clearstream Group recovery plan according to Article 12 (2) of the Sanierungs- und Abwicklungsgesetz covering the activities of Clearstream Holding and its major subsidiaries CBL and Clearstream Banking AG, Frankfurt. In this context, the CSSF asked to see CBL separately identified within the Clearstream Group recovery plan.</p> <p>For the financial year 2015, CBL's operating costs have been of €344 million (55 million of personnel expenses, 286 million administrative costs and 3 million of amortization costs). Reducing this number to the cost relative to 6 months of operations, using a linear approach, the required amount would be €172 million.</p> <p>The available capital available as of 31/12/2015 (which does not include the minimum requirement for the solvency ratio) was €645 million.</p> <p>Comparing this available free capital (€645 million) with the foreseen costs for 6 months of operations (€172 million), the available capital is amply sufficient,</p>

<p>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.</p>	<p>even without taking into consideration the bonus capital which may be available from the yearly profits realized by CBL.</p>
<p>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.</p>	<p>The funds are invested in high quality liquid assets issued or guaranteed by euro zone governments, regional governments or supranationals with a minimum rating of AA-. The high quality of the assets ensures that in times of stress same day monetization may be achieved by either using the ECB marginal lending facility or via overnight repo trades with high quality market counterparties. CBL has currently more than 50 framework agreements in place allowing such operations.</p> <p>The Treasury Middle Office constantly monitors issuer ratings of CBL's portfolio. Should an issuer rating drop below the lowest accepted rating the bond will be sold.</p>
<p>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.</p>	<p>The recovery plan includes different ways to strengthen the capital base of Clearstream Group. Equity could be provided by Deutsche Börse AG (DBAG) or by a third-party investor. The amount of new equity depends on the available resources of DBAG or the amount a third-party investor is willing to invest in Clearstream Group.</p> <p>Should an equity increase be needed, CBL will activate recovery options such as (i) first retain earnings, (ii) then increase equity through the parent company and (iii) finally increase equity through selected third-party investors. These options are designed to maintain or restore the viability and financial position of CBL. Therefore the primary aim of the options is to ensure the viability of CBL's critical functions and core business lines.</p> <p>The recovery plan, including the measures to raise additional equity in times of stress, is reviewed at least on an annual basis and (i) in case of significant changes in the legal or organisational structure of the Clearstream group; (ii) in case of significant changes of the business model or the business activities of the Clearstream group; (iii) in case of significant changes with respect to the financial or the risk situation, that have essential effects on the recovery plans; or (iv) for any other ad-hoc reasons.</p>

	The SB is required to approve an increase in equity and ensure that the plan is viable and meets regulatory requirements and standards.
Key Conclusions for Principle 15	CBL has in place robust arrangements to management and control general business risks. CBL has sufficient resources available to cover at least six months of operating expenses through capital as the difference between the total volume of own funds and the amount of own funds needed for satisfying the CRR/CRD requirements is sufficient for this purpose..
Assessment of Principle 15	Observed
Recommendations and Comments	-

Principle 16. Custody and Investment Risks

An FMI should safeguard its own and its participants' assets and minimize 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.

<p>Key Consideration 1</p> <p>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.</p>	<p>There are two dimensions to this principle:</p> <ol style="list-style-type: none"> 1. Custody and investment risks related to CBL's investments of its own assets and the surplus cash of participants. 2. Custody risk related to CBL as an ICSD, holding participants' and own assets through links in numerous domestic markets and therefore maintaining relationships with depository banks, CSDs and CCBs. <p>CBL's investments of own assets and participant's assets</p> <p>Prior to the acceptance of any new Treasury counterpart, Group Credit assesses the creditworthiness of the potential counterpart to ensure that only liquid and solvent institutions are accepted. Those counterparts are subject to credit review at least once a year. Furthermore, Group Credit is actively following market news, and uses a Watchlist as an early warning indicator for financial institutions likely to be submitted to a credit limit reduction or rating downgrade in the near future. Any financial institution added to the Watchlist is subject to specific measures which are communicated to the EB as well as to all internal units concerned.</p> <p>Assets held through links</p> <p>When CBL decides to enter a new market, only leading banks with, among others, appropriate banking or custodian license, credit rating, industry rank,</p>
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liquidity and management competence are considered within the request for proposals process.

As part of the Request for Proposal process, CBL performs (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. Elements of the selection process include more precisely, the candidate's operational efficiency (e.g., deadlines, turnaround times), creditworthiness (e.g., credit assessment of the intermediary's capitalization, asset quality, management competence, risk profiles, earnings and liquidity), general standing from a compliance perspective (e.g. ownership, shareholders), its compliance with regulations concerning the combating of money laundering and terrorist financing, credit lines granted, fees, and the candidate's connectivity and STP standards such as ISO15022 compliance.

In addition, CBL is including as selection criteria in the Request for Proposal process, the presence and importance in the market via, among others the candidate's market share and the latter's capacity to lobby the market on behalf of foreign market participants.

Candidates selected during the process for the role of depository bank and/or CCB are shortlisted and on-site due diligence visits to each shortlisted institution is performed in order to select a final candidate. Final approval is delivered by the EB.

CBL is also requiring a legal opinion from an external legal counsel when setting up a new link. This legal opinion is taking into account the requirements of the Securities Law and is considered as independent and neutral confirmation of the foreign depository's ability to perform, as required under the respective Link agreement, without the risk of being superseded by local regulations or practices.

All sub-custodians and CCBs appointed by CBL are contractually required to comply with obligations and requirements, including obtain and maintain all necessary permits, licenses and consents or authorizations required by the applicable law to enable the depository to fulfil its obligations under the agreement.

On an annual basis, CBL verifies the compliance of depository banks and CCBs with the provisions of the respective agreements through: (i) the officer certificate relating to the internal control system implemented by the custodian, (ii) the BCP, and (iii) the reply to the AML questionnaire.

	<p>CBL monitors its depositories' adherence to the defined requirements through various means.</p> <ul style="list-style-type: none"> • First, each market is under supervision of a dedicated Network Officer performing an "end-to-end" control covering all suppliers and infrastructures for a given market. This control includes, among others, the monitoring of legal documentation, KPI reporting, analysis and action planning, Incident Management as well as the monitoring and communication of respective market changes. • In addition, CBL may visit the CSD in a market to which a link exists at any time to review the relationship and ascertain that all documents remain relevant to the activities and regulations of the market. • CBL is performing due diligence visits to its sub-custodians, ensuring that links are generally assessed every 24 months and more frequently on an ad-hoc basis if necessary. Due diligence inspections consist of any verification deemed appropriate in order to ascertain that the agent, depository or sub-custodian is fulfilling its obligations under the legal agreement pursuant to the professional standards of a securities custodian. The CBL due diligence questionnaire therefore covers aspects such as, among others, (i) legal and regulatory frameworks, (ii) security and insurance coverage, (iii) operational processes and reconciliation, (iv) BCP, (v) AML measures, and (vi) recent and forthcoming market changes. Due diligence visits also include a review of the operations site, a visit of vaults if applicable as well as meetings with market institutions. • In addition to the due diligence reviews, CBL is also conducting service reviews on the various markets served, which focus on a specific set of issues or topics whereas due diligence visits is rather an overall assessment of the agent and the respective market. <p>Furthermore, CBL's external auditor may contact the custodians appointed by CBL and request details of securities balances held by the custodian on behalf of CBL and of any outstanding transactions.</p>
<p>Key Consideration 2 An FMI should have prompt access to its assets and the assets provided by participants, when required.</p>	<p>CBL's investments of own assets and participant's assets</p> <p>Treasury's investment strategy is driven by the cash amounts that participants leave on their settlement accounts with CBL. Strict mismatch and interest rate risk limits are established to limit liquidity risk that may arise from Treasury investments. Consequently, Treasury must invest funds in a way to have a maximum of liquidity available within one business day. Due to the very short term nature of CBL's obligations arising from its core settlement activities, CBL's liquidity requirements are mainly intraday and overnight. Mismatch limits are allocated to acquire highly liquid securities which can be used for liquidity generation in the repo market and to ensure a permanent liquidity buffer.</p>

	<p>All investments are high-quality liquid assets securities issued or guaranteed by governments or supranationals. Reverse repo transactions are only allowed with highly reliant market counterparties against high-quality liquid collateral. Compliance to the policy is performed by the Treasury Middle Office who issues regular monthly reports to the EB and to the risk management unit. Exposures against limits are monitored on a daily basis by Treasury Middle Office and excesses are immediately reported to EB and the risk management unit.</p> <p>Assets held through links</p> <p>The legal opinion that CBL requires before setting up a link confirms, among others, the enforceability of the agreement with the custodian with whom CBL holds its or its participants' assets as well as the protection of the assets, e.g., in case of insolvency of the custodian, without the risk of being superseded by local regulations or practices. In addition, the elements necessary for the asset protection are also reviewed internally to make sure they are compliant with the obligations of CBL towards its participants.</p> <p>In case of a participant's default, CBL will ensure that all accounts holding pledged positions will immediately be 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.</p>
<p>Key Consideration 3</p> <p>An FMI should evaluate and understand its exposures to its custodian banks, taking into account the full scope of its relationships with each.</p>	<p>CBL understands its exposures towards depository banks, CCBs, linked CSDs and investment banks and monitors its exposures on an aggregate basis. Since custodians can have different roles such as CCB, participant and / or issuer of securities, CBL is defining limits for each role assumed. Furthermore, for institutions playing multiple roles, exposure is monitored on a consolidated basis in order to track any high concentration of risk exposure.</p> <p>Concentration of cash exposures to depository banks and CCBs is monitored and evaluated on a daily basis by CBL's Treasury Department, within nostro and large exposure limits set by Group Credit. Intraday liquidity management is performed by continuously collecting individual participant instructions and compiling the resulting cash positions with the aim to establish expected end of day positions. Throughout the day, risk arising from surplus balances is mitigated (i) by transferring cash where required for settlement purposes or alternatively, (ii) by placing it with creditworthy financial institutions in the reverse repo market or, if applicable (iii) by transferring it to the Central Bank Account. As a next step, Group Credit is verifying on a daily basis the adherence to the nostro limits by manually comparing the end of day nostro balances in the CBL nostro application to the preapproved limits. Every case</p>

	<p>where the cash left overnight exceeds these preapproved nostro limits is investigated by Group Credit and notified to Treasury, Risk Management, the Head of Investor Relations and Treasury, and the EB.</p>
<p>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.</p>	<p>CBL's investment strategy forms part of its liquidity risk management strategy and is described in the Pillar III report. The latter is publicly available on the CBL website. CBL is not involved in proprietary trading activities and does not maintain a trading book. Investments in securities as part of the investment or short-term portfolios are, in principle, in bonds only and these are purchased with the "buy and hold" strategy, which might lead to interest rate risk in the banking book. The Treasury Policy defines the limits set for securities purchase transactions.</p> <p>The Treasury Policy defines the limitations to avoid concentration of credit risk exposures when investing for proprietary purposes. These limits include:</p> <ul style="list-style-type: none"> • specific country risk limits for securities purchases; • a preset list of high-quality issuers; • specific issuer limits for non-government issuers set by the Credit department; • securities portfolio limits whose limits are reviewed quarterly to ensure that long-term securities investments are backed by long-term liquidity defined as being the sum of the own funds of all Clearstream entities managed by Clearstream Treasury and the stable part of the net participant cash in EUR and USD currencies; • a minimum issue or programme size; • a maximum limit per issue or programme; • a maximum remaining life to maturity. <p>CBL does not invest participant assets in the participants' own securities or those of its affiliates.</p>
<p>Key Conclusions for Principle 16</p>	<p>CBL prudently manages the custody and investment risks related to participants' and its own assets. It keeps the assets at supervised and regulated entities and ensures it has prompt access to the assets when required. Custodian and investment banks are incorporated in the aggregated credit risk monitoring. CBL's investment policy is publicly disclosed.</p>
<p>Assessment of Principle 16</p>	<p>Observed</p>

Recommendations and Comments	CBL is encouraged to invest, as planned, in a fully automated credit risk management system (see also Principle 4).
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Principle 17. Operational Risk	
<p>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 fulfillment of the FMI's obligations, including in the event of a wide-scale or major disruption.</p>	
<p>Key Consideration 1</p> <p>An FMI should establish a robust operational risk-management framework with appropriate systems, policies, procedures, and controls to identify, monitor, and manage operational risks.</p>	<p>Risk Management describes all its policies and procedures regarding operational risks in its Operational Risk Handbook. The operational risk management approach relies on several building blocks, which are the following:</p> <ul style="list-style-type: none"> • <i>the organizational structure</i> defining the central and local functions and assigning roles and responsibilities; • <i>definitions and types of operational risk</i> and categorization into risk classes including the identification of risk drivers and their mapping to event types and root causes; • <i>operational risk event data collection process</i>; • <i>usage of external loss data</i>; • <i>application of KRIs</i>; • <i>scenario analysis</i>; • <i>capital model</i> applied for calculation of the regulatory capital requirements for operational risk using CBL's AMA model as well as the usage of economic capital model for determination of required economic capital and earnings at risk; • <i>reporting</i> integrated information from all operational risk instruments; • <i>IT support</i> through the application of adequate IT infrastructure. <p>Identification of operational risk</p> <p>Risks may arise as a result of internal activities (e.g. internal human error, internal fraud) or external factors (e.g. natural disaster) and the risk examination is performed with regard to existing or new processes, when concluding new business or entering new service areas. Risks arising from participants are considered in risk scenarios. The identification is reactive, following an operational risk event, but also pro-active, based on regular reviews of processes in order to identify weak areas. The establishment of KRIs allows for a regular monitoring of the identified risks.</p>

	<p>CBL has identified four different risk classes:</p> <ul style="list-style-type: none"> • Availability risk: losses arising from disruption of service delivery due to unavailability of technical or human resources. • Service deficiency: losses arising from impaired processes or execution due to product, process or execution deficiencies. The biggest risks for this category are internal human errors; however CBL could also suffer from human errors in external sources' internal procedures. • Damage to physical assets: losses arising from damage to physical assets of CBL, for example, as the result of a terrorist attack. • Legal risks and risks associated with business practices: losses that could arise as a result of non-compliance or inappropriate compliance with new or existing laws, losses from inadequate contract terms or from court decisions not adequately observed in customary business practice, as well as risks from fraud. Violations against laws / regulations and other compliance risk related topics represent the biggest threat to CBL. <p>Risk Management has also identified risk drivers for every risk class, which cover the operational risk spectrum, ensuring that any captured event can be attributed to one category.</p> <p>Single points of failure appear to be mainly related to the risk class 'availability', the most important ones being system outage and staff unavailability. These risks are documented in respective operational risk scenarios.</p> <p>Management of operational risk</p> <p>As described in Principle 3, according to the Risk Management policy the risk management unit applies a five step process. Following the initial identification step described previously, the other steps can be summarized as follows :</p> <ul style="list-style-type: none"> ▪ Notification stage: all risks are centrally recorded by CBL Risk Management. Therefore all organizational units and individual employees must timely notify Risk Management about risks they have identified and evaluated. This can be done through the normal periodic notification as well as on an ad hoc basis following the occurrence of a material operational risk event or a similar indication for an operational risk. • Assessment stage: all operational risk events or potential new risk developments are assessed qualitatively or in financial terms, using the "Value at Risk" methodology and comparing the result with the available risk cover. Low frequency / high impact risks are assessed by identifying scenarios of threats to which the group is exposed. The evolution of their probability is monitored by using input from internal and external experts.
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- Controlling/management stage: All organizational units and employees must perform risk control, implement mitigating action, and monitor these actions according to the established processes. Risk controlling/management measures for specific risks are outlined by the business units in the operational risk scenarios.
- Monitoring/reporting: all material risks and related risk control measures are reported at least on a quarterly basis and on ad hoc basis if necessary to the EB of CBL. Moreover, line management as well as Internal Audit receive periodic information. Two types of reports are issued namely (i) the regular reporting which includes risk reports providing the status of new operational risk situations and updates on existing risk developments (the SB, the ACRC are informed at least two times a year), and (ii) the ad hoc reporting issued in case of a material impact of a new risk or the development of an existing risk.

Policies, processes and controls

Policies, processes and controls designed to ensure that operational procedures are implemented appropriately are centralized under the (i) Operational risk strategy, (ii) the Operational Risk Handbook and (iii) the Operational Risk procedure:

(i) Operational risk strategy

CBL's risk strategy serves as the main source of guidelines regarding the CBL risk principles. The document outlines key principles and strategy statements, which are linked to the overall CBL business strategy. The document further outlines risk appetite limits, regulatory capital and stress tests requirements.

(ii) Operational Risk Handbook

The objective of the Operational Risk Handbook is to give a comprehensive description of the processes and methodologies that constitute CBL's AMA. The Operational Risk Handbook covers topics such as the definition of operational risk, root causes, roles and responsibilities, building blocks of operational risk management and instruments and methods used within operational risk management processes.

(iii) Operational Risk Procedure

This procedure describes the approach and major instruments applied within the process of managing operational risk 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 the Clearstream group.

	<p>In order to mitigate negative effects of high rates of personnel turnover, CBL has a Human Resources policy, which gives preference to internal employees. Consequently CBL promotes the internal job rotation before external recruitment. The individual performance of CBL employees is assessed via an annual appraisal including an individual development plan.</p> <p>Employee fraud prevention within CBL is mainly addressed by consequently applying the 4-eyes principle in the execution of its operations.</p>
<p>Key Consideration 2</p> <p>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.</p>	<p>Roles, responsibilities and framework</p> <p>The CBL risk strategy, which determines conditions for risk management, controls and limitations, is annually approved by the SB and the EB. In addition, four roles are recognized:</p> <ul style="list-style-type: none"> (i) Executive management: it has been designated as ultimately responsible for risk management, including operational risk. The EB determines an appropriate level of aggregate risk tolerance and capacity and established a risk management framework that is consistent with risk tolerance and capacity. (ii) Risk Owners: They are in charge of establishing a risk culture and raising awareness of operational risk within the organizational unit. They ensure that all individual employees under their responsibility identify potential risks and that Risk Management is timely notified about them. (iii) Operational Risk representative: The OpRisk representative raises awareness for operational risk within his/her organizational unit. He/she represents the key contact for both the employees of their organizational unit as well as for Risk Management regarding any operational risk related matters and implements the risk management framework within the area of responsibility and coordinates mitigation activities. (iv) Individual employees: they must understand the risks taken and perform or support collection of event data, KRIs, and provide expertise if needed. <p>Regarding risk management, CBL's EB is the competent corporate body in charge of the review and endorsement of the operational risk management framework pursuant to article 60 of the Company Law. The SB is the competent management body for the monitoring of the effectiveness of the risk management system. Such monitoring is based on the reporting made by the EB regarding the decisions taken within the scope of its mandate, including on risk management topics.</p>

	<p>Review, audit and testing</p> <p>CBL's operational risk management framework is approved and reviewed by the EB on an annual basis and is regularly challenged by internal audit, external audit as well as by regulators.</p> <p>The Internal Audit planning process takes into account operational risks within the audit universe. The three-year rolling plan and detailed annual plan are reviewed on an annual basis and approved by the EB, the ACRC, and SB.</p> <p>If considered beneficial, CBL also conducts internal or external reviews of its risk management framework to identify the necessity or possibilities for amendments and improvements.</p>
<p>Key Consideration 3</p> <p>An FMI should have clearly defined operational reliability objectives and should have policies in place that are designed to achieve those objectives.</p>	<p>CBL has a total of approximately 400 KPIs that support various operational reliability objectives. These indicators, both quantitative and qualitative, deliver information on effectiveness, efficiency, degree of automation, turnaround times, operational quality as well as operational risks for business processes which allow CBL to follow service delivery provided by Business Operations.</p> <p>From a system perspective, the operational reliability objectives are documented within service level agreements concluded between IT and Business Operations which cover business applications availability, response time and internal and external deadlines. Dedicated IT KPIs measure and report the adherence to the contracted service levels. CBL realized an average system availability for the core system in 2015 of 99.99 percent of scheduled time.</p> <p>On a monthly basis, the results of the KPIs are reported, reviewed, analyzed and commented by the business owners, the Controls function and the Operations Committee, a subcommittee to the EB. On a monthly basis, the results of the IT KPIs are as reported, reviewed, analyzed and commented by IT. The service level agreements are reviewed on a regular basis and adapted to changes in the market environment, participant demands or internal focus.</p>
<p>Key Consideration 4</p> <p>An FMI should ensure that it has scalable capacity adequate to handle increasing stress volumes and to achieve its service-level objectives.</p>	<p>Situations where operational capacity is neared or exceeded did not arise to CBL so far. CBL IT runs a documented capacity management process, defined as the proactive process that enables the economic and effective use of existing and future resources, and the prediction of the requirement for additional resources. Resource usage reports are automatically generated on a daily basis for the mission critical systems. On a weekly basis, the resource usage patterns are analyzed by a capacity planning specialist. Substantial deviations are detailed in exception reports and are forwarded to the respective administrators who are requested to further investigate the issue. Annual BCM tests aim to validate that the predicted resources consumptions during the quarterly capacity management meetings are in line with reality.</p>

	<p>A capacity management meeting is held on a quarterly basis, in order to analyze the historical resource usage trends. Meeting minutes are written and include recommendations on how to rectify or improve the current resource usage. The implementation of approved recommendations is tracked in the Change Management System. Contingency Operations Runs, during which a Unix cluster system is run in contingency configuration during one week, are performed according to a fixed schedule throughout the year.</p> <p>CBL's current system capacity is able to cope with at least the current volume plus a further 100 percent future growth. This key indicator, known internally as headroom, is constantly monitored and drives performance improvements and hardware upgrades to maintain this capacity buffer as an absolute minimum. Recent spikes in trading activity—for example, when a historically high volume peaked 50 percent over average daily volumes—were absorbed without any negative impact on operational performance. The capacity management process review is part of the audit plan.</p>
<p>Key Consideration 5 An FMI should have comprehensive physical and information security policies that address all potential vulnerabilities and threats.</p>	<p>Physical Security</p> <p>DBAG has defined its own physical security standards, which are based on industry-level standards. All procedures relating to physical security are following different security standards, such as for instance ISO 27000, and industrial standards, such as for example DIN-EN rules. The effectiveness of the physical access control management is recognized through the ISAE 3402 issued by KPMG.</p> <p>Processes derived from the corporate security policy are described under the group-wide security manual which describes operational and administrative tasks. In addition to this security manual, various other processes and procedures are established aiming to ensure the highest possible safety for people and assets. All processes are subject to permanent monitoring and verification.</p> <p>To strengthen the physical securities, CBL uses different tools such as (i) access control system, (ii) Security Management System (SMS), (iii) computer facilities ensuring protection of data confidentiality, and (iv) strict monitoring of projects according to the Corporate Security policy framework which addresses sources of physical vulnerability as described in the Security Manual, like, among others, the monitoring of third party providers, Information Security and data protection principles, as well as fire protection guidelines.</p>

	<p>Information Security</p> <p>Concerning the information security aspects, CBL has implemented a comprehensive information security management approach as a key mitigation factor for confidentiality, integrity and availability risks. Organizational roles and responsibilities, as well as guiding principles are documented in a formal Information Security Policy.</p> <p>Business information owners are responsible to ensure the day-to-day information security and data protection, and are appointed by the board. There is a dedicated Information Security Officer, who reports to the EB and supports the business information owners to adequately protect their information and corresponding facilities from significant loss and to be compliant with legislative, regulatory, and contractual requirements.</p> <p>Schemes for information classification, risk assessment and risk management are defined and maintained. The Information Security Policy follows a risk-based approach to Information Security management and covers organizational roles and responsibilities. It is implemented at DBAG level.</p> <p>IT Operations, within the Clearstream Services subsidiary, is in charge of operating the IT environment securely, as agreed with the business information owners. This includes, but is not limited to, the installation, configuration and maintenance of IT systems and applications, handling of related processes, detection of suspicious events, handling of incidents, user and change management, monitoring and assessing risks due to technical evolutions, and escalation of risks to the information owner. The processes cover amongst others user management, change management, vulnerability and patch management, incident detection and escalation. Policies and standards are reviewed on a regular basis, and at least annually.</p> <p>In addition, Information Security and cyber resilience aspects are organized around six teams:</p> <ul style="list-style-type: none"> • The Information Security Engineering Team is in charge of implementing and maintaining security tools, such as access control, intrusion prevention and detection, denial of service, vulnerability scanning, events logging and monitoring. • The Information Security Assurance Team is in charge of coordinating, tracking and monitoring the implementation in agreed timeframe of the patches to address potential information security risks related to detected vulnerability. • The Computer Emergency Response Team is in charge of analyzing pro-actively potential impacts of major cyber incidents and determining a
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	<p>regularly updated picture of cyber situational awareness. This team is also in charge of managing information security incidents.</p> <ul style="list-style-type: none"> • The Information Security Governance and Risks team is focusing on governance, risk, policies and standards as well as compliance and security awareness. • The Identity and Access Management team is in charge of managing identity, accesses, information assets and is focusing on cryptography. • The Information Security Architecture team is in charge of the design and operation of the Information Security Architect board, the definition and continuous update of IS service catalogue, to organize requirement processes and coach Enterprise Architects.
<p>Key Consideration 6</p> <p>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 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.</p>	<p>Business continuity Management</p> <p>The Business Continuity Management (BCM) policy states that in case of business interruption, operations must be resumed within appropriate time scales in order to (i) safeguard CBL from significant losses, maintain revenue generation and shareholder value, (ii) maintain participant confidence, market stability and liquidity and minimize systemic risk and (iii) maintain management control, fulfil contractual obligations and regulatory compliance.</p> <p>The policy further defines that the functions which are indispensable for the critical daily operations in view of the above objectives must be resumed within a Recovery Time Objective (RTO) of 2 hours. Further RTO classes have been defined for functions which can be suspended for up to 24 hours, up to 1 week or more than 1 week.</p> <p>According to this policy, CBL has defined business continuity plans addressing the unavailability of systems, workspace, staff and suppliers in order to ensure the continuity and rapid resumption of the critical operations even in cases of major or wide-scale scenarios. The incident and crisis management processes addressing the need for effective communications are outlined in the Crisis Management Guideline and is described in detail in the Alert Escalation Process.</p> <p>An incident and crisis management process is in place to facilitate the timely detection, escalation and assessment of incidents and the prompt activation of the business continuity plans. Incident Managers are appointed as the unique points of contact in their respective business areas in case of incidents and crises and to ensure the proper notification of internal and external parties including escalation up to the EB. In case of a crisis, a member of the EB acts as the Crisis Manager. An alert system is used to classify incidents and crises according to colour-codes relating to a respective level of business impact.</p>

	<p>CBL has staff unavailability plans in place which address the loss of significant numbers of staff, for example in case of a terrorist attack or pandemic. The plans allow identified and trained staff in different locations to maintain the impacted critical functions on behalf of the location that is declared in contingency mode.</p> <p>If there are no other alternatives, manual paper based procedures have been established in some exceptional cases, such as fax-based transmission of instructions by participants or depositories. Depending on the nature of an incident leading to extreme circumstances, different alternative arrangements may exist.</p> <p>Data centres and secondary site</p> <p>CBL operates two data centres in Luxembourg with full synchronization of data between them. Systems can be remotely operated. All types of components are redundant between the data centres and actively used for production. Systems are clustered and load balanced in normal operation mode, or similar mechanism, depending on platform. In case of an incident in one data centre, a failover mechanism ensures that all processing is taken over by the second data centre. The two datacenters are in close proximity. A third datacenter is being considered.</p> <p>All data is synchronously mirrored in real-time between the two centres, allowing for 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. The design described above in combination with the RTO of 2 hours facilitate the completion of settlement by the end of the day also in extreme circumstances such as the full loss of one data centre. If the incident occurred within less than 2 hours before the normal end of day, settlement deadlines could be extended accordingly.</p> <p>CBL runs in fact 'dual office', with operations run in Luxembourg, with all critical operations replicated in other locations. In the case of a catastrophic event in Luxembourg, CBL is able to transfer mission critical operations to other operations locations.</p> <p>CBL also has a secondary site in Luxembourg to provide office space for staff of mission critical units in the event their main office location would become</p>
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	<p>unavailable. In case of a crisis staff at the main location will be transported to the secondary site.</p> <p>In addition, remote access facilities are available allowing staff to work from home. CBL has developed business continuity measures to address the loss of significant numbers of staff in one location in order to ensure the continuity of the most critical operations also in catastrophic "9/11 type" scenarios, including dispersed operations and business transfer.</p> <p>Review and testing</p> <p>At least once a year, a disaster recovery simulation is performed. This includes a series of tests in which some systems are configured to run in a degraded mode during a couple of days. CBL typically tests three scenarios related to (i) systems unavailability (loss of one data centre), (ii) workspace unavailability (loss of one building or location) and (iii) staff unavailability (loss of staff in one building or location). The comprehensive testing approach aims to exercise the scenarios as close as possible to real-life situations, with the objectives to test the functional effectiveness of the plans.</p> <p>CBL did not test a full failover test where operations were taken over by other locations. Although the failover of parts of the critical operations has been tested, no full test has been conducted. It is therefore not clear whether and how quick other locations can takeover all critical operations conducted in Luxembourg.</p> <p>Test reports are issued by Risk Management for all tests, eventually in case of issues with recommendations addressed to the responsible units, which are tracked by Risk Management. If the tests identify deficiencies in plan documentation, Risk Management will issue a recommendation in the test report to update the plans in between the regular review cycle in a timely manner corresponding to the severity of the issue.</p> <p>The responsible EB members receive the different test reports issued by Risk Management. Furthermore, the BCM framework, including the testing approach is documented in the Business Continuity Management Policy and reviewed by the EB and SB on a yearly basis.</p> <p>CBL invites its participants to participate in its annual systems unavailability tests, which are conducted on a Saturday. Nevertheless, CBL does not invite the critical service providers to participate in its tests, but ensures that adequate support is delivered for its IT infrastructure by the critical service providers, thus covering critical hardware, software and middleware infrastructure components.</p>
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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

Operational risks arising from key participants, other FMIs and service utility providers have been identified and managed by CBL as follows:

- Risks relating to key participants are mainly related to operational problems of the key participants themselves and have no direct or significant impact on CBL itself but rather on their counterparts and on CBL's settlement efficiency. Those risks are mitigated through continuous monitoring of system usage and global settlement efficiency level, detailed Market Guides documenting the established rules for participants, market practice across the CBL networks and instruction specifications, participant training support and clear and timely participant announcements for system changes with impacts on participants.
- Risks relating to other FMIs are mainly due to service deficiencies, credit risk, legal offenses and business practices. Mitigation factors of these risks include (i) BCP arrangements with other FMIs, (ii) ongoing monitoring of the performance and creditworthiness of the sub-custodian/agent, (iii) ongoing monitoring of the evolution of the market, (iv) legal agreements including the enforceability of the sub-custodian/agent's obligations and (v) legal opinions representing a confirmation of key legal requirements in respect to the market served through the link.
- Risks relating to service and utility providers result from a disruption of the service. These risks are mitigated thanks to (i) the possible choice of messaging provider between CBL proprietary messaging system and SWIFT, (ii) the automatic switch between established communication providers in case of line disruption, (iii) the existence of emergency power generators in case of electricity disruption and (iv) fully redundant IT systems and architecture with no single point of failure.

CBL also uses external service providers whose comparable requirements on reliability and contingency are defined in agreements and covered by contingency policies. These agreements are initially reviewed by the Legal department.

Risks posed to other FMIs

In addition, CBL also may pose risks to other FMIs. In that respect, the main risks identified by CBL are financial and operational risks posed in the context of the Bridge link with Euroclear Bank. The main risk that CBL can pose to Euroclear Bank (and vice-versa) is a scenario where an ICSD is not operational and cannot process settlement transaction files from the other ICSD. To mitigate this risk, CBL has together with Euroclear Bank developed common operating contingency procedures. In addition, the business continuity consequences of a scenario where an ICSD is not operational at all have been

	analyzed and dedicated joint contingency scenarios have been developed accordingly.
Key Conclusions for Principle 17	<p>CBL has in place appropriate systems, policies, procedures, and controls to mitigate operational risk which are reviewed, tested and audited periodically. Operational risks are reviewed through an annual top-down approach and an annual bottom-up risk self-assessment exercise. The system is reliable and secure, and has adequate, scalable capacity, and future capacity needs are regularly reviewed. CBL is actively involved in enhancing its cyber resilience.</p> <p>Contingency plans and back-up facilities are in place to allow for timely recovery of operations and completion of the settlement process. A second datacenter is in proximity of the first one. Operations can switch between both sites without data loss in case of a contingency. There is, no third data centre. Given the systemic importance of CBL the set-up of a third datacenter is justified and should be pursued to manage extreme circumstances where both datacenters in Luxembourg are impacted.</p> <p>CBL did not test a full failover test where operations were taken over by other locations. Although the failover of parts of the critical operations has been tested, no full test has been conducted. It is therefore not clear whether and how quick the three other locations can takeover all critical operations conducted in Luxembourg.</p>
Assessment of Principle 17	Broadly observed
Recommendations and Comments	To fully observe this principle it is recommended that CBL conducts a full failover test with other locations taking over all critical operations of Luxembourg. In addition, given the systemic importance of CBL it is justified that it establishes a third data site at a location with a significantly different risk-profile than the other two datacenters.

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.

In order to become a participant of the SSS of CBL, the applicant must be either (i) a bank or a regulated credit institution, (ii) a professional of the financial sector (PSF) or regulated entities other than credit institutions, (iii) a supranational institution such as a multilateral development bank or (iv) a commercial company meeting certain conditions.

Complementary to the aforementioned criteria and requirements, CBL is excluding participation relationships with

- entities established in black-listed jurisdictions or territories;
- shell banks operating without a physical presence in any country;
- natural or unincorporated persons.

Also, corporates that are specified U.S. persons or foreign corporates controlled by specified U.S. persons are ineligible because CBL does not have the U.S. Foreign Account Tax Compliance Act (FATCA) reporting capability to support their needs.

CBL has financial criteria for unregulated commercial companies. They are only eligible for being granted access to the CBL SSS if they have (i) an annual turnover of at least EUR 10 million and (ii) a balance sheet total of at least 10 million.

Other companies are assumed to comply with the solvency and liquidity requirements linked to the licensing regime for either credit institutions or, if applicable, for various types of PSF.

CBL has not defined a specific set of operational criteria and requirements for participation in its system in addition to the requirements included under the respective licensing regimes.

Although access criteria in general are relatively limited, access to the provision of cash financing services is subject to additional criteria. The Global Credit unit, at Clearstream International level, is performing a thorough creditworthiness assessment of each prospective new participant, which may lead to limitations in the provision of CBL cash financing services and overdraft facilities.

	<p>Furthermore, CBL is submitting certain categories of entities to certain limitations in terms of service provision due to these participants' specific status. Certain categories of participants, e.g. most PSFs, even if they might be authorized to hold client assets and therefore to open client accounts, are not entitled to commingle the assets of more than one client on a single account. The same limitation applies to AML regulated broker / dealers, depending on their jurisdiction of establishment, and to AML regulated non-bank asset managers.</p> <p>Another limitation in service provision is applied to unregulated corporate entities, which are only eligible to open cash and securities accounts for their own assets and only for the purpose of making cash loans and receiving collateral.</p>
<p>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 endeavor to set requirements that have the least-restrictive impact on access that circumstances permit.</p>	<p>CBL's participation requirements aim to support its obligations in terms of (i) protections of deposited assets, (ii) compliance with legal and regulatory obligations and (iii) credit and systemic risk mitigation.</p> <p>CBL's participation criteria are publicly available on CBL's website.</p>
<p>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</p>	<p>A review of the participant relation is organized by each risk related area such as for instance the Compliance or the Credit Department as per their respective internal process. Know Your Customer (KYC) reviews of each participant are organized every 1, 2, or 3 years depending on the risk classification of the participant in question.</p> <p>Reviews may also be performed by the respective Relationship Managers before any participant visit. The opening of an additional account by an existing participant will trigger the review of the level of access restrictions</p>

<p>facilitating the suspension and orderly exit of a participant that breaches, or no longer meets, the participation requirements.</p>	<p>for the services offered, and the different requirements that may be imposed, or lifted on the participant. CBL may also decide to put one or many accounts of the participant on a watch list, and this at different escalation levels.</p> <p>In line with Article 56 of the GTCs, CBL reserves the right to terminate or suspend the provision of services to the participant with immediate effect, and without prior notice, if in CBL's opinion the participant is in material breach of any obligation incumbent upon it under the GTCs or any other agreement between CBL and the participant. For the purpose of the GTCs, a material breach shall be interpreted as a breach to an essential obligation of the participant under the GTCs, i.e. a breach that would affect the consideration of the contractual relationship.</p> <p>Suspension of services and exit of a participant is covered in GTCs which are made publicly available via the CBL website.</p>
<p>Key Conclusions for Principle 18</p>	<p>CBL has defined access and participation criteria, which are stipulated in its Customer Handbook. In addition, CBL has defined criteria for granting its participants access to credit lines and other services. The access criteria are risk-based. They still allow for substantial discretion in CBL's decision to admit or decline participants. The implementation of the CSDR and its accompanying regulatory technical standards are expected to further impose requirements on the formulation of CBL's access criteria.</p>
<p>Assessment of Principle 18</p>	<p>Observed</p>
<p>Recommendations and Comments</p>	<p>Access and participation criteria can be further finetuned to increase transparency towards potential participants and users of CBL's services and reduce the level of discretion at the level of CBL.</p>

<p>Principle 19. Tiered Participation Requirements</p> <p>An FMI should identify, monitor, and manage the material risks to the FMI arising from tiered participation arrangements.</p>	
<p>Key Consideration 1</p> <p>An FMI should ensure that its rules, procedures, and agreements allow it to gather basic information about indirect participation in</p>	<p>CBL has contractual relationships with its direct participants only. More specifically, CBL neither opens accounts with nor recognizes any indirect or tiered participants. CBL owes a duty of redelivery or restitution of assets deposited by a direct participant uniquely to that participant or to its legal successor even if CBL is aware that its direct participant owes generally corresponding duties to its clients.</p>

<p>order to identify, monitor, and manage any material risks to the FMI arising from such tiered participation arrangements.</p>	<p>Direct participants are obliged under the GTC to segregate entitlements to securities deposited for their own account (proprietary assets) from entitlements deposited on behalf of third parties (client assets). The key feature of the arrangements governing the deposit of client assets is that each participant account opened in CBL's system must be designated by its direct participant into one of three categories:</p> <ol style="list-style-type: none"> 1. Proprietary 2. Client – Segregated 3. Client – Omnibus <p>Where a client account is segregated, the direct participant is required to disclose to CBL the identity of its client. Where a client account is opened in omnibus form, the direct participant is commingling the assets of several of its 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 participant. When a single interest does exceed that threshold, CBL requires the direct account holding participant to segregate the corresponding assets onto a client segregated account. The 25% threshold is assessed during the annual KYC review.</p> <p>In addition, CBL routinely gathers general information on participants' clients in order to discharge its KYC obligations and gathers information relating to assets deposited on client accounts through three primary mechanisms, being (i) the participant onboarding process, (ii) the opening of additional accounts of existing direct participants and (iii) the regular KYC review.</p> <p>In the case of client segregated accounts, CBL seeks to identify the party to whom its direct participant owes the security entitlements deposited on the account and records this information in its KYC file. The identity of any underlying client that has been disclosed to CBL is screened against EU, U.S. and UN sanctions lists, adverse media lists and lists of politically exposed persons both at point of onboarding and on regular KYC review. CBL also obtains information on the geography, products and type of client that its direct participant supports through any client accounts held with CBL. CBL aims to update this information on an annual basis.</p> <p>Apart from the aforementioned KYC process, CBL has no formal process in place in order to gather basic information on direct participants' clients' activities.</p>
<p>Key Consideration 2</p>	<p>No formal procedure is currently in place in CBL to identify material dependencies between direct participants and the respective participant's</p>

<p>An FMI should identify material dependencies between direct and indirect participants that might affect the FMI.</p>	<p>underlying clients which may potentially affect the smooth functioning of CBL.</p>
<p>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.</p>	<p>CBL tracks on a continuing basis the proportion of each of its direct participant's business volume that is conducted on behalf of its own accounts and on behalf of clients. This being said, CBL is however currently not capable of adequately identifying (i) direct participants that act on behalf of a material number of third-party clients, (ii) third-party clients responsible for a significant portion of turnover in the system and (iii) individual third-party clients whose transaction volumes or values are large relative to the capacity of the direct participant through which they access CBL.</p> <p>In the absence of adequately identifying key third-party clients of direct participants, CBL is, as a consequence unable to adequately manage risks arising from the activities of such key clients.</p>
<p>Key Consideration 4 An FMI should regularly review risks arising from tiered participation arrangements and should take mitigating action when appropriate.</p>	<p>Any risks detected related to tiered participation will be treated similarly to other types of risks. Open cases are reported to both the Compliance and Risk Committee and the EB on a quarterly basis or more frequently if the risk is assessed as heightened.</p> <p>There are no dedicated arrangements to identify and detect risks arising from tiered participation arrangements.</p>
<p>Key Conclusions for Principle 19</p>	<p>CBL is not able to identify indirect clients. It has not developed tools to identify monitor and mitigate risks from indirect participant in order to reduce potential exposures towards them that may negatively impact CBL.</p>
<p>Assessment of Principle 19</p>	<p>Broadly Observed</p>

Recommendations and Comments	In order to observe Principle 19 CBL should develop tools to identify monitor and mitigate risks from indirect participant to reduce potential exposures of direct participants that may negatively impact CBL.
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Principle 20. Financial Market Infrastructure Links	
An FMI that establishes a link with one or more FMIs should identify, monitor, and manage link-related risks.	
<p>Key Consideration 1</p> <p>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.</p>	<p>CBL has established a network of direct, relayed (via either Clearstream Banking AG or LuxCSD S.A.) and indirect links into 56 domestic markets. The links can be direct, with a link between CBL and the local CSD (either operated by CBL or by a domestic agent), relayed where CBL accesses the issuer CSD via another CSD or indirect where CBL's account is maintained within a domestic agent bank (depository bank) having a link with the local CSD.</p> <p>In addition, CBL has established an interoperable link with Eurodear Bank referred to as the "Bridge".</p> <p>Before entering into a link arrangement, Clearstream conducts a general assessment of the prospective link which is subject to the appreciation of the CRCC. The CRCC will then either make a positive recommendation or decline the proposal to develop this link.</p> <p>If approved, a full risk assessment process is coordinated by the Network Management Department (at the level of CBL) with the input from various departments such as, for instance, Group Credit, Treasury and Operations. During this full risk assessment aspects such as (i) criteria on securities registration, ownership restrictions, reporting obligations and disclosure requirements, (ii) market assessment including legal, tax and regulatory issues, and (iii) criteria with regard to anti-money laundering, operational readiness, good reputation, financial soundness as well as access to the local central bank and the capacity to provide liquidity to facilitate CBL's settlement and payment instructions, are covered.</p> <p>Ultimately, the EB of CBL is responsible for the approval of every new link set-up. In case the risk assessment identifies significant weaknesses resulting from major risks in the local market that cannot be adequately mitigated no link will be established with that market.</p>

	<p>The type of risks that CBL is exposed to through links, including the Bridge, are operational, credit, liquidity, business and reputational risks, see also Appendix 1.</p> <p>Risks from existing direct, relayed or indirect unilateral links are identified, monitored and assessed on an ongoing basis</p> <ul style="list-style-type: none"> • due diligence visits and ad hoc visits with entities relevant to the link (CSDs, depository banks) as also described in Principle 16. • The SLA is updated when necessary, and on average this is being done on an annual basis. The Network Management team has access to a number of statistic-based reports that provide an overview on the operational performance of the supplier 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. • Ongoing monitoring of the creditworthiness of CBL's network of agent banks which is performed by the Group Credit unit. <p>Risks related to existing links are also part of the annual risk review and are managed by Network Management in coordination with the Risk Management function.</p> <p>Management of risks on links includes:</p> <ul style="list-style-type: none"> • updates to contractual arrangements to emphasize responsibility of the supplier in relation to any risks identified, • establishment of action plans with suppliers and subsequent follow-up to ensure any agreed actions are being undertaken. • ad-hoc testing with suppliers to ensure operating effectiveness of processes and related controls, • change of supplier or appointment of second supplier.
<p>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 FMIs involved in the link.</p>	<p>All links are contractually documented between CBL and the local depository/agent/CSD/CCB. Depending on the type of the respective link arrangement, the relevant legal framework supporting the established link may differ:</p> <ul style="list-style-type: none"> • For direct link agreements, the terms and conditions are set out in the CSD rules, which are generally drafted in the form of standardized general terms and conditions governed by the laws applicable to the issuer CSD. • For direct links operated by a local agent, the contractual framework is composed of the CSD rules and the agency agreement. • As regards indirect links, the terms and conditions are set out in the depository agreement signed with the local depository, which in principle is governed by the laws applicable to the issuer CSD.

	<ul style="list-style-type: none"> Finally, the legal and operational terms and conditions applicable in the context of the Bridge link are governed by the joint CBL – Euroclear Bridge agreement. This agreement shall be governed and interpreted in accordance with Belgian and Luxembourg law. <p>The respective link agreement sets forth the contractual expectations and responsibilities between CBL and the CSD (as determined by the rules of the issuer CSD), local depository, CCB and/or the agent, as the case may be. It clarifies the choice of law and the potential risks assumed by the parties on each other as well as on agents outside the contract. The agreement sets a contractual framework that identifies and clarifies (i) eligible instruments and authorized parties, (ii) defined terms and procedures for settlement, safekeeping and administration, (iii) required insurance coverage, (iv) sub-custodian's standard of care, (v) liability of sub-custodian to CBL, (vi) representation and warranties and confidentiality requirements and (vii) incorporation of Service Level Agreement.</p> <p>It should be noted that there is no specific contractual set up for relayed links as CBL signs in such case the custody or standard terms of the intermediary CSD as it does with any other CSD in a context of a link as the custody and the entitlement are with the intermediary CSD.</p> <p>When setting up a new link, CBL requires a legal opinion from a competent external counsel to represent independent and neutral confirmation of the CSD's, depository's, CCB's and agent's ability to perform as required under the Link Agreement and SLA without the risk of being superseded by local regulations or practices. It represents a confirmation of key legal requirements in respect to the market served through the link, such as (i) the enforceability of the sub-custodian's obligations, (ii) the enforceability of the judgment of Luxembourg Courts, (iii) the recoverability of assets in case of bankruptcy and (iv) the legal status and authority of the sub-custodian.</p> <p>The legal opinion is updated whenever there is change to the legal framework of the market in question. It is a contractual obligation for CSDs/agents/CCBs to inform CBL of any change, including legal change, which would affect CBL's deposit.</p>
Key Consideration 3 Linked CSDs should measure, monitor, and manage the credit and liquidity risks arising	On an annual basis, CBL performs a full credit assessment of any depository and agent with which it has established a direct, relayed or indirect link. Based on this assessment, which includes but is not limited to (i) an evaluation of annual accounts, (ii) a review of the management structure as well as the liquidity, (iii) a review of their external credit rating and the quality of assets, an internal rating performed.

<p>from each other. Any credit extensions between CSDs should be covered fully with high quality collateral and be subject to limits.</p>	<p>Furthermore, the Group Credit unit monitors the nostro balances of all CCBs on a daily basis and sets thresholds for every nostro account. If a threshold is reached, it triggers reporting to management and implements actions accordingly. The system is set up to identify large cash balances and to monitor possible credit risk.</p> <p>CBL does not extend credit as issuer CSD to other investor CSDs. CBL is however granting credit to Euroclear Bank in the context of the functioning of the interoperable Bridge link. Extensions of credit are in principle granted on a secured basis and limited by the amount of collateral provided by Euroclear Bank. Currently, collateral is provided by Euroclear Bank to CBL in the form of a stand-by letter of credit established by a syndicate of 29 international banks. The stand-by letter of credit is payable on demand and there can be no limitations imposed by the syndicate on the conditions of such a demand. The letter of credit 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 the receipt the notice.</p> <p>No Bridge letter of credit 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.</p> <p>Advanced control and remedial mechanisms such as e.g. the deselections of proposed deliveries have been put in place to maintain the exposure resulting from the settlement between the ICSDs within the limits of the letter of credit. A reporting mechanism in case the exposure is not entirely covered by the letter of credit has been implemented to the respective regulators.</p> <p>Uncovered exposures over the Bridge may stem from various sources, in particular custody booking calculation differences and the refusal of ICSDs to accept certain proposed deliveries due to a lack of cash or credit of the buying participant. However, as a result of the functioning of the Bridge risk management mechanism, most of the exposures remain uncovered for only a short period of time.</p>
<p>Key Consideration 4 Provisional transfers of securities between linked CSDs should be prohibited or, at a minimum, the retransfer</p>	<p>There is no provisional transfer of securities and funds within the CBL system, for CBL internal transactions. Nevertheless, provisional transfers are possible under certain conditions in the context of the link CBL has to the CSD in the United States. In order to prohibit a re-transfer of such provisionally transferred securities, CBL blocks the said securities in the participant's accounts until they are final in the local market.</p>

<p>of provisionally transferred securities should be prohibited prior to the transfer becoming final.</p>	
<p>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.</p>	<p>A high level of protection is provided through:</p> <p><i>A legal framework</i> that includes the aforementioned link agreements and related SLAs, with legal opinions to obtain independent and neutral confirmation of the depository's and agent's ability to perform as required without the risk of being superseded by local regulations or practices. When the agent or the custodian or the CSD is acting also as CCB, CCBs are covered by the legal assessment covering such link. When the CCB is an entity distinct from the agent or the custodian or the CSD, standalone CCBs relationships are not as such included in the link assessment and are not covered by legal opinions covering the custody link.</p> <p><i>Electronic reconciliation</i> with all its depositories and agents, for both cash and securities, on a daily basis. This holds true for all links described meaning direct, direct operated, indirect, or relayed links. With regards to the Bridge, the general reconciliation frequency for securities is performed on a weekly and end of month basis, although for certain securities the reconciliation takes place on a daily basis. Also, concerning the cash positions, CBL and Euroclear Bank are already today performing daily reconciliations.</p> <p><i>Segregation of assets:</i> CBL's operating model as an investor CSD requires the use of an omnibus account holding participants' and participants' clients assets either directly at the CSD or indirectly via a sub-custodian.</p>
<p>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.</p>	<p>In case CBL chooses to open a direct link with an 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. If CBL opts for establishing a direct link to an issuer CSD operated by an intermediary, CBL is subject to the terms and conditions of the issuer CSD.</p> <p>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. If finally CBL chooses to open an indirect link via a local custodian, CBL is defining the terms of the liability in depository agreements and, as a standard, CBL</p>

	<p>requires that the custodian is liable for loss, liability, damages or costs due to the local custodian's negligence.</p> <p>In its contractual relationship with both the issuer CSDs and the intermediaries (the agent operating the direct link or the local custodian in the case of an indirect link), the liabilities remain subject to the usual force majeure and indirect damages clauses. Concerning in particular the intermediaries, they generally also exclude their liability for losses caused by the issuer CSDs.</p>
<p>Key Consideration 7</p> <p>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.</p>	<p>NA</p>
<p>Key Consideration 8</p> <p>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 fulfill its obligations to its own participants at any time.</p>	<p>NA</p>

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.	NA
Key Conclusions for Principle 20	CBL is linked to Euroclear Bank via the Bridge. In addition, it is linked to 56 local CSDs worldwide, often through depository banks. In addition, CBL uses CCBs. CBL has a framework in place that allows it to identify, monitor and manage credit, liquidity, operational and legal risks. Remaining risks should be further mitigated. First, with regard to the bridge, CBL should continue working on the mitigation of uncollateralized credit risks that may occur as part of the current settlement practices. Also, reconciliation of securities accounts happens on a weekly and monthly basis, which should be done on a daily basis. Second, with regard to the links to local markets, CBL should further reduce its significant exposures towards depository banks / CCB, in particular in the U.S. and U.K. markets, through extension of the number of depository banks / CCBs, or where possible the opening of direct accounts at the CSDs and central banks. Finally, the transparency on settlement finality for outbound links can be improved.
Assessment of Principle 20	Broadly Observed
Recommendations and Comments	In order to fully observe Principle 20 CBL should reduce risks related to the bridge, through daily reconciliations and full collateralization of credit exposures at all times. Risks related to outbound links should be improved by reducing CBL's dependencies on commercial banks, through the use of additional depositories, CCBs and direct links with CSDs and central banks where possible (see also Principle 3). It should increase transparency in relation to the moment of settlement finality in local markets.

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	In order to ensure that services provided are meeting participants' and markets' needs, product management teams are proactively engaging with participants in order to determine which new products and services would
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<p>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.</p>	<p>require development either in response to a changing market environment or in order to respond to specific participant needs.</p> <p>CBL is therefore approaching its participants in a number of ways such as industry surveys, the organization of senior executive sessions, specific participant validation during the product/service development cycle, and one-on-one participant sessions. At a senior executive level, CBL also hosts a Customer Consultation Committee on a semi-annual basis. The purpose of this committee is to integrate participants' needs into the overall strategic product development process. In addition, CBL aims at anticipating participant needs even before approaching them for feedback by performing ongoing assessments of the product portfolio inventory and by monitoring competition.</p> <p>CBL ensures that the services provided are continuously meeting participants' expectations by having procedures in place to review operational reliability. In this respect, Key Performance Indicators are monitored and deviations are tackled.</p> <p>In 2015, CBL has received awards and high scores in various areas and surveys attesting the quality of and the participant satisfaction with the CBL service provision.</p>
<p>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.</p>	<p>CBL strives to operate at the lowest cost while at the same time delivering products and services that meet participants' needs and specifications. More explicitly, the CBL goals therefore consist in (i) continuously developing new services, (ii) enhancing the efficiency of its operations and (iii) reducing overall processing costs.</p> <p>In order to achieve the public goals of safety and efficiency, CBL's risk strategy is not only aligned to its business strategy but also to the said goals. High importance is thus given 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. The goals and objectives are translated into service levels targets which are defined in service level agreements.</p>

<p>Key Consideration 3 An FMI should have established mechanisms for the regular review of its efficiency and effectiveness.</p>	<p>KPIs and KRIs are developed and monitored on a monthly basis. In case a defined threshold is not reached at the end of the month, the nature of the exposure and the actions to be taken for improvement have to be reported to the Risk Management function.</p> <p>At least yearly, target rates are reviewed in the light of a changed market environment, participant demands or changing internal focus. During the yearly review the previous yearly average rate, the minimum and maximum rate and the current monthly rates of the current year are reviewed and analyzed.</p> <p>In 2015 the average system availability was 99.99 percent. During the October 2015 systems unavailability test, based on the full loss of one data centre, the availability of CBL's business critical applications was validated within the two hour recovery time objective and the infrastructure's security was maintained at all times.</p>
<p>Key Conclusions for Principle 21</p>	<p>CBL is focusing on meeting the requirements of its participants and the markets it serves. Mechanisms are in place for the regular review of its efficiency and effectiveness.</p>
<p>Assessment of Principle 21</p>	<p>Observed</p>
<p>Recommendations and Comments</p>	<p>-</p>

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.

<p>Key Consideration 1 An FMI should use, or at a minimum accommodate, internationally accepted communication procedures and standards.</p>	<p>Since as an ICSD cross-border operation is the core business of CBL's activity, CBL does not maintain any proprietary standards in its communication with the outside world. In order to make processes and systems working efficiently in such international cross-border environment, CBL uses ISO standards and mandates its providers to only use such standards. CBL does apply the same communication standards for cross-border operations as for all other operational activity.</p> <p>CBL is offering all of its participants access to its fully STP compliant settlement services via multiple connectivity channels all offering secure connections either via public internet, Virtual Private Network, SWIFT or web</p>
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	<p>portal. The choice to access CBL settlement services via one or several of these connectivity channels is guided by participant transaction volume, the sophistication of participant in-house systems as well as other participant habits and preferences.</p> <p>In addition to fully endorsing ISO15022 and ISO20022 messaging standards as from their inception, CBL has also adopted all main reference data standards such as, for example</p> <ul style="list-style-type: none"> • ISO 4217 – unique 3 digit currency code ; • ISO 6166 – unique identifiers for securities (ISIN); • ISO 8109 – unique identifiers for Eurobonds; • ISO 9362 – Business Identifier Codes to identify Banks also known as BIC; • ISO 10962 – Standard for financial instrument classification codes (CFI).
Key Conclusions for Principle 22	CBL uses the relevant international communication procedures and standards in order to facilitate efficient settlement of cross-border transactions.
Assessment of Principle 22	Observed
Recommendations and Comments	-

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 and fees and other material costs they incur by participant in the FMI. All relevant rules and key procedures should be publicly disclosed.

<p>Key Consideration 1</p> <p>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.</p>	<p>CBL's rules and procedures are set out in the Governing Documents which consist in (i) GTCs, (ii) the Customer Handbook, (iii) the fee schedule, (iv) the Creation Link Guides – compiling for each of the 56 markets where CBL is linked to the rules and (v) the Disclosure Guides – compiling the mandatory disclosure requirements applicable for each market served. The CBL Governing Documents are available to all participants, as well as the general public, via the CBL website www.clearstream.com.</p> <p>In order to determine whether its rules and procedures are clear and comprehensive, Clearstream mainly relies on:</p>
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	<p>(i) the continuous flow of participant feedback collected by Relationship Managers and Client Services enabling CBL to assess whether the current operational documentation provided to the participants is sufficiently clear. If needed the respective rules and procedures are amended;</p> <p>(ii) Presentations, personal meetings and training session, organized, among others, in the context of new product release or major changes in the system and which are enabling CBL to rectify any perceived lack of understanding from the participant. In the same vein, CBL publishes webinars and videos on its website in order to provide punctual and specific information to its participants.</p> <p>The GTCs, CPSS-IOSCO Disclosure Framework and the general questionnaire of the Association of Global Custodians, also provide information on the steps taken during non-routine but foreseeable events such as, participant default, and loss of securities. The aforementioned information on non-routine events as well as general information on the CBL Business Continuity Framework, is also publicly available on the CBL website.</p>
<p>Key Consideration 2</p> <p>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.</p>	<p>In addition to the plain language explanations on the design and operations of the system as included in the Customer Handbook, the Creation Link Guides and the Market Guides, and which are made publicly available via the CBL website, CBL provides detailed technical information on its system and operations design in system architecture plans and technology stacks which are made available upon request.</p> <p>Key decisions modifying the system's design and operation are taking into account participant views</p> <p>Via the aforementioned Governing Documents, such as among other the GTCs, CBL is also informing its participants about their rights, obligations and risks stemming from their participation in the system.</p> <p>In addition to the information provided in the Governing Documents, CBL is also providing, on a non-binding basis, information related to applicable tax regimes in the respective markets.</p>
<p>Key Consideration 3</p> <p>An FMI should provide all necessary and appropriate documentation and training to facilitate participants'</p>	<p>As mentioned, CBL maintains a proactive relationship with its participants and offers 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. Daily operational queries are furthermore treated by Client Services Officers which are available on a 24 hour basis. In addition, participants are also given the possibility to perform due diligence visit on CBL, which would allow them to increase their understanding of the CBL rules and procedures. CBL also</p>

<p>understanding of the FMI's rules and procedures and the risks they face from participating in the FMI.</p>	<p>informs registered users about system enhancements, changes as well as the occurrence of relevant internal and external events and incidents via alert emails.</p>
<p>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.</p>	<p>The CBL fee schedule, which is detailing the scope of services offered and informing about prices and discounts at the level of individual services such as among others custody, settlement and investment funds processing, is publicly disclosed via the CBL website.</p> <p>In case amendments to the fee structure are foreseen to be implemented, CBL publishes an updated fee schedule one month in advance of it becoming valid on its website. Participants having subscribed to the email alert message service will be notified of any upcoming changes to, among others, the fee schedule.</p> <p>The fee schedule, in addition to providing price levels and discounts for the various services offered, is also describing the scope and the content of the individual products and services. By doing so, comparability with services provided by CBL competitors is achieved.</p>
<p>Key Consideration 5 An FMI should complete regularly and disclose publicly responses to the CPSS-IOSCO Disclosure framework for FMIs. An FMI also should, at a minimum, disclose basic data on transaction volumes and values.</p>	<p>The last update on the CPSS-IOSCO disclosure framework has been publicly disclosed on the CBL website in August 2014. It is updated following material changes and at least every two years.</p> <p>In addition to the more qualitative information included in the CPSS-IOSCO disclosure report, CBL makes publicly available quantitative information on its capital structure and ratios in the context of the CBL Pillar III report.</p> <p>Monthly figures on assets under custody, settlement volumes, average outstandings related to the Global Securities Financing (GSF) activities as well as transactional volumes in the Investment Fund area, are also made publicly available on the CBL website. CBL also provides general information on its credit ratings to the general public and has also recently started enabling participants to have access to the fully-fledged credit rating report. However, CBL is publicly disclosing information on its website neither on monthly settlement values, nor on other performance statistics.</p> <p>Furthermore, CBL regularly publishes on its website announcements in relation to Customer Information and specific services. Announcements are in general made in English.</p>

Key Conclusions for Principle 23	CBL has clear and comprehensive rules and procedures and provides generally sufficient information to participants enabling them to have an accurate understanding of the risks. The fees and other material costs they incur by being a participant are also disclosed. All relevant rules and key procedures are publicly disclosed in English. CBL has completed the CPSS-IOSCO Disclosure framework for FMIs. It can increase transparency in relation to the moment of settlement finality in linked markets (see also Principle 20).
Assessment of Principle 23	Observed
Recommendations and Comments	-

DETAILED ASSESSMENT RESPONSIBILITIES AUTHORITIES

Responsibility A: Regulation, Supervision, and Oversight of Financial Market Infrastructures	
FMIs should be subject to appropriate and effective regulation, supervision, and oversight by a central bank, market regulator, or other relevant authority.	
Key Consideration 1 Authorities should clearly define and publicly disclose the criteria used to identify FMIs that should be subject to regulation, supervision, and oversight.	<p>Different laws and regulations contain criteria to identify FMIs in Luxembourg that should be subject to regulation, supervision and oversight. They are summarized below:</p> <p><i>BCL – Oversight of FMIs</i></p> <p>Article 2 (5) of the law of 23 December 1998 concerning the monetary status and the Banque centrale du Luxembourg (BCL Law), states that “In view of its tasks relating to the promotion of the smooth operation of payment systems, the Banque centrale shall ensure the efficiency and safety of payment systems and securities settlement systems, as well as the safety of payment instruments. The means of coordination and cooperation employed for the performance of these tasks shall be the subject of agreements between the Central Bank and the Commission de Surveillance du secteur financier, complying with the legal competences of the parties”. According to Article 2(1) of the BCL Regulation concerning the oversight of payment systems, securities settlement systems and payment instruments in Luxembourg (BCL Oversight Regulation), the BCL “shall carry out the</p>

oversight of the systems which it designates and which operate in Luxembourg in accordance with Article 2 (5) of the Organic Law ”.

With respect to payment systems, the legal basis is further derived from Articles 127 (2) and (5) of the Treaty on the functioning of the European Union as well as Articles 3.1 and 22 of the Statutes of the European System of Central Banks (ESCB) and of the European Central Bank (ECB). The ECB has made use of its regulatory power with the issuance of the regulation of the European Central Bank (EU) No 795/2014 of 3 July 2014 on oversight requirements for systemically important payment systems (ECB/2014/28). In addition, in line with Article 3 of the BCL Oversight Regulation, the BCL applies the decisions taken by the Governing Council of the ECB relating to the recommendations, principles and standards, including the assessment methodologies.

BCL – Liquidity supervision includes FMIs

Article 2 (4) of the BCL Law, states that “The Central Bank shall be responsible for supervising the general liquidity situation on the markets as well as evaluating market operators for this purpose. The coordination and cooperation procedure for performing this task shall be subject to agreements between the CSSF as well as the Commissariat aux assurances in accordance with the parties' legal powers.”

According to Article 2(1) of the BCL Regulation concerning liquidity supervision (BCL Liquidity Regulation), the primary focus of the BCL’s surveillance of market operators is on credit institutions being counterparties in monetary policy operations. Furthermore, the supervision activity may cover other market operators, whose activity could significantly influence the liquidity of credit institutions, the liquidity condition of financial markets or hamper the conduct of monetary policy operations. Therefore, FMIs in the focus of BCL’s liquidity supervision are those FMIs with a banking license that are counterparties in monetary policy operations.

The applied framework for liquidity surveillance is in line with the standards and decisions of the European Central Bank (ECB) and the rules issued by other relevant international regulatory authorities; i.e. the recommendations of the European Banking Authority (EBA) and the Principles for Sound Liquidity Risk Management and Supervision of the Basel Committee on Banking Supervision (BCBS).

CSSF – supervision of CSDs (as credit institution and professional depositories of financial instruments)

	<p>Article 2 of the law of 23 December 1998, establishing the CSSF (CSSF Law), states that the CSSF is the competent authority for the prudential supervision of, among others, credit institutions and professionals of the financial sector.</p> <p>For the time being, CSDs have either a universal credit institution license, if they hold participants' cash accounts, or a license as professional depository of financial instruments, if they don't hold such cash accounts. Credit institutions and professional depositories of financial instruments are governed by the law of 5 April 1993 related to the financial sector (the 1993 Law) (articles 2 and 26).</p> <p>All relevant laws for FMIs are publicly available. Luxembourg laws are published in the Mémorial (Official Gazette), once they have been adopted. The BCL Law, the BCL Liquidity Regulation and the BCL Oversight Regulation are publicly disclosed on the BCL webpage. The CSSF law and the legal framework for Credit institutions and professional depositories of financial instruments are published on CSSF's internet site.</p>
<p>Key Consideration 2</p> <p>FMIs that have been identified using these criteria should be regulated, supervised, and overseen by a central bank, market regulator, or other relevant authority.</p>	<p><i>BCL – Oversight of FMIs</i></p> <p>The following FMIs in Luxembourg have been identified and are included in the scope of the BCL oversight:</p> <ul style="list-style-type: none"> • the TARGET2-LU payment system (Luxembourg legal component of TARGET2) • the Securities Settlement System operated by CBL • the Securities Settlement System operated by VP LUX S.à r.l. • the Securities Settlement System operated by LuxCSD S.A. • the Securities Settlement System operated by globeSettle S.A. <p>All these systems have been designated and notified to the European Commission under the Settlement finality directive and the list is published on BCL's website and on a yearly basis in the Mémorial (Official Gazette).</p> <p><i>BCL – Liquidity supervision</i></p> <ul style="list-style-type: none"> • CBL: In line with the BCL Liquidity Regulation, the primary focus of BCL's liquidity supervision is on credit institutions that are counterparties of monetary policy operations. CBL has thus been identified as falling in the scope of BCL's liquidity supervision.

	<p><i>CSSF – Supervision of CSDs (as credit institution and professional depositories of financial instruments)</i></p> <p>The following FMIs have been identified and are included in the scope of CSSF's supervision:</p> <ul style="list-style-type: none"> • CBL is supervised as a credit institution. • LuxCSD S.A. is supervised as professional depository of financial instruments. • VP Lux S.à r.l. is supervised as professional depository of financial instruments. • GlobeSettle S.A. is supervised as professional depository of financial instruments. <p><i>Ministry of Finance</i></p> <p>CBL has been licensed by the Ministry of Finance as credit institution. VP LUX S.à.r.l., LuxCSD S.A. and globeSettle S.A. have been licensed by the Ministry of Finance as professional depositories of financial instruments.</p>
Key Conclusions for Responsibility A	<p>FMIs in Luxembourg are subject to appropriate and effective oversight and supervision by the BCL and CSSF respectively. BCL' powers for the oversight of FMIs are derived from the BCL Act. CSSF's supervision of CSDs (CBL as credit institution and the other CSDs as professional depositories of financial instruments), including CBL, is based on the CSSF Act. In addition, CBL is subject to liquidity supervision by the BCL, based on the BCL Act. The relevant laws are publicly disclosed.</p>
Assessment of Responsibility A	Observed
Recommendations and Comments	-

Responsibility B. Regulatory, Supervisory, and Oversight Powers and Resources	
Central banks, market regulators, and other relevant authorities should have the powers and resources to carry out effectively their responsibilities in regulating, supervising, and overseeing FMIs.	
Key Consideration 1 Authorities should have powers or other authority consistent with their relevant responsibilities,	<p>Powers to obtain timely information</p> <p><i>BCL – Oversight of FMIs</i></p> <p>Based on article 27(3) of the BCL Law the BCL has the power to ask payment systems and SSS to provide any information relating to the operation of those systems which is necessary in order to assess their efficiency and safety and may also ask issuers of payment instruments to provide any</p>

<p>including the ability to obtain timely information and to induce change or enforce corrective action.</p>	<p>information relating to those payment instruments which is necessary in order to assess their safety. The BCL may, among others</p> <ul style="list-style-type: none"> • request regular self-assessments from the system operators; • carry out controls as it deems appropriate and is entitled in particular to perform onsite controls of system operators; and • issue recommendations or specific instructions to the system operators. <p>A reporting framework defines in more detail the content of the information to be reported to the BCL as well as the frequency for the provision of data. The reporting framework is adapted to each system, taking into account the size, complexity of activities and risks of the systems. Statistical information on system activity as well as financial data is received on a monthly basis. Information on major incidents should be reported soon after occurrence. Other information is received when changes potentially impacting the efficiency and safety of the system occur. Information on specific topics/issues is further requested on an ad-hoc basis.</p> <p>The collected information aims at providing an overview on the safety and efficiency of the systems under the BCL oversight, in particular the governance arrangements and overall business strategy, the main services offered as well as their importance and development, the overall financial condition, the functioning of the system and the settlement procedures, the reliance on technical agents or third-party providers, the conditions for participation and obligations/protection of participants, the risks borne by the system operators or their participants, the internal risk management framework in place, the compliance with relevant laws/regulations and principles.</p> <p><i>BCL – Liquidity supervision</i></p> <p>The BCL Liquidity Regulation specifies in Art. 4 (3) that the market operators should communicate to the BCL all information related to their liquidity management that the BCL needs in order to accomplish its missions. The BCL is allowed for the purpose of liquidity supervision of market operators to conduct onsite inspections.</p> <p>A daily liquidity report is collected by the BCL from the relevant FMIs, which includes a forecast of inflows, outflows, liquid stock over the next 6 business days including t (t=date of submission before 9.00 am), as well as actual data for flows on t-1.</p> <p><i>CSSF – Supervision of CSDs (as credit institution and professional depositories of financial instruments)</i></p>
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CSSF's powers allow the CSSF to obtain timely information based on the 1993 law articles 40 and 53. Standard information and reports as received regularly for all Luxembourg banks:

- Regulatory reporting: Financial reporting "FINREP" (balance sheet on a monthly basis, profit and loss, on a quarterly basis); Prudential reporting "COREP" (figures on solvency, large exposures, leverage, on a quarterly basis); and Liquidity reporting (LCR, ALMM, on a monthly basis, as well as NSFR and Asset encumbrance on a quarterly basis).
- Documentary reports: The Long Form Report and the annual accounts (as prepared by the bank's external auditor), as well as the annual reports covering the activities of the three internal control functions (Risk Management, Internal Audit and Compliance), and finally the ICAAP report, are all received on a yearly basis.

Specific information as received regularly for Clearstream individually:

- Monthly Credit report (received on a quarterly basis)
- Quarterly Risk report (on a quarterly basis)
- Global Securities Self-assessment report (on an annual basis)

Finally, the CSSF has the power to request any piece of information it deems useful. This is used routinely in order to investigate deeper into specific subjects.

Powers to induce change or enforce corrective action

BCL – Oversight

BCL has no legal sanctioning power and mainly relies on moral suasion to induce changes.

The BCL Oversight Regulation does provide the BCL with certain softer powers:

- The BCL may impose administrative sanctions (e.g. the removal of the designation of the system) in case of non-compliance with the provisions given in the regulations.
- It could notify any breach with the BCL Oversight Regulation to the authorities in charge of the supervision of the financial sector (i.e. the CSSF) or to the Ministry of Finance.
- A publication of the recommendations or instructions could moreover be used to receive information and to induce changes.

	<p><i>BCL – Liquidity supervision</i></p> <p>The BCL has the power to adopt regulations (Article 2(4) of the BCL Law). The BCL Liquidity Regulation in Art. 2 (3) also enables the BCL to take measures against professional operators including FMIs. Art. 3 (7) of the BCL Liquidity Regulation further specifies that for the purpose of liquidity supervision, the BCL can address individual or collective instructions to market operators. Sanctioning power is, however, limited and change or corrective action is primarily achieved via moral suasion. Nonetheless, Art. 3 (10) of the BCL Liquidity Regulation enables the BCL to limit access to its central bank operations for market operators that are in breach with the BCL Liquidity Regulation. In addition, the same article enables the BCL to publish the measures that had to be taken by the BCL.</p> <p><i>CSSF – Supervision of CSDs (as credit institution and professional depositories of financial instruments)</i></p> <p>CSSF's powers include powers to induce change or to enforce corrective action, for example:</p> <ul style="list-style-type: none"> • Article 59 of the 1993 Law lays down the powers of injunction and suspension of the CSSF. • Article 53 of the 1993 Law includes the power to require the cessation of any practice that is contrary to the provisions of Regulation (EU) No 575/2013 (CRR) of the 1993 Law and their implementing measures. • Part V of the 1993 Law lays down a penalty regime.
<p>Key Consideration 2</p> <p>Authorities should have sufficient resources to fulfill their regulatory, supervisory, and oversight responsibilities.</p>	<p>Resources</p> <p><i>BCL - Oversight</i></p> <p>The Oversight section is part of the Market Infrastructures and Oversight Department, which comprises also an Infrastructure and Payment Systems section dealing mainly with policy aspects relating to infrastructures. The Oversight section comprises of 8 FTE in total. A team of 4 FTE is dedicated to the oversight of the designated systems operated in Luxembourg, supported by the Head of section and an administrative assistant. Most of the resources of this team are devoted to the oversight of SSSs with the major focus put on CBL.</p> <p>In 2014, the BCL has increased the number of employees working on the oversight of the designated systems operated in Luxembourg by 2 persons. The level of resources might have to be reassessed in light of the upcoming additional tasks deriving from CSDR.</p> <p>Where necessary for the fulfilment of its tasks, the Oversight section draws in addition on expertise and resources from other departments, in particular</p>

the Legal department and the Liquidity supervision division. Qualification and experience of the respective staff members are considered adequate.

The oversight activities also include the contribution to the ESCB committees and groups as well as work related to FMIs in general. A share of BCL's costs directly linked to the oversight of systems is funded by system operators. This funding is based on voluntary agreements between the BCL and the operators.

BCL – Liquidity supervision

The Liquidity Supervision Division comprises 13 FTE, of which 2 staff members are entrusted with the liquidity supervision of CBL.

There is close cooperation on all matters relating to CBL with the oversight function of the BCL and other supervisory authorities (CSSF, BaFin, Bundesbank). The BCL costs for liquidity supervision are not funded by market operators.

CSSF – Supervision of CSDs (as credit institution and professional depositories of financial instruments)

For prudential supervision, the CSSF has 2.1 FTEs dedicated to the daily prudential supervision of CBL and 0.5 FTE dedicated to LuxCSD S.A., VP Lux S.à r.l. and globeSettle S.A..

The prudential supervisors can get support, on a case by case basis, from experts from other CSSF departments or from experts from banking supervision department's horizontal division: IT, legal, AML/KYC, the department in charge of preparing the implementation of the CSDR, remuneration, governance, investment funds, recovery plan, resolution, liquidity, internal models, and EMIR.

Onsite inspections are conducted by CSSF onsite inspections department. Prudential supervisors may join the inspection.

Qualification and experience of the prudential supervisors and of all the different experts who on a case by case basis can provide support are considered adequate. CSSF funding comes from fees collected from the supervised entities, which can be amended via grand-ducal decree, if required.

	<p>Legal protections</p> <p><i>BCL – Oversight of FMI and Liquidity supervision</i></p> <p>Article 34-1 of the BCL Law limits the BCL’s civil liability: “The Central Bank performs its tasks in the public interest. The civil liability of the Central Bank may be triggered in case it is demonstrated that the damage suffered was caused by gross negligence in the choice and the application of the means implemented to carry out the public service tasks of the Central Bank.”</p> <p><i>CSSF – Supervision of CSDs (as credit institution and professional depositories of financial instruments)</i></p> <p>Legal protection of CSSF staff is anchored in two laws:</p> <p>Article 20(2) of the CSSF Law states that any companies or professionals subject to CSSF supervision who would like to make CSSF civil liable for damage they suffered, have to demonstrate that this damage was caused by gross negligence in the choice and application of the means used to carry out CSSF’s mission. Art. 20(3) of CSSF Law adds that the above principle also applies to CSSF’s staff individually.</p> <p>Chapter 10 of the Luxembourg law of 16 April 1979 covers the protection of the civil servant. In particular, the art. 32(2) and (3) indicate that the State has to protect the civil or former civil servant against any contempt, threats, insults or slanders received in connection with the performance of his/her duties and functions. The State also needs to assist the civil servant regarding legal actions which the latter would decide to initiate against perpetrators.</p>
Key Conclusions for Responsibility B	The powers and resources of the authorities are considered sufficient. Under the respective laws the authorities have powers to obtain relevant and comprehensive information in a timely manner and enforce corrective action. The resources of the authorities are considered sufficient for the time being, although additional resources may be needed in the future to address increased regulatory responsibilities.
Assessment of Responsibility B	Observed
Recommendations and Comments	In the absence of legal sanctioning power, the BCL mainly relies on moral suasion in its oversight and liquidity supervision to induce changes or enforce corrective actions. While the available tools have been effective in the past to appropriately induce changes, BCL’s enforcement power could be further strengthened with a legal sanctioning power.

Responsibility C. Disclosure of Policies with Respect to Financial Market Infrastructures	
<p>Central banks, market regulators, and other relevant authorities should clearly define and disclose their regulatory, supervisory, and oversight policies with respect to FMIs.</p>	
<p>Key Consideration 1 Authorities should clearly define their policies with respect to FMIs, which include the authorities' objectives, roles, and regulations.</p>	<p><i>BCL – oversight of FMIs</i> The BCL Law and the BCL Oversight Regulation, which contain BCL's oversight role, policies and objectives, are publicly available, for example, on BCL's website.</p> <p><i>BCL – Liquidity supervision</i> The BCL Law and BCL Liquidity Regulation, which contain BCL's supervisory role in relation to liquidity supervision, its policies and objectives are publicly available, for example, on BCL's website.</p> <p><i>CSSF – Supervision of CSDs (as credit institution and professional depositories of financial instruments)</i> Article 43 of the 1993 Law defines the purpose of supervision (objectives). CSSF's mission and competences are published on its internet site.</p> <p>There are no specific policies in place in relation to the supervision of CBL. The supervision of CBL is carried out using the policies and procedures as in place for general banking supervision, which is customized to the specific business model of CBL on the basis of expert judgment.</p>
<p>Key Consideration 2 Authorities should publicly disclose their relevant policies with respect to the regulation, supervision, and oversight of FMIs.</p>	<p><i>BCL – Oversight</i> The BCL Law and BCL Oversight Regulation are publicly disclosed on the BCL webpage and in the Mémorial (Official Gazette). The BCL further reports on its oversight activities in its Annual Report.</p> <p>http://www.bcl.lu/en/Legal-Framework/documents_national/loi_organique/index.html</p> <p>http://www.bcl.lu/en/Legal-Framework/documents_national/regulations/reglements_de_la_bd/2016_21/index.html</p> <p>http://www.bcl.lu/en/publications/Annual-reports/index.html</p> <p><i>BCL – Liquidity supervision</i> The BCL Liquidity Regulation is published on the BCL website. The BCL also describes its liquidity supervision related activities in its Annual Report.</p>

	<p>http://www.bcl.lu/en/Legal-Framework/documents-national/regulations/reglements-de-la-bcl/2009-4.pdf</p> <p>http://www.bcl.lu/en/publications/Annual-reports/index.html</p> <p>CSSF – Supervision of CSDs (<i>as credit institution and professional depositories of financial instruments</i>)</p> <p>The complete framework for prudential supervision and CSSF's mission and competences are published on CSSF's internet site. CSSF reports on supervision of banks as well as on supervision of PFS in its yearly annual reports, which are available on CSSF's internet site.</p> <p>https://www.cssf.lu/en/documentation/regulations/laws-regulations-and-other-texts/</p>
Key Conclusions for Responsibility C	<p>BCL's policies are reflected in regulations, which are publicly disclosed. The authorities' objectives and roles are defined in the BCL and CSSF laws. In addition, the BCL Oversight Regulation and the BCL Liquidity Regulation specify BCL's approach. These regulations are available on BCL's website. The CSSF has no specific policies dedicated to SSS but relies on expert judgement. The implementation of the CSDR, in particular the regulatory technical standards will provide for dedicated requirements for CSDs.</p>
Assessment of Responsibility C	Observed
Recommendations and Comments	-

<p>Responsibility D. Application of the Principles for Financial Market Infrastructures</p> <p>Central banks, market regulators, and other relevant authorities should adopt the CPSS-IOSCO Principles for financial market infrastructures and apply them consistently.</p>	
<p>Key Consideration 1</p> <p>Authorities should adopt the CPSS-IOSCO Principles for financial market infrastructures.</p>	<p><i>BCL – Oversight of FMIs</i></p> <p>In line with the BCL Oversight Regulation, the BCL applies the decision taken by the Governing council of the ECB relating to the recommendations, principles and standards, including the assessment methodologies. In this context, it is noted that the Governing Council adopted the CPMI-IOSCO Principles for financial market infrastructures (PFMIs) in June 2013 for the conduct of Eurosystem oversight in relation to all types of financial market infrastructures.</p>

	<p><i>CSSF – Supervision of CSDs (as credit institution and professional depositories of financial instruments)</i></p> <p>As the CSSF is an ordinary IOSCO member, it implicitly adopted the CPMI-IOSCO principles for financial market infrastructures. In practice, the CSSF considers the CPMI-IOSCO principles for its prudential supervision of CBL, but it has not explicitly adopted the PFMI.</p>
<p>Key Consideration 2</p> <p>Authorities should ensure that these principles are, at a minimum, applied to all systemically important payment systems, CSDs, SSSs, CCPs, and TRs.</p>	<p><i>BCL – Oversight of FMIs</i></p> <p>In line with the scope defined by CPMI-IOSCO in the PFMI, the BCL applies the PFMI to systemically important payment systems (i.e. TARGET2-LU) and to all SSS in Luxembourg.</p> <p>With respect to TARGET2 (including the legal component TARGET2-LU), the ECB has implemented the PFMI by way of the ECB Regulation on oversight requirements for systemically important payment systems (ECB Regulation No 795/2014 of 3 July 2014). The ECB Regulation is referenced in the recitals of the BCL Oversight Regulation.</p> <p><i>CSSF – Supervision of CSDs (as credit institution and professional depositories of financial instruments)</i></p> <p>CSSF considers the CPMI-IOSCO principles for its prudential supervision of CBL. CSSF takes the position that this entity is the only systemically important one among the four entities with SSS/CSD activities falling under its prudential supervision.</p> <p>The assessments of the other SSSs/PDFIs against the PFMI are conducted by the BCL and submitted for comments to the CSSF.</p>
<p>Key Consideration 3</p> <p>Authorities should apply these principles consistently within and across jurisdictions, including across borders, and to each type of FMI covered by the principles.</p>	<p><i>BCL – Oversight of FMIs</i></p> <p>The PFMI are consistently applied by the BCL to all four SSSs that operate in Luxembourg, including to LuxCSD SA, an entity being owned at 50% by Clearstream International S.A. and at 50% by the BCL.</p> <p><i>CSSF – Supervision of CSDs (as credit institution and professional depositories of financial instruments)</i></p> <p>Currently, the CSSF supervises the four entities on a solo basis and is not in charge of any consolidated supervision, which would include entities in the same / other jurisdiction(s) and/or across borders.</p> <p>Finally, in Europe, the CSDR and the upcoming related Technical Standards (once entered into force) for the supervision of the CSDs, should, according to Recital (6) of the CSDR, follow the PFMI. The CDSR aims for a harmonized</p>

supervisory framework for CSDs across Europe, which although not identical, should be consistent with the PFMI.

Chinese Walls

The BCL Law and the BCL Oversight Regulation make no distinction between central bank and private payment and securities settlement systems. The same oversight policies and framework apply to all systems that operate in Luxembourg irrespective of the owner and operator.

With respect to TARGET2-LU, operational and oversight activities are handled in different departments by different staff members and managers. Both departments report to the same Management Board member, who addresses possible conflicts of interest and considers the need to bring them to the BCL Management Board's attention where appropriate.

With respect to SSS, the BCL jointly owns LuxCSD S.A. (50 percent), together with ClearstreamInternational S.A. (50 percent). The BCL is however not involved in the operations of LuxCSD S.A and is not represented in the Board of Directors of LuxCSD S.A. or in the management committee of the Company. The oversight section is not involved in the preparation or decision making of the BCL, when acting as shareholder of LuxCSD S.A. This preserves its independence and ensures an adequate mitigation of risks of conflicts of interest. Possible conflicts would be addressed by the BCL Management Board.

As a principle, access to confidential oversight information and data collected from overseen systems is restricted to and controlled by the Oversight section.

Compliance with the PFMI

Luxembourg authorities give feedback to the FMIs on the conclusions of their assessment. Such feedback includes sending a formal outcome covering all the principles which, according to the assessment, are not fully observed, and requiring an action plan from the FMIs which lays down the measures planned in order to reach an "observed" status and the deadlines by which such observance would be reached. The formal outcome with the requirement for an action plan can also include recommendations for enhancements in relation to principles that had reached the observed status in the assessment.

Luxembourg authorities then monitor the implementation of such action plan and assess whether it allows enhancing appropriately the compliance level for all the concerned principles.

	The frequency of comprehensive assessments of SSSs against the PFMI is not predefined, but is determined taking into account developments or changes impacting the SSSs. The first assessment of CBL against the PFMI was conducted in 2015/2016.
Key Conclusions for Responsibility D	The BCL has adopted the PFMI and takes the lead in assessments of FMIs against the PFMI. In the case of supervised entities with CSD activities, the CSSF contributes to the assessment. Authorities may integrate the PFMI in their day to day supervision, including the additional guidance of CPMI and IOSCO, for example on recovery planning, critical service providers and cyber resilience of FMIs.
Assessment of Responsibility D	Observed
Recommendations and Comments	It is recommended to apply a two-year assessment cycle of FMIs against the PFMI as suggested in the CPMI-IOSCO Disclosure Framework and Assessment Methodology report of December 2012. It is also recommended that the authorities integrate the PFMI in their day to day supervision of FMIs. The planned implementation of the CSDR, which generally reflects the PFMI, may possibly facilitate this integration through the regulatory technical standards that largely reflect the PFMI.

Responsibility E. Cooperation with Other Authorities

Central banks, market regulators, and other relevant authorities should cooperate with each other, both domestically and internationally, as appropriate, in promoting the safety and efficiency of FMIs.

Key Consideration 1 Relevant authorities should cooperate with each other, both domestically and internationally, to foster efficient and effective communication and consultation in order to support each other in fulfilling their respective mandates with respect to FMIs. Such cooperation needs to be effective in normal circumstances	At a national level a good cooperative relationship exists between BCL's oversight team responsible for the SSS operated by CBL and CSSF's banking supervision team responsible for CBL. The cooperation happens on an ongoing basis and includes, among others, coordination of supervisory and oversight activities, regular and ad-hoc exchanges of information and reports, joint or coordinated meetings with the CSDs, onsite inspections, assessments against applicable principles as well as consultations on specific topics or issues of common interest. There is no formal cooperation agreement, such as an MoU, between the two authorities. At an international level the Luxembourg authorities partake in the following cooperation arrangements: Payment systems
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<p>and should be adequately flexible to facilitate effective communication, consultation, or coordination, as appropriate, during periods of market stress, crisis situations, and the potential recovery, wind-down, or resolution of an FMI.</p>	<ul style="list-style-type: none"> • With respect to the TARGET2 system (including the legal component TARGET2_LU), the oversight is coordinated by the ECB as lead overseer and performed in cooperation with other members of the Eurosystem, including the BCL. <p>CBL</p> <ul style="list-style-type: none"> • The BCL and CSSF participate in the College of supervisors for the Clearstream Group. The German supervisor Bundesanstalt für Finanzdienstleistungsaufsicht (BaFin) and the Deutsche Bundesbank (BuBa) are the home supervisors. The other College members are the CSSF and the BCL (in its quality as authority responsible for the supervision of CBL's liquidity), as well as the EBA. The BCL – Oversight and the BuBa oversight team participate as observers in this college. The CSSF and the BCL also participate in onsite visits of Clearstream entities, which regularly take place as part of the supervisory examination program of BaFin and Bundesbank. In the case of Singapore such onsite visits are subject to the signature of a letter of undertaking. The College is formalized through a written coordination and cooperative arrangement in line with EBA standards. • In the context of the SSM, the CSSF and the BCL (for liquidity supervision) cooperate with ECB as regards the supervision of CBL as LSI. The cooperation primarily involves the exchange of information, with local authorities being directly in charge of LSI supervision. Within the SSM, an FMI Network has been established, where the CSSF and the BCL, in its role as liquidity supervisor, participate. • Due to the interoperable link between CBL and Eurodear Bank SA/NV (the Bridge), Luxembourg authorities cooperate with the Belgian authorities. Meetings between the Belgian and Luxembourg supervisors/overseers (BCL, CSSF, National Bank of Belgium), including joint meetings with CBL and Eurodear Bank SA/NV, are organized on a regular basis (at least once a year). The cooperation between the Belgian and Luxembourg supervisors and overseers fulfils the common interest of the authorities for the good functioning of the Bridge and for the ICSDs' compliance with the PFMI. A crisis contact list has been set up for the authorities to contact each other in case of incidents. A formalization of the cooperation between the Luxembourg and Belgian authorities under the form of an MoU is currently under discussion and is planned to be signed within the next months. The ECB will be invited to join the MoU as an observer. The involvement of the ECB is motivated given its responsibilities with respect to the financial stability and the payments, clearing and settlement systems and the systemic relevance of the ICSDs for the functioning of the EU markets.
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- The BCL signed an MoU with the Czech National Bank in 2009 concerning the oversight of Clearstream Operations Prague s.r.o.. The latter is a fully owned subsidiary of Clearstream International S.A. and provides certain operational activities to CBL.
- The BCL also signed an MoU in 2009 with the Monetary Authority of Singapore for the effective surveillance of the activities of CBL and CBL Singapore branch. The latter provides operational activities to CBL.
- The BCL cooperates with the ECB Market Infrastructure department in the assessment of CBL as SSS that is used by the ECB for its credit operations (the so-called user assessment).

Other SSS

- The BCL signed a bilateral MoU with Danmarks Nationalbank in 2008 concerning the oversight of VP LUX S.à.r.l. and VP SECURITIES. VP LUX S.à.r.l. relies on services provided by VP SECURITIES and the latter fully owns VP LUX S.à.r.l..

Other

- As a member of the Eurosystem, the BCL also cooperates with other authorities and central banks within the European Union and at the international level.
- As banking supervisor, the CSSF signed a number of cooperation agreements with other banking supervision authorities.
- The CSSF participates in several CCP EMIR Colleges, and signed standard CCP EMIR College cooperation agreements.

Future CSDR

Finally, cooperation arrangements regarding entities with CSD activities established in Luxembourg will be subject to changes following the planned implementation of the CSDR.

Cooperation during crisis events

At the BCL level, internal crisis committees for financial or operational emergency situations have been set up with the aim to facilitate the BCL internal coordination and the decision making by the BCL Management Board in such situations. The BCL crisis manual contains contact details of relevant authorities and supervised entities in Luxembourg, including CBL.

In addition, a BCL internal group has been set up to ensure a horizontal coordination and exchange of information on topics relating to CBL covering the various missions of the BCL in this regard. The group meets on a frequent basis and reports to the BCL Management Board. CSSF maintains

	<p>lists with the contact details of key employees. There is no crisis management arrangement between the BCL and CSSF at a national level.</p> <p>The above mentioned bilateral MoUs with foreign authorities contain among others provisions for exchanging information, particularly in crisis situations, in order to ensure an effective supervision/oversight of the respective entities.</p> <p>At the Eurosystem level, a crisis communication framework covering all types of FMIs has been set up to ensure a timely and accurate dissemination of information.</p> <p>The Clearstream banking supervisory college contains a framework for the planning and coordination of supervisory activities in preparation for and during emergency situations. This framework includes contact persons and contact details for emergency situations and defines the information to be exchanged and procedures to be followed in an emergency situation.</p> <p>Referring to the Bridge, a crisis contact list has been set up between the Belgian and Luxembourg supervisors and overseers. The authorities will contact each other in case of emergency situation or major incident.</p>
<p>Key consideration 2</p> <p>If an authority has identified an actual or proposed operation of a cross-border or multicurrency FMI in its jurisdiction, the authority should, as soon as it is practicable, inform other relevant authorities that may have an interest in the FMI's observance of the CPSS-IOSCO Principles for financial market infrastructures.</p>	<p>As an ICSD, CBL provides cross-border and multicurrency services. The other SSSs/entities offer limited cross-border and/or multicurrency activities.</p> <p>The international nature of the operations of CBL is well known at the domestic and at the cross-border level. Foreign central banks are well aware that their currency is settled in CBL and more than 60 central banks have opened an account with CBL. Considering the above, the BCL and CSSF do not actively notify other relevant authorities on the cross-border or multicurrency services provided by CBL. When approached by other authorities, the BCL and CSSF stand ready to cooperate and respond to information requests, taking into account the interest and competence of the foreign authority.</p>
<p>Key Consideration 3</p> <p>Cooperation may take a variety of forms. The form, degree of formalization and</p>	<p><i>BCL and CSSF</i></p> <p>The legal framework provides the BCL and CSSF with the basis for cooperation. In practice, both authorities closely cooperate in the performance of their oversight and/or supervision activities in light of their respective competences.</p>

<p>intensity of cooperation should promote the efficiency and effectiveness of the cooperation, and should be appropriate to the nature and scope of each authority's responsibility for the supervision or oversight of the FMI and commensurate with the FMI's systemic importance in the cooperating authorities' various jurisdictions. Cooperative arrangements should be managed to ensure the efficiency and effectiveness of the cooperation with respect to the number of authorities participating in such arrangements.</p>	<p>There is, however, no formal cooperation agreement between the BCL – Oversight, the BCL – Liquidity supervision and the CSSF for the oversight and supervision of the four SSS in Luxembourg. However, the liquidity supervision of relevant FMIs (i.e. those FMIs having a banking license) is based on a working level agreement between the BCL and the CSSF.</p> <p><i>Luxembourg and Belgian authorities</i></p> <p>The cooperation arrangement between the BCL – Oversight, the CSSF and the National Bank of Belgium for the Bridge between CBL and Euroclear enables coordination of oversight and supervisory actions regarding the Bridge and more generally the observance of the ICSDs with the PFMI. The forthcoming cooperation agreement under discussion between the Luxembourg and Belgian authorities (with ECB as observer) will further promote the efficiency and effectiveness of the cooperation between BCL, CSSF, NBB (with ECB as observer) with respect to the ICSDs. The draft cooperation agreement defines modalities in terms of compliance assessments, notification of material changes, information sharing, cooperation in crisis management, meetings. The involvement of the ECB could contribute to increased consistency and prudence in the definition and implementation of supervisory and oversight requirements.</p> <p><i>Luxembourg and German authorities</i></p> <p>The cooperative arrangement signed between the Luxembourg and German authorities promotes the efficiency and effectiveness of the cooperation. This cooperation arrangement defines modalities in terms of information exchange, supervisory review and evaluation process, crisis and emergency. This agreement is in line with the EBA standards.</p>
<p>Key Consideration 4 For an FMI where cooperative arrangements are appropriate, at least one authority should accept responsibility for establishing efficient and effective cooperation among all relevant authorities. In international cooperative arrangements where no</p>	<p>In general, the lead authority mainly coordinates the cooperation and centralizes the preparation of meetings.</p> <p>The bilateral MoUs established by the BCL with the Czech National Bank, the Monetary Authority Singapore and the Danish Nationalbank were initiated by the BCL based on its responsibility for the oversight of the SSS, which are established in Luxembourg.</p> <p>The cooperation between the BCL and CSSF is based on legal provisions in their respective organic laws. The responsibility for establishing cooperation thus lies with both authorities, in line with their respective legal mandates.</p>

<p>other authority accepts this responsibility, the presumption is the authority or authorities with primary responsibility in the FMI's home jurisdiction should accept this responsibility.</p>	<p>For the cooperation agreement signed with the German authorities, the German authorities have the lead (in line with the EBA framework for Supervisory Colleges).</p> <p>Referring to the cooperation between the Belgian and Luxembourg authorities in the context of the Bridge, the authorities share responsibilities for the good functioning of the Bridge and the ICSDs' compliance with the PFMI. The agenda is jointly set and topics are discussed on an equal footing. The meetings are organized on a rotation basis in Luxembourg and Belgium by the respective central banks. The cooperation agreement currently under discussion does not foresee that an authority takes the lead responsibility.</p> <p>For the agreements in place for CCP Colleges, in which the CSSF is member, the authority with primary responsibility in the CCP home jurisdiction has the lead.</p> <p>With respect to TARGET2, the ECB acts as lead overseer.</p>
<p>Key Consideration 5 At least one authority should ensure that the FMI is periodically assessed against the principles and should, in developing these assessments, consult with other authorities that conduct the supervision or oversight of the FMI and for which the FMI is systemically important.</p>	<p>The BCL and the CSSF jointly assess relevant entities against the PFMI, with the BCL taking in practice the lead.</p> <p>In general, Luxembourg authorities do not consult with other relevant authorities on assessments during the assessment work. They would share the assessment, if existing cooperation agreements include such sharing of the assessment. Without a cooperation agreement, Luxembourg authorities would see on a case by case basis how to react to a request from an authority to receive the assessment or parts of it.</p> <p>In this context, relevant outcomes are shared with selected authorities, such as the National Bank of Belgium as far as the Bridge is concerned, and the ECB/Eurosystem central banks for the purpose of the assessment of SSSs to determine their eligibility for use in Eurosystem credit operations.</p>
<p>Key Consideration 6 When assessing an FMI's payment and settlement arrangements and its related liquidity risk-management procedures in any currency for which the FMI's settlements are systemically important</p>	<p>The BCL – Oversight, in cooperation with the CSSF, assess the payment and settlement arrangements of the SSS operating in Luxembourg and their related liquidity risk management procedures, where appropriate. The analysis of the payment and settlement arrangements and of the liquidity needs and sources covers in principle any settled currencies, while the focus of the BCL liquidity supervision is on EUR, USD and GBP as significant currencies.</p>

<p>against the principles, the authority or authorities with primary responsibility with respect to the FMI should consider the views of the central banks of issue. If a central bank of issue is required under its responsibilities to conduct its own assessment of these arrangements and procedures, the central bank should consider the views of the authority or authorities with primary responsibility with respect to the FMI.</p>	<p>Central banks, in their quality of central banks of issue, are currently not consulted by the Luxembourg authorities when assessing the payment arrangements.</p> <p>The CSDR foresees that the central banks in the EU issuing the most relevant currencies in which settlement takes place will be involved in the authorization and supervision of CSDs. The central banks of issue will also be involved in the authorization and supervision of banking-type ancillary services. While the corresponding regulatory technical standards and delegated acts are not yet finalized, it is expected that some European central banks of issue will be considered as potential relevant authority with respect to CBL.</p> <p>At the Eurosystem level, discussions are still ongoing to define the internal framework for the above described contributions by the central bank of issue in the context of the CSDR, including the question on which central bank(s) should represent the Eurosystem as central bank of issue in practice. For the ICSDs, the current assumption is that the local central bank will contribute as central bank of issue in cooperation with the ECB.</p>
<p>Key Consideration 7 Relevant authorities should provide advance notification, where practicable and otherwise as soon as possible thereafter, regarding pending material regulatory changes and adverse events with respect to the FMI that may significantly affect another authority's regulatory, supervisory, or oversight interests.</p>	<p>At the national level, the BCL and the CSSF would inform each other of pending material regulatory changes and adverse events with respect to an overseen or supervised entity that may affect the interests of the other authority.</p> <p>At the Eurosystem level, the BCL - Oversight may, as well as other national central banks, inform the other Eurosystem members on pending material regulatory changes that may affect the respective regulatory, supervisory or oversight interests of another authority.</p> <p>Referring to the bilateral MoUs signed by the BCL with foreign authorities, they foresee that the authorities inform each other in case of events or developments, which may have a material adverse impact on the activity or risk management framework of the concerned entities.</p> <p>With the importance of the Bridge, material adverse events touching this interoperable link could have a significant negative impact. The Luxembourg authorities would inform the Belgian authorities in case they identified a material adverse event.</p> <p>As concerns the College of supervisors for Clearstream Group, the notification in case of emergency situations is specified under the framework agreement. As members of the College, the CSSF and the BCL</p>

	<p>share any pending material regulatory changes and adverse events with respect to CBL with the German authorities.</p> <p>As regards the SSM, a notification procedure is established regarding LSIs.</p>
<p>Key Consideration 8</p> <p>Relevant authorities should coordinate to ensure timely access to trade data recorded in a TR.</p>	NA
<p>Key Consideration 9</p> <p>Each authority maintains its discretion to discourage the use of an FMI or the provision of services to such an FMI if, in the authority's judgment, the FMI is not prudently designed or managed or the principles are not adequately observed. An authority exercising such discretion should provide a clear rationale for the action taken both to the FMI and to the authority or authorities with primary responsibility for the supervision or oversight of the FMI.</p>	<p>The BCL has not exercised discretion to discourage the use of an FMI operated in Luxembourg or elsewhere, or the provision of services to them, on the grounds that they would not be prudently designed or managed, or that the principles are not adequately observed.</p> <p>The CSSF considers that it would be inappropriate or even impossible to discourage the use of a supervised entity that has a license. In case the CSSF opined that an entity was not prudently designed or managed, or did not adequately observe the principles, the CSSF would take action. However, the CSSF would discourage the use only in case it identified an entity acting as FMI without having the required license(s).</p>
<p>Key Consideration 10</p> <p>Cooperative arrangements between authorities in no way prejudice the statutory or legal or other powers of each participating authority, nor do these arrangements constrain</p>	<p>The formal arrangements that are in place do not prejudice or constrain the respective powers or discretion of the participating authorities.</p>

<p>in any way an authority's powers to fulfill its statutory or legislative mandate or its discretion to act in accordance with those powers.</p>	
<p>Key Conclusions for Responsibility E</p>	<p>The Luxembourg authorities are cooperating and coordinating with other supervisory authorities, both at a national as well as international level. In order to fully comply with Responsibility E it is recommended that the BCL and CSSF:</p> <ul style="list-style-type: none"> - Conclude a MoU for the national supervision and oversight of CSDs. Although the authorities currently cooperate well at a working level without such a formal agreement, the agreement would support transparency and accountability by specifying at which level the authorities cooperate, what information they share, and how they coordinate, not only in normal, but also in crisis circumstances. - Include relevant foreign authorities and central banks in their assessment procedures. As required in KC5 and KC6 the BCL and CSSF should consult foreign authorities and central banks as part of their assessment of CBL against the PFMI and formalize an approach for the sharing of information. - Conclude, as planned, the MoU with the Belgian authorities, and the ECB as observer. <p>Finally, it is important that the CBL and Euroclear Bank as ICSDs are included in the SSM supervision as SI. As both ICSDs are highly relevant for the global financial stability the supervisory approach should be further harmonized by a consistent implementation of supervisory requirements. This will contribute to the stability of both ICSDs and ensure a level playing field. Although the supervisory approaches are expected to be further harmonized with the implementation of the CSDR, there would still be ample room to further harmonize supervisory requirements. It is therefore recommended that both entities will be subject to supervision by the SSM, beyond the current status of LSI. Similarly, CBL (and Euroclear Bank) should be under the remit of the SRB.</p>
<p>Assessment of Responsibility E</p>	<p>Broadly Observed</p>

Recommendations and comments	It is recommended to conclude a national MoU between the BCL and CSSF that covers cooperation and coordination arrangements in normal and crisis times. Also, cooperation with foreign authorities should be improved through formal consultations during assessments against the PFMI. The planned MoU with the Belgian authorities, and the ECB as observer, should be finalized and signed. Finally, the two ICSDs should be recognized as SI institution by the SSM as well as be placed on the SRB list.
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AUTHORITIES' RESPONSE

The Banque centrale du Luxembourg (BCL) and the Commission de surveillance du secteur financier (CSSF) welcome the IMF assessment of Clearstream Banking SA, as financial market infrastructure, against the CPMI/IOSCO Principles for Financial Market Infrastructures. The BCL and the CSSF also appreciate the detailed assessment of the Luxembourg authorities against the CPMI/IOSCO Responsibilities for authorities.

The BCL and the CSSF take note of the observations and conclusions of the IMF assessment of Clearstream Banking SA and will thoroughly consider the recommended actions suggested by the IMF in this respect. In addition, the BCL and the CSSF will give due consideration to the observations made by the IMF with regard to the Responsibilities for authorities.

We are of the opinion that the IMF has performed a thorough and comprehensive assessment and would like to thank the IMF assessor for the constructive and interactive approach.

Appendix I. Systemic Interdependencies CBL in Global Financial System

I. Exposure of CBL to various types of stakeholders

Stakeholder	Description	Systemic impact	Mitigation tools
Participants - direct	<p>Failure of a participant with credit facility may cause credit and liquidity risks.</p> <p>If a direct participant fails without credit facility there is no credit or liquidity risk.</p> <p>Operational risk in both cases is limited.</p>	Limited. Only if more than the two largest participants with a credit facility fail there may be a liquidity risk for CBL.	<p>Credit risk framework described in Principle 4 (credit limits, collateralization, haircuts).</p> <p>Liquidity risk framework described in Principle 7 (credit limits, stress testing, sufficient high quality liquid resources).</p>
Participant - indirect	<p>Failure of an indirect participant typically has no impact on CBL.</p> <p>However, failure of a large indirect participant, using 1 or multiple direct participants may cause failure of direct participant and thus expose CBL to credit and liquidity risks.</p>	Limited. No data on indirect participants.	<p>Credit risk framework described in Principle 4.</p> <p>Liquidity risk framework described in Principle 7.</p> <p>Tiered participation approach described in Principle 19.</p>
Users of the ASLplus facilities	Failure of a lender or borrower of the ASLplus exposes CBL to credit (and liquidity) risk as CBL guarantees the arrangement.	Substantial as the ASLplus service is heavily used, which may increase if interest rates increase	<p>Credit risk framework described in Principle 4.</p> <p>Liquidity risk framework described in Principle 7.</p>

Euroclear Bank	Failure of Euroclear Bank would disrupt bridge settlements. CBL is exposed to EB and may face credit and liquidity exposures.	Substantial (bridge settlements daily average of 115 billion EUR)	Credit risk framework described in Principle 4. Liquidity risk framework described in Principle 7. Links described in Principle 20.
Depository banks – domestic agent (for the account of Clearstream with the local CSD)	Failure of a domestic agent exposes CBL to operational and reputational risk.	Limited, unless bank services multiple markets or if there is only one bank in large market.	Principle 3 interdependencies.
Depository banks – local custodian	Failure of a local custodian exposes CBL to operational and reputational risk. Any credit risk through advanced payments?	Limited, unless bank services multiple markets or if there is only one bank in large market.	Principle 3 interdependencies.
Depository banks – international agent that hold and service international securities	Failure of a local custodian exposes CBL to operational and reputational risk. Any credit risk through advanced payments?	Limited, unless bank services multiple markets or if there is only one bank in large market.	Principle 3 interdependencies
Depository banks – international agent that (only) service international securities	Failure of a domestic agent exposes CBL to operational and reputational risk.	Limited, unless bank services multiple markets or if there is only one bank in large market.	Principle 3 interdependencies
Linked CSD	Failure of a local custodian exposes CBL to operational and reputational risk.	Limited	Principle 20 on links
Cash Correspondent Banks	Failure of a CCB exposes CBL to credit, liquidity and operational risks	Substantial	

National Central Banks	Failure of a central bank does not allow CBL to conduct cash settlements in the specific currency and exposes CBL to operational and liquidity risks	Substantial	Risk is considered low. Reliance on overseers and operators of central bank systems.
SWIFT	Failure of SWIFT exposes CBL to operational risk	Substantial	Assessment as Critical Service Provider.
Telecommunications	Failure of SWIFT exposes CBL to operational risk	Substantial	BCP described in Principle 17. Plus assessment as Critical Service Providers.
Deutsche Börse	<p>Failure of parents may expose CBL to reduced set of recovery options. CBL currently considers a capital injection by its parent company DBAG as the key recovery option.</p> <p>Shared services with the broader DBAG group are: Human Resources, Risk Management, Accounting, Audit, Compliance and certain IT services, such as office automation.</p>	Substantial	<p>CBL should have a recovery scenario and strategy to manage loss of access to parent.</p> <p>Service requirements are defined in SLAs.</p>
Clearstream Group entities	Services provided by Clearstream Services are IT. Services provided by Clearstream International are IT, the credit function, and the risk management function.	Substantial	Service requirements are defined in SLAs.

II. Stakeholders' interdependencies towards CBL

Stakeholder	Description	Systemic impact	Mitigation tools
Participants	<p>If CBL fails participants will be unable to settle their transactions. Participants may lose cash deposited at cash accounts in CBL and face credit and liquidity risk.</p> <p>Although participants' securities accounts are protected they may face a delay in accessing the securities. This includes collateral kept by central banks and main CCPso cover their risks. This may impact global financial markets.</p>	<p>Significant.</p> <p>Value of assets kept in CBL is 6 trillion EUR of which on average 480 billion for collateral management purposes per month.</p>	<p>Participants may use other CSDs to settle and other financing tools outside CBL. They may however not be able to access their securities in CBL.</p> <p>In recovery and resolution plans for CBL could add the portability of securities accounts to Euroclear Bank.</p>
Euroclear Bank	Failure of CBL would disrupt bridge settlements. EB is exposed to CBL and may face credit and liquidity exposures.	Substantial	Principle 20 in links and other relevant PFMI principles.
Depository banks	Failure of CBL would disrupt the business of depository banks and may impact their income stream.	Limited	
Local CSDs	Failure of CBL would disrupt services of local CSDs to their clients	Limited	
CCBs	Failure of CBL would disrupt the business of CCBs and may impact their income stream.	Limited	
Central banks	Failure of CBL would limit central banks in execution of credit operations. Central bank will be unable to use collateral services of CBL as their securities are stuck in their accounts. This may impact global financial markets. Central banks also represent 75 percent of lenders in ASL+ service.	<p>Significant.</p> <p>Credit operations amount to billions EUR on a daily basis.</p>	Use of alternative settlement systems.