

Pillar III Disclosure Report of Clearstream Group 2014

Disclosures as of 31 December 2014

Pillar III Disclosure Report of Clearstream Group 2014 - According to Part 8 of the Regulation (EU) No. 575/2013 (Capital Requirements Regulation [CRR]) in conjunction with § 26a German Banking Act (Kreditwesengesetz, KWG).

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Foreword

The purpose of the document is to fulfil regulatory disclosure requirements originally based on the "Basel II" framework. The Basel II rules have been amended with the revised Basel banking framework (Basel III). For the European Union (EU), the current disclosure framework covers the "Basel III" requirements and includes some additional components as laid down by Directive 2013/36/EU (Capital Requirements Directive - CRD IV) and Regulation (EU) No 575/2013 (Capital Requirements Regulation - CRR), commonly known as the CRD IV package.

Clearstream Holding AG (CH) has been classified as a financial holding company as defined in Article 4 paragraph 1 number 20 CRR and, together with its subordinated companies, notably Clearstream International, S.A., Luxembourg (CI), Clearstream Banking S.A., Luxembourg (CBL) and Clearstream Banking AG, Frankfurt/Main (CBF), forms a financial holding group under German law.

This Group (hereafter called Clearstream Group, CH-Group or Clearstream) is subject to consolidated supervision by the Federal Financial Supervisory Authority (Bundesanstalt für Finanzdienstleistungsaufsicht, BaFin).

CH is, according to the German Banking Act (Kreditwesengesetz - KWG), a superordinated company of the regulatory Clearstream Group and therefore responsible for publishing this disclosure report in line with the provisions of Article 13 CRR in combination with further level 2 technical standard and additional EBA guidelines.

The figures for Clearstream Holding group follow the consolidation provisions set out in Article 18 to 24 of CRR in combination with the rules of § 10a (4) KWG and the German Generally Accepted Accounting Principles (German GAAP), based on the German Commercial Code (Handelsgesetzbuch, HGB). As all Clearstream companies - regardless of accounting and/or regulatory consolidation - are included in the consolidated annual accounts/annual report of the ultimate parent company Deutsche Börse AG, Frankfurt/Main (DBAG), CH is, according to § 291 of the HGB, exempted from the obligation to draw up consolidated statutory accounts. Consolidated financial figures are therefore set up for regulatory purposes only.

Clearstream Group fulfils the disclosure requirements detailed in Part 8 CRR and § 26a KWG which has transposed the disclosure requirements of Articles 89 to 96 CRD IV into German law as follows:

- A remuneration report that fulfils the requirements according to Article 450 CRR. That report is disclosed by year on the Clearstream Group website. www.clearstream.com/clearstream-en/about-clearstream/regulation--1-/compensation-information
- All other disclosure requirements as defined in Part 8 CRR and the related technical standards are published within this Pillar III Disclosure Report which can also be found by year on the Clearstream Group website. www.clearstream.com/clearstream-en/about-clearstream/regulation--1-/pillar-iii-disclosure-report
- Information about the Governance Arrangements stipulated in § 26a (1) sentence 1 KWG (implementation of Article 88 CRD IV into German law) are included in within this Pillar III Disclosure Report.
- The Country-by-Country reporting to fulfil the requirements according to § 26a (1) sentence 2 KWG (implementation of Article 89 CRD IV into German law) is included as an annex to the financial statement of CH which is published on the German Federal Gazette website. www.bundesanzeiger.de

Foreword

- This Pillar III Disclosure Report also contains information about the Return on Assets (RoA) according to § 26a (1) sentence 4 KWG (implementation of Article 90 CRD IV into German law).

In the following, we always refer to the respective laws in place during the reporting period (that is, 2014 and in principle as valid on 31 December 2014 if not stated otherwise).

How this document is organised

The report is presented over nine chapters, as follows:

1. Introduction;
2. Implementation of Basel III at Clearstream;
3. Risk management overview;
4. Management of operational risk;
5. Management of credit risk;
6. Management of market risk, including interest rate risk in the non-trading book;
7. Management of liquidity risk;
8. Capital structure, capital ratio and Return on Assets;
9. Governance arrangements.

An explanatory list of the abbreviations used is provided as an appendix to this document.

Contact details

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1. Introduction

The information in this chapter is presented in the following sections:

1.1 Background below;

1.2 The Basel II "Three Pillars" framework on page 1-4;

1.3 Information about Clearstream Group on page 1-18.

1.1 Background

1.1.1 Basel II framework

In 2004, the Basel Committee on Banking Supervision (BCBS) published its revised Banking Regulatory Framework commonly known as Basel II¹. Basel II contained completely renewed capital requirements for credit risk including credit risk mitigation techniques, the introduction of capital requirements for operational risk and continued with the capital rules for market risk of the Basel I framework (Pillar I). It contained further elements known as Pillar II and Pillar III (see the "Three Pillars" framework below). The requirements expressed in the Basel II framework were transposed into European legislation as the Capital Requirements Directive (CRD), comprising Directive 2006/48/EC and Directive 2006/49/EC. CRD was consequently transposed into German and Luxembourg Law.

The Basel II framework itself did not apply to any of the Clearstream entities.

Due to ongoing permanent work to optimise banking supervision, and partly driven by the financial crisis starting in 2007, the BCBS has updated the Basel II framework over time. A package with first major amendments to the Basel II regulation was published in July 2009².

Based on these amendments the EU also changed the CRD provisions. A first amendment package (Directive 2009/111/EC, CRD II) mainly introduced changes to the capital definitions, the solvency framework for securitisation and the Large Exposure rules, while a second amendment (Directive 2010/76/EU, CRD III) covered the implementation of changes to the Trading Book / Market risk rules as well as introducing rules on remuneration practices and policies. Both directives have been transposed into national law.

1. <http://www.bis.org/publ/bcbsca.htm>

2. Enhancements to the Basel II Framework, <http://www.bis.org/publ/bcbs157.htm>;
Revision to the Basel II Market Risk Framework, <http://www.bis.org/publ/bcbs158.htm>;
Guidelines for Computing Capital for Incremental Risk in the Trading Book, <http://www.bis.org/publ/bcbs159.htm>.

Introduction

1.1.2 Basel III framework

After the first major amendment package to the Basel II framework, the BCBS published in December 2010 the second major amendment package and a revised version in June 2011, also known as Basel III framework¹.

In particular, Basel III includes a revised definition of capital, additional risk buffers for expected losses, the introduction of anticyclical capital buffers, the introduction of a leverage ratio (put simply, a minimum ratio of capital to unweighted total assets plus off-balance-sheet risk positions), stricter liquidity management requirements and closer monitoring of liquidity by supervisory authorities (in particular the introduction of quantitative minimum ratios for short-term (Liquidity Coverage Ratio - LCR) and medium-term liquidity (Net Stable Funding Ratio - NSFR)) and credit valuation adjustments (CVA) for certain Over-The-Counter (OTC) derivatives exposures.

The Basel III package also comprises a general revision of the capital requirements for exposures to central counterparties (CCPs). This topic has been revised twice. An updated set of interim rules were issued in July 2012² and a revised final standard was published in April 2014³. On 1 January 2017 the final standard will supersede the interim rules.

The Basel III rules contain partially transitional rules starting 2013 and lasting until 2019.

Certain details with regard to liquidity and leverage ratios are foreseen to be adjusted and fine-tuned up until 2019.

The Basel III rules have been implemented in the EU by means of a regulatory package replacing the CRD. This package is commonly known as "CRD IV", consisting of a directive⁴ and a regulation⁵. Both legal documents were published in July 2013 and have been in force since 1 January 2014. The CRD IV directive itself had to be transposed into national law by that date.

In addition to CRD IV and CRR, substantial parts of the implementation are steered via technical standards drafted by the European Banking Authority (EBA). The EBA has prepared a large number of such standards and the majority have been put in place by the EU Commission. These Level 2 implementing measures are important for the regulatory standards as of 2014 and also for the Pillar III disclosure report and other disclosures for the year 2015 and beyond. There are still some standards outstanding and other are to come in the next years.

EU legislation has incorporated a number of the Basel amendments and additions that the BCBS had published by the middle of the second quarter of 2013 including the interim rule set for exposures towards CCPs as issued by the BCBS in the context of its ongoing review. The aim is to transpose further amendments arising from the Basel process into EU law without delay via Level 2 texts or review clauses.

The CRD IV package did not only transform the Basel III rules as such but also implemented additional components. These components include dedicated rules for capital requirements related to systematic risk and systematically important institutions. On top of that, limits on the variable part of the remuneration, strengthened corporate governance rules and, by means of CRR being valid directly in all EU (EEA) countries, a more or less fully harmonised "single rule book" has been introduced in the EU.

Whereas the Basel III rules only apply directly to global commercial banks with an international remit, the EU rules apply - as for Basel II - to all banks that operate in the EU. The CRD IV package therefore partly addresses both regional- and size-related issues and provides specific or modified regulations for certain types of business.

1. The main documents of this package are: "Basel III: A global regulatory framework for more resilient banks and banking systems", <http://www.bis.org/publ/bcbs189.htm>, and "Basel III: International framework for liquidity risk measurement, standards and monitoring", <http://www.bis.org/publ/bcbs188.htm>.
2. Capital requirements for bank exposures to central counterparties, interim rules: <http://www.bis.org/publ/bcbs227.htm>
3. Capital requirements for bank exposures to central counterparties: <http://www.bis.org/publ/bcbs282.htm>.
4. Directive 2013/36/EU of the European Parliament and of the Council: <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2013:176:0338:0436:EN:PDF>.
5. Regulation (EU) No 575/2013 of the European Parliament and of the Council: <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2013:176:0001:0337:EN:PDF>.

CRD IV and the options to be exercised at national discretion by competent authorities under the CRR were implemented in Germany by way of the "CRD IV-Umsetzungsgesetz" (CRD IV Implementing Act) of 3 September 2013, as well as by a number of regulations published in the second half of December 2013. In addition, small corrections and adoptions have been introduced in Germany with the "Financial Markets Laws Amendment Act" (Gesetz zur Anpassung von Gesetzen auf dem Gebiet des Finanzmarktes) of 15 July 2014.

For Luxembourg, the Commission du Secteur Financier (CSSF) issued Circular 12/552 covering individual aspects in 2012 with some updates later on. In addition, the CSSF issued CSSF Regulation 14-01 to implement the rules for items under their discretion under CRR in 2014. CRD IV was finally implemented in Luxembourg with the law of 23 July 2015.

1.1.3 Beyond Basel III

Having finalised the Basel III framework, the BCBS is continuing the development of the regulatory framework. Meanwhile, rules for systematically important banks (SIBs)¹, on intraday monitoring of liquidity² and a final standard for measuring and controlling large exposures³ have been issued. In April 2014, the BCBS finalised its work on the capital treatment of bank exposures to central counterparties and published the final standard that will take effect on 1 January 2017⁴. Until then, the interim capital requirements for bank exposures to central counterparties will continue to apply.

Furthermore, rules for a fundamental review of the trading book were proposed in October 2013 and April 2014⁵, whereas the review of the Basis Indicator Approach and the Standardised Approach for Capital Charges of Operational risk was initiated in October 2014⁶.

On top of that, a first proposal to revise the Standardised Approach for Credit Risk and Credit Risk Mitigation Techniques has been issued for consultation (December 2014)⁷. In addition, a revision of the so called Basel I floor has been initiated with the aim to replace this with a floor for the model based approaches for all categories of risks in relation to the capital charges calculated by the Standardised Methods (December 2014)⁸. Finally, the Financial Stability Board (FSB) has issued a proposal for the "Total Loss Absorbing Capacity" (TLAC)⁹ in order to overcome capital shortages in crisis / resolution situations which in the past led to the intervention with tax payers money. None of these initiatives has so far led to a final rule set.

The BCBS has also indicated a broader review of the treatment of sovereign risk in the future. Moreover, the model based approaches for Operational Risk (Advanced Measurement Approach - AMA) and Credit Risk (Internal Rating Based Approaches - IRBA) are supposed to be reviewed by the BCBS.

It is supposed at some point in time, that all the BCBS measures in addition to Basel III will be summarised in a Basel IV framework. Furthermore, it is expected that the appropriate adoption at EU level most likely will lead to a CRD V package including a revised regulation (CRR II). Several important regulatory measures within the EU play an additional role in defining future requirements for banks and have impact on the disclosure requirements. This relates inter alia to the Bank Recovery and Resolution Directive (BRRD) including the Minimum Requirement for Eligible Liabilities (MREL) as well as the introduction of the Single Supervisory Mechanism (SSM).

1. Global systemically important banks: Assessment methodology and the additional loss absorbency requirement - final document: <http://www.bis.org/publ/bcbs207.htm>.
2. Monitoring tools for intraday liquidity management - final document: <http://www.bis.org/publ/bcbs248.htm>
3. Final standard for measuring and controlling large exposures published by the Basel Committee: <http://www.bis.org/press/p140415.htm>.
4. Capital requirements for bank exposures to central counterparties - final standard: <http://www.bis.org/publ/bcbs282.htm>
5. Fundamental review of the trading book - second consultative document: <http://www.bis.org/publ/bcbs265.htm>.
6. Operational risk - Revisions to the simpler approaches: <http://www.bis.org/publ/bcbs291.htm>
7. Revisions to the standardised approach for credit risk: <http://www.bis.org/bcbs/publ/d307.pdf>
8. Capital floors: the design of a framework based on standardised approaches: <http://www.bis.org/bcbs/publ/d306.htm>
9. Adequacy of Loss-Absorbing Capacity of Global Systemically Important Banks in resolution: <http://www.financialstabilityboard.org/2014/11/adequacy-of-loss-absorbing-capacity-of-global-systemically-important-banks-in-resolution/>

Introduction

1.2 The Basel II “Three Pillars” framework

1.2.1 Overview

Different from the former Basel I framework, Basel II introduced three main pillars of banking supervision:

- Minimum quantitative (capital) requirements (Pillar I);
- Supervisory Review Process (Pillar II);
- Disclosure requirements in order to reach market discipline by transparency to the public (Pillar III).

The “Three Pillars” framework evolved over time and further details have been defined. With Basel III new elements have been added to each pillar whereas some existing have been sharpened.

1.2.1.1 Basel II

The “Three Pillars” of the Basel II framework complement each other. [Figure 1-1](#) illustrates the “Three Pillars” model of Basel II.

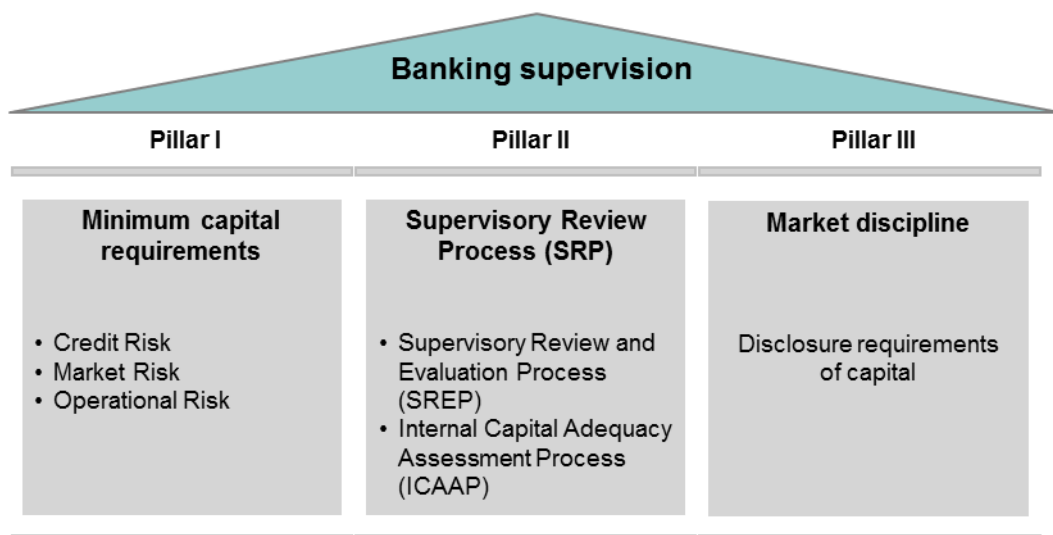


Figure 1-1. “Three Pillars” model of Basel II

Within the “Three Pillars” model, Basel II offered banks in Pillar I the possibility to use different risk measurement approaches per risk category for capital requirements in the range of simple (standardised) to sophisticated model based methods according to their business model.

Besides this, an Internal Capital Adequacy Assessment Process (ICAAP) had been made mandatory and supervisors were obliged to develop a structured approach to review, evaluate and assess the robustness of banks and their risk models including capital adequacy.

In order to get a common view on the risk situation and to allow the market participants to benchmark the capital adequacy of any given bank, disclosure requirements were added with the Pillar III.

1.2.1.2 Basel III amendments

Basel III has been developed mainly to address the deficiencies that occurred during the 2008 financial crisis. As a consequence the "Three Pillar" model was subject to some changes. The basic structure of Basel II remains unchanged with three mutually reinforcing pillars.

However, Pillar I now contains Liquidity in addition to Solvency requirements which were extended by CVA charge and CCP counterparty risk. In addition, a mandatory Leverage Ratio (Pillar I ratio) is in discussion to be potentially added in 2018.

Besides others, Pillar II introduced the Internal Liquidity Adequacy Assessment Process (ILAAP) as a complementary regulating tool for dealing with peripheral risks that banks face.

Under Pillar III several additional disclosures that banks must provide were implemented to further increase transparency. On EU level, additional elements like the Country-by-Country reporting and the Return on Assets were added.

Figure 1-2 describes the amended "Three Pillars" model under Basel III / CRD IV.

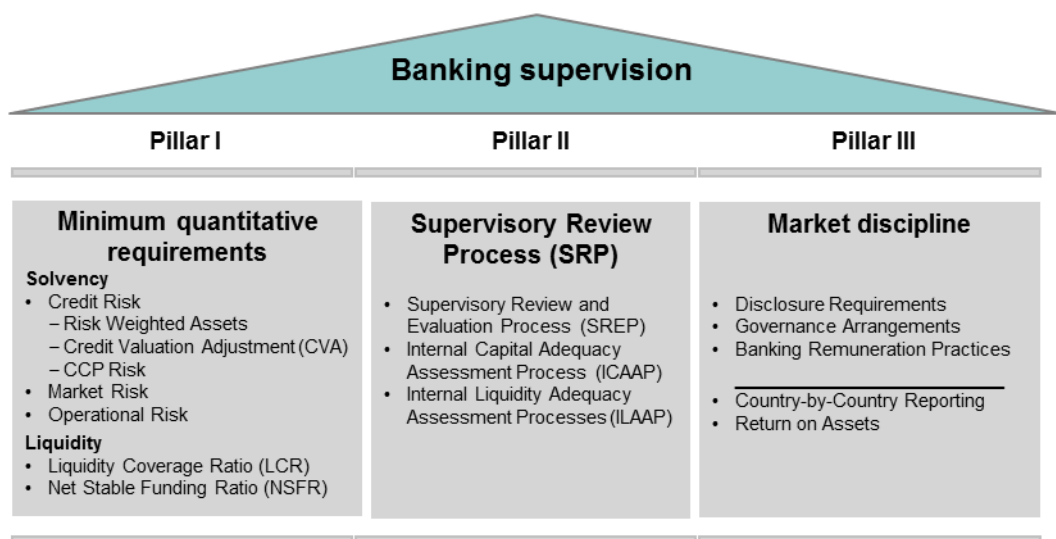


Figure 1-2. "Three Pillars" model of Basel III / CRD IV

The next chapters describe each of the "Three Pillars" and the Basel III framework as applicable in the EU in more detail.

Introduction

1.2.2 Pillar I

1.2.2.1 Solvency

The first pillar deals, amongst other things, with the minimum capital requirements. Capital requirements are to be calculated for credit risk, including CVA charge and CCP counterparty risk, market risk and operational risk. The capital charge for each risk category has to be calculated using an approach that is suitable and sufficient for the individual bank. For the sake of an evolutionary approach, both simple and more refined measurement methods have been defined for each risk category (for detailed information see below).

The own funds requirements for operational, market, CVA and CCP counterparty risk have to be multiplied by 12.5 and are summed up with the risk weighted assets for credit risk to build the total risk exposure. The total risk exposure has to be multiplied by the required capital ratio of the related entity representing the total minimum own funds which is currently at least 8% (see [Figure 1-3](#)).

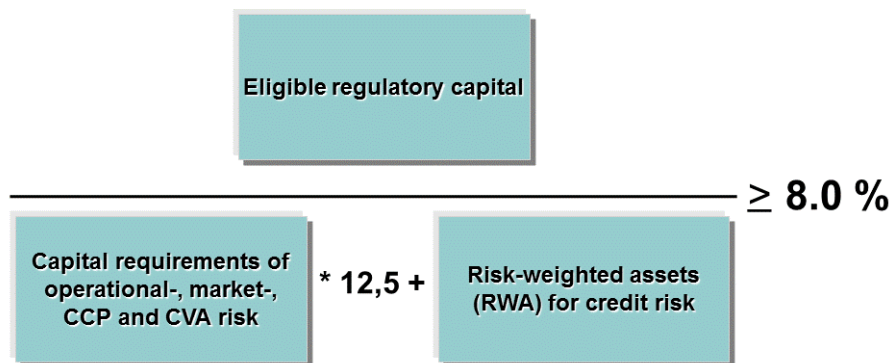


Figure 1-3. Calculation of the minimum capital requirements (capital ratio)

1.2.2.2 Capital

In addition to the introduction of capital charges for CCP risk and CVA risk Basel III introduces further amendments regarding the quantity and quality of minimum capital requirements:

1. Quantitative adjustments in minimum capital requirements:

As described in Figure 1-4, the required mandatory portion of the highest possible quality of own funds (Common Equity Tier 1) will be significantly increased from 2.0% of the total risk exposure amount to at least 4.5% of the total risk exposure amount. Contrary the portion of lower quality capital instruments (Additional Tier 1 and Tier 2) is diminished. In any case, total Tier 1 will have to be at least 6% of the total risk exposure amount as of 2015.

2. Qualitative adjustments with regard to the eligibility of capital instruments:

In the financial crisis several capital components did not show a sufficient loss absorbing capacity caused by, e.g. legal covenants. While the criteria for capital instruments of all three classes (CET1, AT1 and T2) were tightened by Basel III, certain capital instruments used to qualify as eligible capital instruments are not eligible any longer.

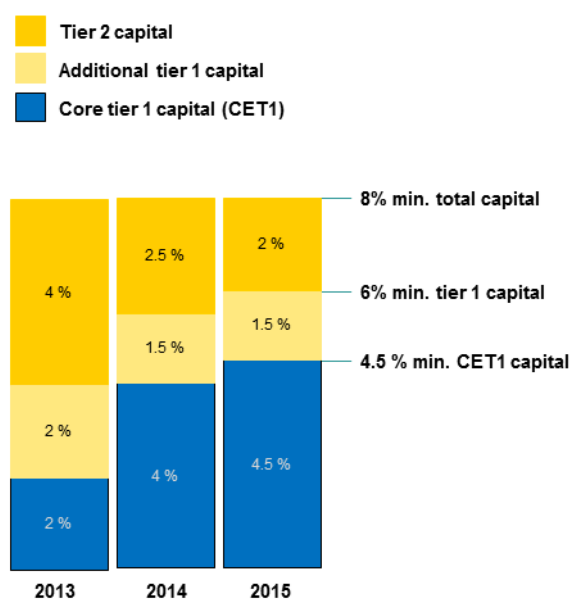


Figure 1-4. Quantitative adjustments in minimum capital requirements

On top of the minimum capital requirements of 8%, Basel III introduced additional capital/risk buffers: A countercyclical buffer and a capital conservation buffer. Subsequently, the BCBS introduced further buffers for systemically important banks: G-SIB and O-SIB buffer. In the EU, CRD IV also introduced the systemic risk buffer which is non cumulative (the highest applies) to the G-SII and O-SII buffers and might be imposed on all total risk exposures or on risk exposures relating to particular statuses.

The capital conservation buffer has been introduced in order to strengthen the capital basis of a bank during profitable times, but allowing for a temporarily underrun in case of an economic downturn of the bank or unexpected/sudden losses.

Similarly, the countercyclical capital buffer has been introduced to ensure that they accumulate, during periods of economic growth in a dedicated region while it may be set to lower levels in case of an economic downturn in that region.

The capital conservation buffer will be phased in from 2016 until 2019 to finally reach 2.5% of the total risk exposure of the institution. In the same manner also the maximum value of the countercyclical buffer will be phased in. Nonetheless, the value will be fluctuating over time depending on the economic situation. The respective amount in principle is set by the competent authority of the individual country in which the (credit) exposures are domiciled. The individual rate of any given bank will therefore be a blended rate taking the size of credit operations in the various countries into account. It is to be noted though, that the authority supervising any given bank may set higher levels of buffer requirements or phase in the requirements faster than the standard phase-in schedule. In Luxembourg the capital conservation buffer has been set to 2.5% of the total risk exposure amount applicable as of 1 January 2014 (no phase-in).

The standard phase-in schedule with the maximum standard requirements is shown in [Figure 1-5](#).

Introduction

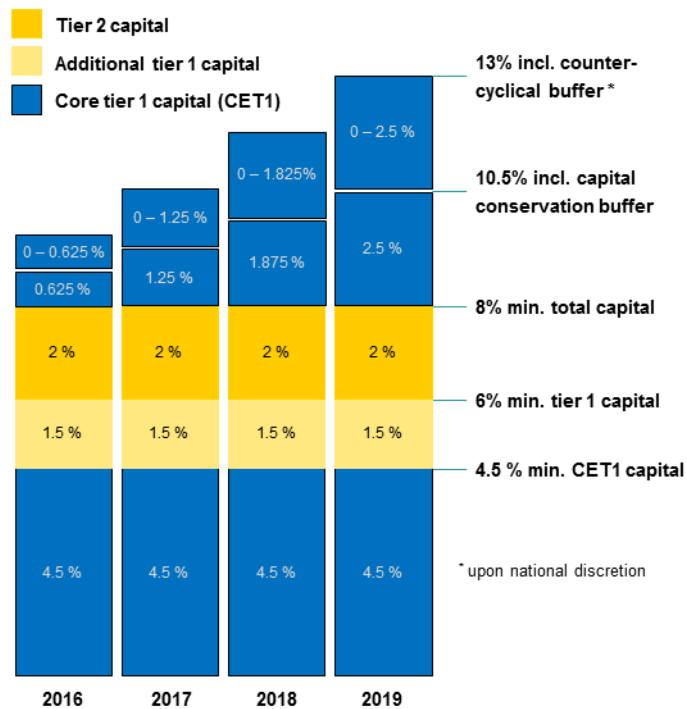


Figure 1-5. Overview of capital requirements and related transitional periods.

Additionally to the buffers illustrated in Figure 1-5, a buffer for systemically important institutions (applicable as of 1 January 2016) and a systemic risk buffer (applicable as of 1 January 2014) are introduced by CRD IV. For G-SIBs, the maximum surcharge is 3.5% of the total risk exposure amount while for O-SIBs the maximum surcharge is limited to 2.0% of the total risk exposure amount. The systemic risk buffer is limited to 5.0% of the total risk exposure amount and might be imposed on isolated exposures as well upon national discretion, e.g. for exposures in a particular country or region. As already described, only the higher of "Systemic risk" or "Systemically Important Bank" buffer is applicable.

The G-/O-SIB buffer has been developed by the BCBS in order to reduce the implicit reliance on state aid ("too big to fail"). The buffer for systemic risk has been introduced by the EU in order to allow further strengthening of the capital basis in case exposures with systemic risk exist.

Figure 1-6 demonstrates how the capital requirements and the additional capital buffers will add up once they are completely phased-in as of 2019.

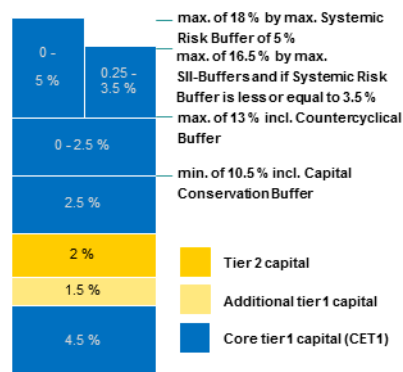


Figure 1-6. Overview of the total own funds requirements feasible as of 1 January 2016.

The minimum capital requirements of 8.0% of the total risk exposure amount and the mandatory minimum portion of a certain quality may not be breached by the credit institutions. In contrast the capital buffers may be underrun for a certain period of time as they are no binding minimum ratios and are explicitly foreseen to balance out unexpected events. The buffers are foreseen to maintain a sufficient capital base to absorb losses in stressed periods. All four mentioned capital buffers must consist of CET1 capital instruments.

If the supervisory authority concludes that application of the risk measurement method is not adequate or appropriate (for example, the method is not sufficient for the particular bank or specific type of business, or the business risk is not appropriately reflected in the method), the supervisory authority may set additional capital requirements via Pillar II measures.

Credit risk (risk weighted assets - RWA)

To measure the credit risk, one simple approach (Standardised Approach - StA) and two advanced approaches (Foundation Internal Rating Based Approach (FIRB) and Advanced Internal Rating Based Approach (IRBA)) are available. The Standardised Approach is based on external credit risk assessments and the two advanced approaches are based on internal ratings.

The calculation of the Risk-Weighted Assets (RWA) for credit risk is shown in [Figure 1-7](#).



Figure 1-7. Calculation of the RWA

The basis for assessment is, in principle, the asset value taking into account the eligible credit risk mitigation techniques (see [Credit Risk Mitigation \(CRM\)](#) on page 1-10). The basis for assessment must be multiplied by a regulatory risk weight that depends on predefined regulatory asset classes and the counterparties' credit risk assessment by a nominated external credit assessment institution (ECAI) or based on internal data depending on the approach chosen.

[Figure 1-8](#) illustrates the choices regarding the assessment of credit risk. In general the capital charge decreases and the risk sensitivity increases with the complexity of the approach. Furthermore, the implementation and running efforts and costs are also increasing with complexity.

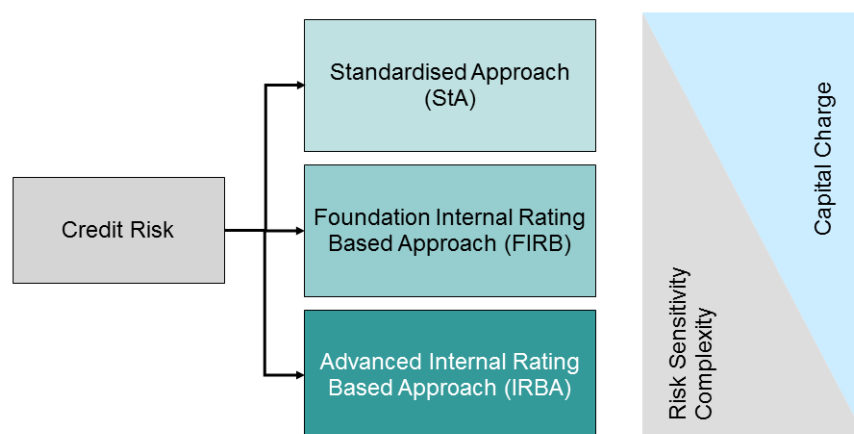


Figure 1-8. Possible calculation methods for the credit risk

The Standardised Approach defines 17 regulatory asset classes that relate partially to counterparty type only and partially to a specific type of business. The risk weights of each of these classes (for example, central governments, public sector entities, corporate institutions, securitisations, covered bonds,

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participations etc.) are fixed (for example, 0%, 20%, 50%, 100% etc.), or depend on ratings given by an accepted external credit assessment institution (ECAI), such as Moody's, Standard & Poor's, Fitch etc.; or are based on credit assessments by Export Credit Agencies (for example, Euler Hermes Kreditversicherungs AG, the Organisation for Economic Cooperation and Development (OECD) etc.).

Credit institutions may use these Export Credit Agencies' credit assessments if the chosen Export Credit Agency participates in the OECD "Arrangement for Officially Supported Export Credits" or the Export Credit Agency publishes its credit assessment and subscribes to the OECD agreed methodology for the purposes of exposures for central governments and central banks.

Furthermore, the credit assessment of the Export Credit Agency must be associated with one of the minimum export insurance premiums (MEIP) that the OECD establishes under this methodology. (for high income states, e.g. Germany, the OECD does not provide country risk classifications anymore).

In order to use the FIRB or the IRBA, banks must fulfil a number of additional requirements. A detailed review of processes, estimates and documentation, as well as explicit permission from the respective supervisor, are necessary to be allowed to use one of the Internal Rating Based Approaches for the calculation of the risk-weighted asset amounts.

Even further developments of the advanced risk measurement systems must be approved by the respective supervisory authority. Using these approaches, the bank does not rely on information provided by an external rating agency but carries out its own assessments, which form the basis for determining potential future losses. These calculated potential losses are in turn used as the basis for the corresponding capital requirements.

The permission of the supervisory authority may be granted:

- In general, for probability of default (PD¹) estimates (Foundation Internal Rating Based Approach - FIRB); or
- For probability of default estimates, own estimates of loss given default (LGD²) and maturity adjustment for effective maturity based on PD (Advanced Internal Rating Based Approach (IRBA)).

Credit Risk Mitigation (CRM)

It is at the discretion of each institution whether to use credit risk mitigation techniques or not.

If an institution decides to use any credit risk mitigation techniques, the institution must consider various operational and procedural requirements besides quantitative requirements. The pool of possible collateral to be used is in principle enlarged in the two advanced credit risk approaches compared with the standardised credit risk approach.

Basel II defined two methods to calculate the credit risk mitigation of financial collaterals: the Simple Approach and the Comprehensive Approach. Depending on the calculation method used, only predefined financial collateral types can be considered.

The Simple Approach is a substitution approach. The risk weight that would be assigned under the provisions of the standardised credit risk approach shall be assigned to those portions of claims collateralised by the market value of generally eligible financial collateral. The remainder of the exposure shall receive the risk weight that would be assigned to an unsecured exposure to the counterparty under the provisions of the standardised credit risk approach.

In the Comprehensive Approach, institutions must calculate their adjusted exposure to a counterparty in order to take account of the effects of that collateral. Using haircuts, banks are required to adjust both the amount of the exposure to the counterparty and the value of any collateral received in support of that counterparty to take account of possible future fluctuations in the value of either, occasioned by market movements. This will produce volatility adjusted amounts for both exposure and collateral.

1. PD: the probability (as a percentage) of default by a counterparty over a one-year period.

2. LGD: the ratio (as a percentage) of the loss on an exposure due to the default of a counterparty to the amount outstanding at default.

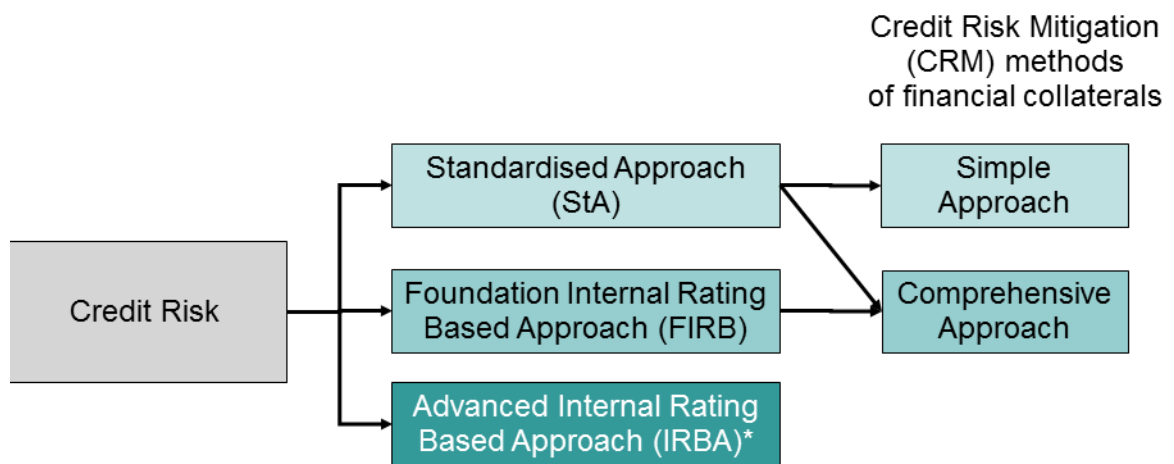
Additionally where the exposure and collateral are held in different currencies an additional downwards adjustment must be made to the volatility adjusted collateral amount to take account of possible future fluctuations in exchange rates. Institutions have two ways of calculating the haircuts:

- Standard supervisory haircuts;
- Own-estimate haircuts, using own internal estimates of market price volatility.

Supervisors allow banks to use own-estimate haircuts only when they fulfil certain qualitative and quantitative criteria.

In summary, it can be noted that the Comprehensive Approach for credit risk mitigation allows taking into account many more financial collateral types with only a slight increase in the complexity of the calculation method.

Figure 1-9 gives a simplified overview of the calculation methods of financial collaterals under Basel II.



* Credit Risk Mitigation is taken into account as part of the LGD assessment.

Figure 1-9. Overview of possible calculation methods of financial collaterals

Changes in CRM arising from the implementation of Basel III framework has been reflected in the CRD IV package. The CRM techniques remain largely unchanged with the introduction of CRD IV and the CRR compared to the former rules of the CRD.

Credit Valuation Adjustment (CVA)

Credit Valuation Adjustment means an adjustment to the mid-market valuation of the portfolio of transactions with a counterparty in OTC derivative transactions. That adjustment reflects the current market value of the institution's counterparty credit risk, but does not reflect the current market value of the credit risk of the institution towards the counterparty. An institution shall calculate the own funds requirements for CVA risk for all OTC derivative instruments in respect of all of its business activities, other than credit derivatives, recognised to reduce risk-weighted exposure amounts for credit risk.

In addition, CVA risk may also be applicable on SFT exposures in case the competent authority determines that the institution's CVA risk exposures arising from those transactions are material.

Central Counterparty Risk (CCP Risk)

When a bank acts as a clearing member of a CCP, a risk weight of 2% must be applied to the bank's trade exposure to the CCP in respect of derivatives securities financing transactions and long-settlement transactions. This preferential treatment may only be applied in case the CCP in question is classified as a qualified CCP. Under CRR, a CCP is considered to be a qualified CCP if it is granted an authorisation under Regulation (EU) No. 648/2012 (European Markets Infrastructure Regulation - EMIR) or an equivalent regulation in its country of residence.

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In addition to the 2% risk weight for the trade exposure a capital charge is to be applied on the contribution of the clearing members to the default funds of the qualified CCP.

There are further rules with regards to client positions of a clearing member related to CCP business. As this is not relevant for our group companies, it is not detailed in this report. The comprehensive basis for the CCP risk is defined in Articles 300 - 311 CRR.

Market risk

Market risk is typically defined as the uncertainty about future earnings and about the value of assets and liabilities (on or off balance sheet items) due to changes in interest rates, foreign exchange rates, security prices or commodity prices.

Basel III distinguishes between the bank's trading book (held with trading intent [short-term] and typically valued mark-to-market) and the non-trading book (typically held for a longer term or to generate permanent earnings [hold or income-making intention]) and attaches different requirements accordingly.

Certain positions cannot be allocated by the nature of the position but need dedication. The institution needs to have a clear policy for allocation and must document the current allocation. If the positions finally allocated to the trading book exceed certain thresholds, capital requirement rules for the trading book apply. If the thresholds are not surpassed, those rules are not relevant.

Market risk under the perspective of Pillar I is defined as the risk of losses in positions (on and off balance sheet) arising from movements in market prices. The risks subject to this requirement are as follows:

- The risks pertaining to interest rate related instruments and equities in the trading book only;
- Foreign exchange risk and commodities risk independent of trading book allocation.

The interest rate risks of exposures on positions not included in the trading book are taken into account under Pillar II (in the context of other or further risks).

Basel III defines two methods to calculate the capital requirements for market risk (standardised approach and internal models).

There was no material change to the calculation of capital requirements for market risk when Basel III / CRD IV were introduced.

Operational risk

The main drivers of operational risk in banks are the growing dependence of banking operations on IT systems, the enlarged use of electronic banking, the progressive development of risk systems and, especially, the increasing complexity of business processes in banking.

Legal and compliance risk have recently become increasingly important drivers for operational risk.

In this context, operational risk is by nature very different from credit risk and market risk. Operational risk is far more difficult to capture because it is inherent to many activities and is still nearly inevitable. Recent events have shown that operational risk can be significant, and resulting losses can even threaten a bank's existence.

Basel II defined three methods to calculate the capital requirements for operational risk as shown in [Figure 1-10](#).

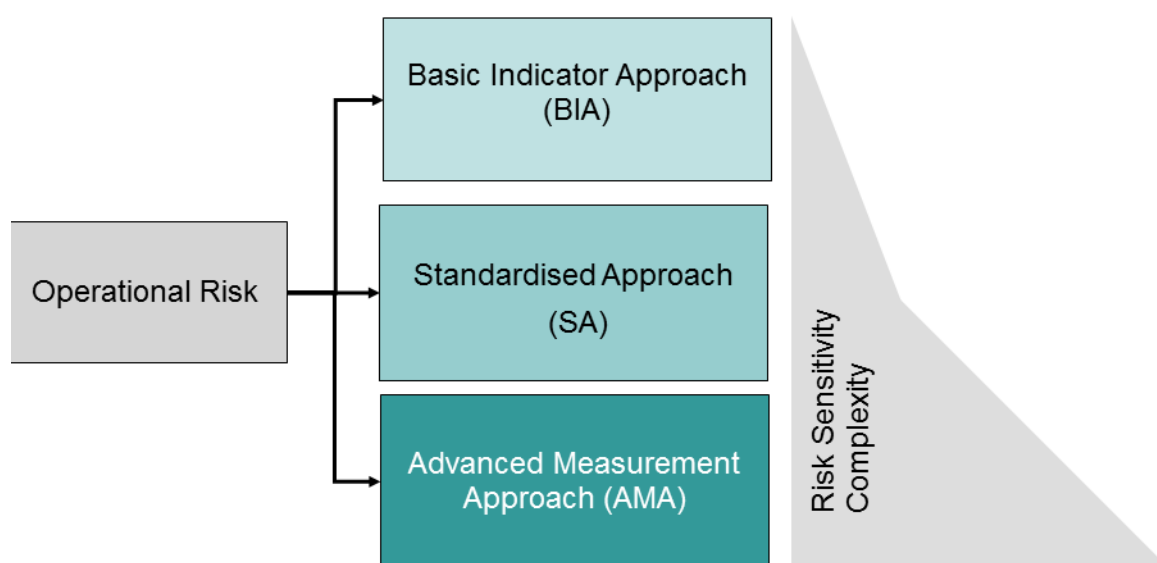


Figure 1-10. Possible calculation methods for the operational risk

Complexity and risk sensitivity in the two more simple approaches are similar, whereas it is much higher in the advanced approach.

First of all, there is the **Basic Indicator Approach (BIA)**, in which a bank's operational risk is estimated as a percentage (alpha factor 15%) of the gross income (calculated as the average of the previous three financial years). This approach involves a simple calculation but is not very risk sensitive.

Next is the **Standardised Approach (SA)**, which splits business into predefined business lines. Operational risk is estimated as a specified percentage (beta factor 12%, 15% or 18%) of "gross income" per business line. This can be seen as a basic indicator approach applied to each business line.

The **Advanced Measurement Approach (AMA)** requires internal loss data and model-based methods to calculate the regulatory capital requirements. Comparable to the Advanced Internal Rating Based approaches, explicit permission as well as a detailed review of processes, estimates and documentation by the respective supervisory authority is necessary to be allowed to use the AMA to calculate the operational risk amounts. The application of advanced measurement approaches will be subject to both qualitative and quantitative criteria, and banks will be allowed to recognise the risk mitigating impact of insurance.

Basel III did not change the methods or details of the calculation of the capital charge for operational risk.

1.2.2.3 Liquidity

Basel II limited Pillar I to solvency only and put any additional risk under the Pillar II framework.

Basel III changed this approach by adding for the first time a quantitative (minimum) ratio for the management of liquidity risk, on an international level. Under Basel III, Pillar I no longer focuses on solvency/capital only. Maintenance and stability of funding and liquidity profiles of banks' balance sheets has been a key element of the Basel III considerations from the beginning.

Two liquidity standards, the Liquidity Coverage Ratio (LCR) and the Net Stable Funding Ratio (NSFR), were introduced in the Basel III framework to achieve this objective. Both ratios reflect the minimum level of liquidity banks must provide to meet the liquidity risks they face from a regulatory perspective either short-term (LCR) or mid-term (NSFR). Basel III already describes the LCR in detail (although some elements are still subject to calibration and further adjustments will take place until 2019). However, for the NSFR, only conceptual considerations are fixed and the details will be developed over time.

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Liquidity Coverage Ratio (LCR)

The LCR requires institutions to hold sufficient liquid assets (that is, assets that can be liquidated at negligible loss of value) to withstand the excess of liquidity outflows over inflows that could be expected to accumulate over a 30 day stressed period.

Consequently, institutions shall at all times hold liquid assets, the sum of which equals or is greater than the liquidity outflows less inflows over the next 30 days under stressed conditions (inflows are limited to 75% of liquidity outflows). Under the Basel III rules, the LCR phasing-in rules foresee a start with 60% minimum ratio as of 1 January 2015 (after an observation period that started in 2013) and a full application (100% binding ratio) as of 2019. The EU has decided that because of delays in the legislative process to start with a 60% minimum ratio as of 1 October 2015 but to reduce the phase-in period and reach the 100% minimum ratio from 1 January 2018.

Mathematically the LCR is expressed as follows:

$$\frac{\text{Available Stable Funding (ASF)}}{\text{Required Stable Funding (RSF)}} \geq 100\%$$

Figure 1-11. Calculation of LCR

Net Stable Funding Ratio (NSFR)

Basel III established the NSFR as a measure that should be used to optimise the structural liquidity of credit institutions over a time horizon of one year.

As defined in Basel III, the NSFR requires a minimum amount of stable sources of funding at a bank relative to the liquidity profiles of the assets, as well as the potential for contingent liquidity needs arising from off-balance sheet commitments, over a one-year horizon. The NSFR aims to limit over-reliance on short-term wholesale funding during times of stress market liquidity and encourage better assessment of liquidity risk across all on and off balance sheet items.

Mathematically the NSFR is expressed as follows:

$$\frac{\text{Available Stable Funding (ASF)}}{\text{Required Stable Funding (RSF)}} \geq 100\%$$

Figure 1-12. Calculation of NSFR

The NSFR will move to a minimum standard by 1 January 2018. Reporting processes have been put in place in order to monitor the ratios during the transition period and will continue to review the implications of these standards for financial markets, credit extension and economic growth, addressing unintended consequences as necessary.

In general, the CRR requires a minimum of stable funding for non-current obligations. However the respective transitional ratios have not been defined. Since 31 March 2014, stable funding positions must be reported on a quarterly basis. The introduction of a ratio is under observation by the regulatory authorities. It is expected, that the final ratio will be defined by 31 December 2016 based on legislative proposal of EU Commission.

1.2.3 Pillar II

The risks of Pillar I and further significant and substantial risks must be included in an integrated capital management and risk management consideration.

1.2.3.1 Basel II

The following figure gives a basic overview of which risks were to be considered under an integrated risk approach under Basel II:

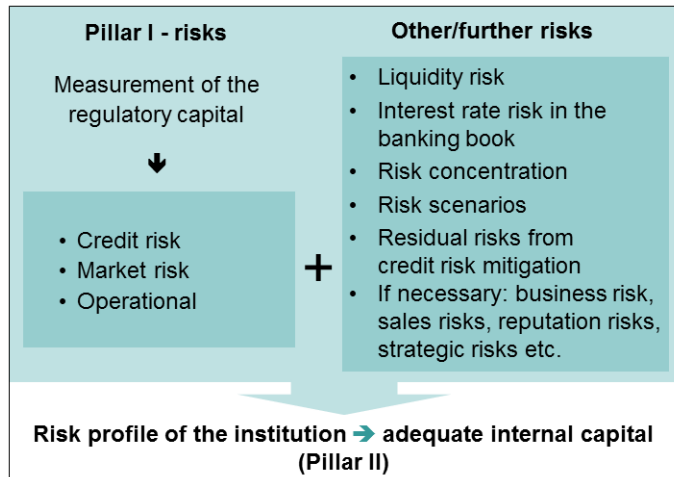


Figure 1-13. Integrated risk consideration (Pillar II) under Basel II

Pillar II comprises of:

- the bank's internal procedures and strategies to identify all risks and to assess the necessary internal amount of capital and maintain this at all times (Internal Capital Adequacy Assessment Process - ICAAP); and
- a review and evaluation process by the supervisors (Supervisory Review and Evaluation Process - SREP). The SREP comprises beside an review and evaluation of the bank's capital adequacy also the possibility to require capital in excess of the minimum Pillar I amount and to intervene at an early stage in case risks are not captured adequately.

All together Pillar II is also called the Supervisory Review Process (SRP).

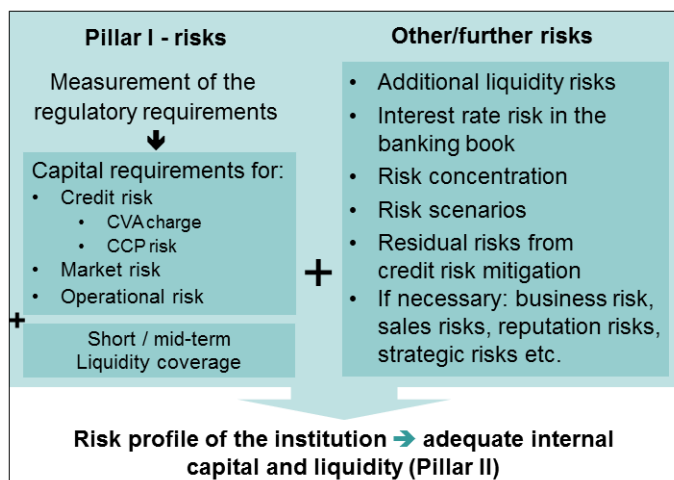


Figure 1-14. Prudential supervision under Basel II

Introduction

1.2.3.2 Basel III amendments

With the Basel III framework the focus on the capital adequacy was supplemented by the liquidity adequacy and its assessment. In addition, further elements of risk have been captured within the Pillar I capital framework (e.g. CVA charge and CCP risks) which are to be reflected in the Pillar II risk map as well. Consequently, the bank's internal assessment comprises in the future not only of ICAAP but in addition the Internal Liquidity Adequacy Assessment Process (ILAAP) is to be performed. It assesses the liquidity profile of an institution in relation to its business and complexity.

The revised integrated risk consideration can be demonstrated by the following figure:

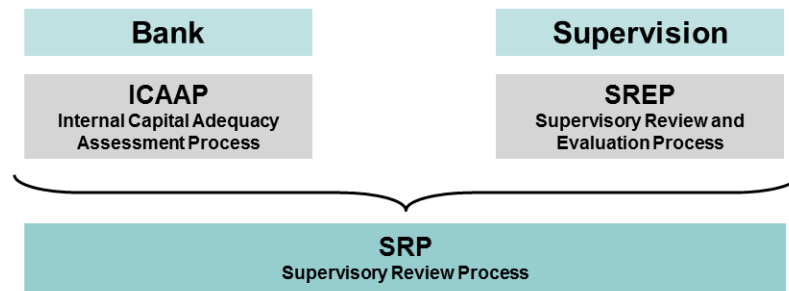


Figure 1-15. Integrated risk consideration (Pillar II) under Basel III

In addition also the SREP needs to cover liquidity management in more detail. This finally leads to a revised picture of the SRP as shown below.

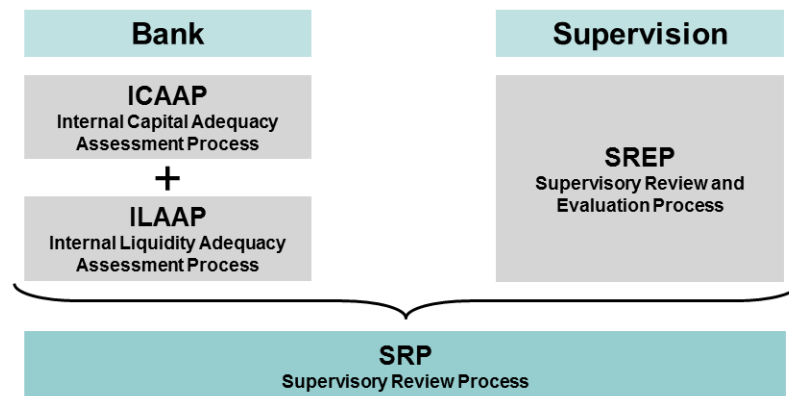


Figure 1-16. Prudential supervision under Basel III

The EU has set the necessary standards on internal organisation, risk management, capital and liquidity management, corporate governance, remuneration as well as the related Pillar II review processes within CRD IV (chapter II, Articles 73 - 110). These rules have been transposed into German and Luxembourg law respectively. In addition, the EBA has issued the "Guidelines on common procedures and methodologies for the supervisory review and evaluation process (SREP)"¹, which is to be implemented and used by national competent authorities as of 1 January 2016.

1. EBA Guidelines on common procedures and methodologies for the supervisory review and evaluation process (SREP): <https://www.eba.europa.eu/documents/10180/935249/EBA-GL-2014-13+%28Guidelines+on+SREP+methodologies+and+processes%29.pdf>

1.2.4 Pillar III

The third Pillar, named Market Discipline, is also known as “regulatory disclosure” requirements. The disclosure requirements are a basic prerequisite for sound information standards among all market participants. This in turn allows market forces to take effect without obstructions, thus indicating the prevalence of market discipline.

The accord contains disclosure requirements and recommendations for various areas of banking operations, including the methods a bank uses to estimate its risks or how the bank determines its capital adequacy (that is, the relationship between equity and overall risk). The bulk of these disclosure requirements will apply to all banks, and more detailed requirements have to be fulfilled from banks using internal methods.

Following the changed quantitative rules for capital and capital requirements as well as the introduction of quantitative liquidity measures, Basel III and the CRD IV package have enhanced the disclosure requirements substantially. With CRR and subsequent technical standards the disclosure requirements are much more granular and precise requirements have been set in various areas. In addition, information on the Leverage Ratio, that has been introduced as a concept under Basel III but so far is only in discussion to become potentially a binding minimum ratio under Pillar I, needs to be disclosed as of 1 January 2015.

The CRD IV package has introduced further information to be disclosed which included details on corporate governance and governance arrangements and information about the Return on Assets (RoA).

RoA indicates the efficiency of invested capital during a specific period of time. Mathematically the RoA is expressed as follows:

$$\text{RoA} = \frac{\text{Net Income}}{\text{Total Assets}}$$

Figure 1-17. Calculation of Return on assets

The present report serves the purpose of meeting the requirements of Pillar III as outlined in the foreword and providing interested parties with further essential information about the business and risk situation of Clearstream Group.

Introduction

1.3 Information about Clearstream Group

1.3.1 Group structure

CH and its subsidiaries are fully owned by Deutsche Börse AG (DBAG) and are highly integrated into Deutsche Börse Group. The ownership and structure of the group at 31 December 2014 is shown in Figure 1-18 below.

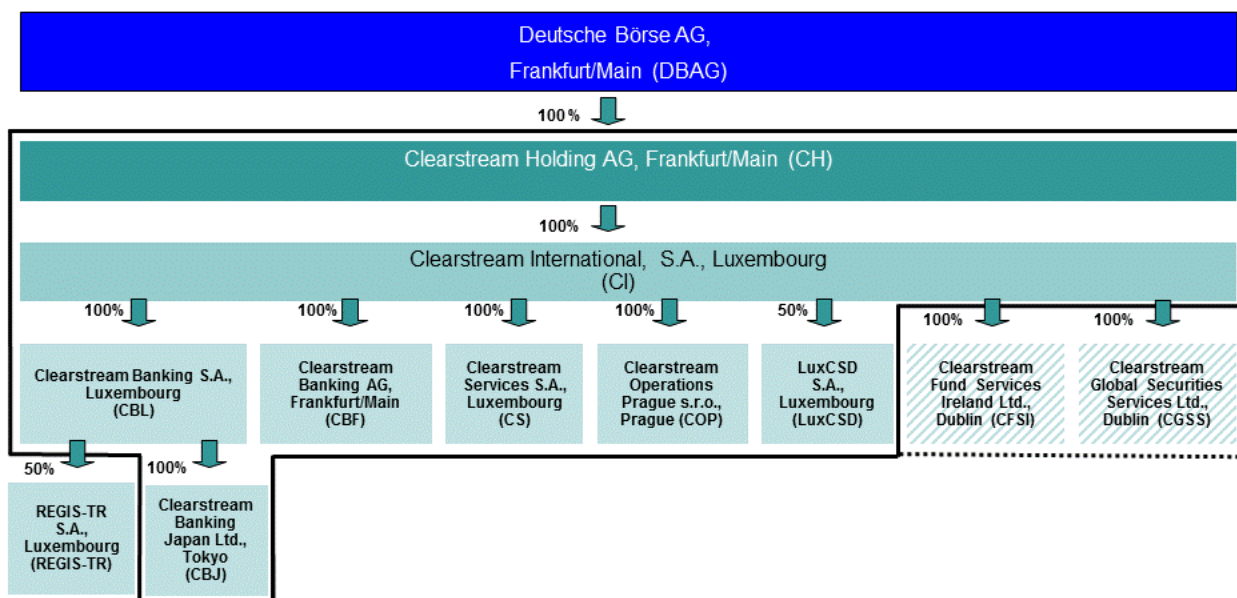


Figure 1-18. Structure and ownership of Clearstream Group

CH acts as a pure holding company for the shareholding in Clearstream International, S.A., Luxembourg (CI) and as a financial holding company under German banking law being recognised by BaFin as the superordinated company according to § 10a (1) sentence 2 KWG.

Within the subsidiaries of CI there are companies which are not included in the regulatory consolidation.

CI and its main subsidiaries act in the securities settlement and custody area. Clearstream Banking S.A., Luxembourg (CBL), thereby acts as an International Central Securities Depository (ICSD) and Clearstream Banking AG, Frankfurt/Main (CBF), as the German Central Securities Depository (CSD).

CBL and CBF are both supported by Clearstream Services S.A., Luxembourg (CS), Clearstream Operations Prague s.r.o., Prague (COP), and CI, which perform supporting tasks like IT, both development and operations, settlement and custody operations, central functions and other services. Clearstream Banking Japan Ltd, Tokyo (CBJ), provides customer liaison in Japan and support accessory business activities.

In October 2014, CI acquired Citco's hedge fund processing entity Citco Global Securities Services Ltd in Cork, Ireland to expand the hedge fund services CBL offers to financial institutions. The name of the entity has been changed to Clearstream Global Securities Services Ltd (CGSS). CGSS is now Clearstream's hedge fund processing centre which complements the company's servicing centres for mutual funds in Luxembourg, Prague and Singapore.

Clearstream Fund Services Ireland Ltd (CFSI), a wholly owned subsidiary of CI, was founded in 2012 in order to start hedge funds processing at Clearstream group. Due to corporate restructuring and in preparation of the targeted acquisition of CGSS, the company ceased its activity by the end of 2013 and currently performs some administrative tasks only. It is foreseen to merge CFSI onto CGSS in the course of 2015.

Clearstream International, S.A., Luxembourg, and Banque centrale du Luxembourg (BCL), the Grand Duchy's central bank, jointly own LuxCSD S.A., which operates a central securities depository for Luxembourg securities and connects the Grand Duchy of Luxembourg's financial industry to the future TARGET2-Securities (T2S) platform. The company acts under the regulatory status as Professional of the Financial Sector (PSF) and as SSS (Securities Settlement System).

Clearstream Banking S.A., Luxembourg, and Sociedad de Gestión de los Sistemas de Registro, Compensación y Liquidación de Valores S.A.U., Madrid, Spain (Iberclear) jointly own REGIS-TR S.A., Luxembourg, a trade repository granted trade repository authorisation by the European Securities and Markets Authority (ESMA) in November 2013.

Clearstream International, S.A. operates a branch in London and Clearstream Banking S.A. operates a branch in Singapore as well as a network of representative offices in New York, London, Tokyo, Hong Kong and Dubai. CBL, Cork Branch was closed in December 2014.

The composition of the regulatory Clearstream group is shown in [Figure 1-18](#) within the black frame. REGIS-TR has been classified as an "other undertaking" by BaFin and is therefore not included in regulatory consolidation.

According to Article 18 CRR, CFSI and CGSS must, in principle, be consolidated under regulatory terms. Due to the small size of operations of CFSI, Clearstream Holding has decided to use the exemption from consolidation according to Article 19 CRR. As CGSS was only acquired in October 2014 and did not surpass the thresholds set in Article 19 CRR, Clearstream Holding AG has also decided to use the exemption of Article 19 CRR for CGSS in 2014. In light of the expected business development and the foreseen merger with CFSI, Clearstream Holding has made use of Article 19 CRR with regards to CGSS for 2014 only and will include CGSS within the group of regulatory consolidated entities from January 2015.

1.3.2 Business operations and supervision

Clearstream Holding AG, Frankfurt/Main (CH):

CH is classified as a financial holding company according to Article 4 paragraph 1 point 20 CRR.

CH acts solely as a holding company for the interest in CI and its subsidiaries and does not have material additional business activities and therefore risk positions. Moreover CH is the superordinated company of the financial holding group according to §10a (1) KWG. CH in its role as superordinated company is responsible to fulfil the regulatory obligations on a consolidated/group level towards the German supervisory authorities and the college of supervisors.

Clearstream International, S.A., Luxembourg (CI):

CI is authorised in Luxembourg as an "other Professional of the Financial Sector" (specific type of PSF) according to Article 26 of the Luxembourg law of 5 April 1993 on the financial sector.

In addition, CI is defined as "financial holding company" in accordance with Article 4 paragraph 1 point 20 CRR.

The purpose of the Company is, among other things, to undertake financial services related to the safekeeping, administration, clearing and settlement of securities, precious metals, derivatives and other financial instruments within the Grand Duchy of Luxembourg and abroad. CI acts mainly as collateral agent and guarantor for securities lending transactions.

In the context of the Clearstream Group, CI delivers support services to its subsidiaries. The main support services relate to finance, human resources, internal control, risk management etc.

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Clearstream Banking S.A., Luxembourg (CBL):

CBL's mission is to deliver to financial institutions competitive and high-quality settlement, custody and related services across markets.

These services include:

- Delivery versus payment and delivery free of payment settlement transactions;
- Comprehensive custody management;
- Value-added services, such as securities lending, collateral management etc.; and
- Transactional information distribution.

CBL currently accepts over 850,000 securities for custody and settlement, including:

- Debt instruments, such as:
 - Eurobonds (for example, straight, floating rate, convertible);
 - government bonds (Bunds);
 - mortgage bonds;
 - municipal bonds;
 - money-market instruments, including short-term and medium-term notes, commercial paper and certificates of deposit;
 - corporate bonds;
 - international bonds;
 - convertible bonds;
- Equities, such as bearer shares and registered shares, as well as depository receipts;
- Warrants and certificates;
- Investment fund units;
- Other securities, such as international securities held in collective safe custody, for example, German certificates representing international securities;
- Gold bullion (traded on the Luxembourg Stock Exchange).

CBL is licensed as a securities settlement system (SSS) according to Title V of the Luxembourg Law of 10 November 2009 relating to payment services. The BCL is responsible for the oversight of SSSs (in accordance with Article 110 of the law of 10 November 2009). The focus of the oversight is the operational and financial stability of each system and participants in systems as well as the stability of the financial system as a whole.

Furthermore, specific regulations for SSSs must be taken into account (for example, Circulars BCL 2001/163 and 2001/168).

The CSSF is the competent authority for the supervision of CBL as credit institution according to Articles 42 and 43 of the Luxembourg law of 5 April 1993 and, in addition, BCL has a shared responsibility for liquidity supervision on the basis of Article 2 (4) of the Law of 23 December 1998 concerning the monetary status and the Banque centrale du Luxembourg.

CBL maintains relationships with around 2,500 customers in over 110 countries. Its global network extends across 54 domestic markets.

CBL established a branch in Singapore that obtained a banking licence on 23 November 2009. The activities of the branch are supervised by the Monetary Authority of Singapore (MAS). The following CBL activities related to the Asian Pacific region are, among others, handled via Singapore: Credit, Treasury, new issues, account administration, securities settlement, certain asset services, the management of the custodian and cash correspondent bank (CCB) network.

Representative offices of CBL are subject to the limited supervision of the local regulators, according to and to the extent provided by the local legislation.

Clearstream Banking AG, Frankfurt/Main (CBF):

CBF offers settlement, custody and related services in both the Collective Safe Custody (CSC, mainly German domestic) and the Non-Collective Safe Custody (NCSC) businesses. The focus of the settlement business is thereby on the settlement of stock exchange transactions.

CBF is the only central securities depository in Germany. It operates a large vault where most of the securities issued in Germany and even securities issued elsewhere are stored. Within the frame of individual or collective safe custody, the settlement and asset servicing of domestic and international securities are offered. These services include:

- Delivery versus payment and delivery free of payment settlement transactions;
- Comprehensive custody management;
- Value-added services like securities lending, collateral management etc.; and
- Transactional information distribution.

CBF currently accepts the same securities as CBL in the NCSC business (over 850,000 securities) and 990,000 securities in the CSC business for custody and settlement.

Related to the NCSC business, all instruments eligible in CBL (except Gold bullion) are also eligible in CBF.

Owing to the different customer base (mainly European banks at CBF; many international banks at CBL), the number of different securities held by customers in NCSC is nevertheless lower at CBF.

For the CSC business, the securities eligible include:

- Debt instruments, such as:
 - government bonds (Bunds);
 - mortgage bonds;
 - municipal bonds;
 - money-market instruments, including short-term and medium-term notes, commercial paper and certificates of deposit;
 - corporate bonds;
 - international bonds;
 - convertible bonds;
- Equities, such as bearer shares and registered shares;
- Warrants and certificates;
- Investment fund units.

Beyond that, CBF acts as trustee to cover specific types of asset-backed bonds. With respect to commodity-backed bonds, the commodity (Gold) is stored physically in the vaults of CBF. For bond issues covered by securities, CBF performs safekeeping as Central Securities Depository and, as trustee, offers an increased level of protection for investors by virtue of its significantly low-risk business and operational model. Moreover, CBF offers its customers the Global Securities Financing (GSF) service, through which market participants can lend and grant securities and cash against collateral.

CBF is subject to German supervision and is supervised as credit institution (according to § 1 (1) German Banking Act) by BaFin and the Bundesbank; as securities settlement system (SSS) (according to § 24 b German Banking Act) by the Bundesbank; and as a central securities depository (according to § 1 (3) German Securities Deposit Act) by the competent federal state authorities.

Clearstream Services S.A., Luxembourg (CS):

CS is responsible for IT development and production. It develops and maintains the hardware and software and operates the IT systems. Furthermore, CS acts as IT operator and offers third-party IT services.

CS offers IT services to non-group financial entities and is supervised in Luxembourg as a "PSF connexe" (specific type of PSF) according to Articles 29-2 to 29-4 of the Luxembourg law of 5 April 1993.

The business operations CS provides to CBL, CBF and LuxCSD includes activities in the custody processing, settlement and new issuance business as well as credit operating services.

Clearstream Operations Prague s. r. o., Prague (COP):

COP is not a regulated entity. Since COP insources services directly or indirectly from CBL, based on a memorandum of understanding between the BCL and the Czech National Bank (CNB), the CNB performs local oversight on behalf of the BCL.

COP operates services for the Clearstream Banking units and for LuxCSD. As these arrangements are governed by outsourcing contracts according to Luxembourg and German regulatory standards, the services performed are fully monitored and managed by Clearstream management structures and processes. Therefore, they are an integral part of all required supervision processes.

Furthermore, COP functions as a shared services centre for certain administrative and support functions for major parts of the entire Deutsche Börse Group.

LuxCSD S.A., Luxembourg (LuxCSD):

LuxCSD was created within the context of the future implementation of the Eurosystem's TARGET2-Securities (T2S) initiative. T2S will bring a single integrated process across Europe for delivery versus payment (DVP) settlement in EUR central bank money. The development of T2S coupled with other significant market and regulatory initiatives were the key drivers for introducing central bank money settlement in Luxembourg and for preparing a national access point to T2S.

In addition, LuxCSD also provides issuing, central settlement and custody services for securities of all types, including shares in investment funds.

LuxCSD started operations in 2011 and, as the focus is currently related to the start of T2S, there are currently only limited business transactions.

REGIS-TR S.A., Luxembourg (REGIS-TR):

REGIS-TR is a European central register where all contracts agreed over a wide variety of derivative financial instruments traded, OTC or on-exchange, can be recorded, giving market participants and regulators a consolidated view of positions. REGIS-TR was granted authorisation as a trade repository by the European Securities and Markets Authority (ESMA) in November 2013, enabling REGIS-TR to support customers in registering exchange-traded and OTC derivatives. Since 12 February 2014, registration has been obligatory under the EU's EMIR regulation.

Since 2010, REGIS-TR is fully included in the consolidated financial statements at DBG level. With regard to the consolidation provisions set out in the KWG, REGIS-TR has been classified as an "other undertaking" and is therefore not included in regulatory consolidation (see [Figure 1-18](#) on page 1-18).

Clearstream Banking Japan Ltd, Tokyo (CBJ):

The purpose of CBJ is to engage in marketing, information providing service and advertising; holding financial seminars and other education and trainings; support of existing customers of group companies and any other business activities relating to any of the preceding.

Clearstream Fund Services Ireland Ltd (CFSI):

Clearstream Fund Services Ireland Ltd (CFSI) was founded in March 2012 as Hedge Fund Investment Services Ltd to extend to hedge funds the post-trade offering in the area of investment funds. The company currently performs some administrative tasks only and will be merged into CGSS in the course of 2015.

Clearstream Global Securities Services Ltd, Cork (CGSS):

In 2014, CI acquired Clearstream Global Securities Services Ltd (CGSS) as a wholly owned subsidiary to expand the hedge fund services CBL offers to financial institutions (see description in [1.3.1 Group structure](#) on page 1-18).

2. Implementation of Basel III at Clearstream

The information in this chapter is presented in the following sections:

- [2.1 Pillar I: Minimum capital requirements](#) below;
- [2.2 Pillar II: Supervisory Review Process \(SRP\)](#) on page 2-2;
- [2.3 Pillar III: Market discipline](#) on page 2-2;
- [2.4 Regulatory environment](#) on page 2-4.

2.1 Pillar I: Minimum capital requirements

According to its business operations and the associated risks, Clearstream has selected for each risk category the most appropriate and efficient approach for measurement of minimum capital requirements.

Granting loans is not Clearstream's core business. Credit risk mainly arises in the short term and with credit institutions or governmental counterparties. Therefore, Clearstream has selected the standardised approach to assess the credit risk under Pillar I.

Credit risk is derived from short-term money-market investments (without trading intent), exposures on interbank operational accounts and investments in government or other eligible securities. Treasury counterparties as well as cash correspondent banks for the operational network are selected based on a high degree of creditworthiness and operational reliability. Furthermore, overdrafts to customers are given based on credit assessment and, in general, on a collateralised basis (see also [5. Management of credit risk](#) on page 5-1).

As both investments and overdrafts to customers are collateralised to a high degree, Clearstream has selected the comprehensive approach for credit risk mitigation.

Contrary to credit risk, operational risk is much more important to Clearstream compared to conventional commercial banks.

All of Clearstream's operations rely on a complex IT system that connects a variety of financial markets, instruments and various currencies across different time zones around the world. This needs a continuous, 24 hours a day, 7 days a week operation. Furthermore, due to the huge variety of instruments and volumes of settlement transactions, reconciliation of proper master data, movements and balances is crucial to the business.

In the year under review, about 139 million settlement transactions were processed. Even with a high degree of straight-through processing, manual interventions are occasionally necessary and need careful management. The potential risks of loss resulting from inadequate or failed internal processes or systems, or from human error or external events, are therefore significant. Clearstream accordingly selected the Advanced Measurement Approach (AMA) to assess and manage its individual scale of operational risk.

Since having received regulatory approvals as of January 2008, Clearstream Banking S.A. and Clearstream Banking AG apply the AMA to calculate their capital requirements for operational risk. In October 2010, Clearstream Holding AG received BaFin's approval to use the approach at group level.

Implementation of Basel III at Clearstream

Clearstream uses the standardised approach for assessing market risk. The complete business activity belongs to the non-trading book. Market risk, according to the regulatory classification, is currently derived from foreign currency risks only and is very limited.

The following table gives an overview of the calculation methods chosen by Clearstream:

Risk category	Calculation method
Credit risk	Standardised approach
Credit risk mitigation (CRM) of financial collaterals	Comprehensive approach
Operational risk	Advanced measurement approach
Market risk	Standardised approach

Table 2-1. Calculation methods chosen by Clearstream

2.2 Pillar II: Supervisory Review Process (SRP)

Clearstream Group has implemented all necessary organisational and methodological requirements for the Internal Capital Adequacy Assessment Process and all other elements that constitute the basis for the Supervisory Evaluation and Review Process.

The Executive Management of Clearstream Group is informed at least on a quarterly basis about all significant and substantial risks. If necessary, risks are reported ad hoc. This reporting includes also risk that is not in the scope of Pillar I and is the basis for Clearstream's internal capital planning.

Clearstream's economic capital (EC) is determined using the Value-at-Risk method (VaR, see [3.2 Risk management methodology](#) on page 3-3). EC measures the amount of capital that is required in order to be able to cover even extreme events over a period of 12 months. EC is calculated at a confidence level of 99.98%. This means that losses within the next 12 months will not exceed the calculated EC with a probability of 99.98%. The required economic capital takes into account a correlation of "1" between individual risks types. This is the most conservative approach for this purpose.

With the introduction of Basel III the Pillar II and its Supervisory Review Process was amended by the assessment of the liquidity adequacy.

As part of the Supervisory Evaluation and Review Process, the management of Clearstream Group is in a constant dialogue with all its supervisors.

2.3 Pillar III: Market discipline

CH is the superordinated company of the financial holding group according to §10a (1) KWG. CH in its role as a superordinated company is responsible to fulfil the regulatory obligations on a consolidated/group level towards the German supervisory authorities and presents this report in compliance with the disclosure requirements pursuant to Part 8 of the CRR and § 26a (1) sentence 1 and 4 KWG.

Article 6 paragraph 3 CRR exempts CBF and CBL from the requirement to issue a stand-alone disclosure report, as it is included in the consolidated CH Group disclosure report. No other group entity is obliged to disclose a Pillar III disclosure report.

All information provided in this report refers in principle to the companies included in the regulatory basis of consolidation. The regulatory consolidated group differs slightly from the consolidated group under accounting rules (see [Figure 1-18](#) and [Table 2-2](#)).

As all Clearstream companies - regardless of accounting and/or regulatory consolidation - are included in the consolidated annual accounts/annual report of the ultimate parent company DBAG, Clearstream

Implementation of Basel III at Clearstream

Holding AG is, according to § 291 German Commercial Code (Handelsgesetzbuch (HGB)), exempted from the obligation to draw up consolidated statutory accounts.

The following table shows both the scope of regulatory and accounting consolidation including the description of the type of the enterprise.

Type of enterprise	Company	Regulatory consolidation		Accounting consolidation	
		Consolidation Art. 18 CRR Full Consolidation	Deduction/ Higher Risk Weighting acc. Art. 48 CRR	Full consolidation	At equity
Credit Institutions	Clearstream Banking S.A., Luxembourg (CBL)	x		x	
	Clearstream Banking AG, Frankfurt am Main (CBF)	x		x	
Financial Holding Company	Clearstream Holding AG, Frankfurt am Main (CH)	x		x	
	Clearstream International, S.A., Luxembourg (CI) ^a	x		x	
Specialised Financial Sector Professional ^b	LuxCSD S.A. Luxembourg (LuxCSD)	x		x	
Regulated Ancillary Services Undertaking	Clearstream Services S.A., Luxembourg (CS) ^c	x		x	
Ancillary Services Undertaking	Clearstream Operations Prague s.r.o., Prague (COP)	x		x	
	Clearstream Banking Japan Ltd, Tokyo (CBJ)	x		x	
	Clearstream Global Securities Services Ltd, Cork (CGSS)		x	x	
	Clearstream Fund Services Ireland Ltd, Cork (CFSI)		x	x	
"Other" Undertaking	REGIS-TR S.A., Luxembourg (REGIS-TR) ^d		x	x	

a. PSF, according to article 26 of the Luxembourg Law of 5 April 1993.

b. PSF status, according to article 26 of the Luxembourg Law of 5 April 1993, received in March 2011.

c. PSF according to Articles 29-2 to 29-4 of the Luxembourg Law of 5 April 1993.

d. PSF according to general provisions of the Luxembourg Law of April 1993.

Table 2-2. Accounting and prudential consolidation

Implementation of Basel III at Clearstream

The assignment of the companies to the types of enterprise is mainly based on the definitions contained in § 1 KWG. Clearstream has no company that was consolidated proportionately at the reporting date.

Clearstream Holding notified BaFin that Clearstream Fund Services Ireland Ltd (CFSI) and Clearstream Global Securities Services Ltd (CGSS) are not consolidated because their balance sheet totals are below the minimum limit as defined by § 31 (3) sentence 1 KWG and in Article 19 (1) CRR, respectively. Actual own funds are not affected as the amounts of the investments in CFSI and CGSS are not deducted from own funds and considered with the alternative approach pursuant to Article 48 CRR.

2.4 Regulatory environment

The Clearstream Group fulfils the “Basel III” regulatory equity requirements based on the EU implemented Directive and Regulation CRD IV and CRR in Germany (on a consolidated level as well as, for CBF, on a stand-alone level) and in Luxembourg (for CBL on a stand-alone basis).

The goal is to further harmonise supervisory practices in the EU in future and to structure them as a “banking union”. In the first step, supervision over the 120 largest banks (Significant Institutions, SIs) with international operations was transferred directly to the European Central Bank (ECB) in November 2014 (Single Supervisory Mechanism, SSM).

On 15 October 2013, the EU adopted the SSM Regulation, under which the ECB assumes responsibility in principle for banking supervision in the Eurozone; states outside the Eurozone have the option to join the supervisory mechanism. However, for the less significant institutions (LSIs), the ECB only lays down supervisory principles, harmonises interpretation decisions and coordinates the national supervisory authorities. How far that coordination will reach and how this new function of the ECB will develop over time is currently an open question.

Because of its key role in Luxembourg and its importance in the financial markets in and beyond the EU, CBL was selected for the comprehensive assessment carried out by the ECB. In June 2014, the ECB decided not to include CBL under its direct supervision. The decision reflects the dedicated role of CBL outside the core banking business that is the focus of the SSM. Although CBL and the whole Clearstream Group continue to be seen as systemically important, both as credit institutions and as Financial Market Infrastructures, CBL is not classified as an SI for the purposes of the SSM. As such, CBL remains under the supervision of the CSSF on a stand-alone basis and Clearstream Group continues to be supervised at a consolidated level by BaFin. However, the ECB will decide on changes to the list of SIs on an annual basis and, once the CSD Regulation comes into effect, the organisational setup and responsibilities for the supervision of the Clearstream entities will have to be reviewed.

3. Risk management overview

The information in this chapter is presented in the following sections:

- [3.1 Strategy and organisation](#) below;
- [3.2 Risk management methodology](#) on page 3-3
- [3.3 Risk structuring](#) on page 3-5;
- [3.4 Risk mitigation](#) on page 3-9;
- [3.5 Group-wide risk reporting and monitoring](#) on page 3-10.

3.1 Strategy and organisation

Risk management is a fundamental component of the management and control of Clearstream. Effective and efficient risk management is vital to protecting Clearstream's interests and it enables Clearstream to achieve its corporate goals and safeguards its continued existence. Clearstream has therefore established a group-wide risk management system comprising roles, processes and responsibilities applicable to all staff and organisational units of Clearstream. This concept is designed to ensure that emerging risks can be identified and dealt with as early as possible.

Clearstream's risk strategy is based upon the group's business strategy and regulates the extent of risk taken within the various business activities carried out by Clearstream. The group risk strategy does this by determining conditions for risk management, control and limitation. The group gives considerable attention to its risk mitigation process and ensures that appropriate measures are taken to avoid, reduce and transfer risk or intentionally accept it.

Clearstream's risk strategy ensures and enables the timely and adequate control of risks. The information required for controlling risks is assessed using structured and consistent methods and methodologies. The results are collated and incorporated into a reporting system enabling measurement and control of the risks. Risk reporting is based on reliable information and is carried out on a regular basis and ad-hoc for existing and potential risks.

All members of Executive Management of Clearstream are ultimately responsible for the risk strategy of Clearstream or of relevant legal entities. The group risk strategy reflects the risk appetite that defines the maximum loss that Executive Management is willing to assume in one year, the tolerance in light of the risk as well as the desired performance levels. It is Clearstream's intention to maintain risk at an appropriate and acceptable level (see also [3.4 Risk mitigation](#) on page 3-9).

The members of Executive Management ensure that the group risk strategy is integrated into the business activities throughout the entire group and that adequate measures are in place to implement the strategies, policies and procedures.

Risk awareness and a corresponding risk-conscious culture are encouraged, amongst other things, through appropriate organisational structures and responsibilities, adequate processes and the knowledge of the employees. The appropriateness of the risk management and controlling systems is continuously checked.

Risk management overview

Risks are openly and fully reported to the responsible level of management. The responsible Executive Management is informed fully and in a timely manner about the unit's risk profile, relevant risk(s) as well as about relevant losses. Internal reporting and communication is amended by external reporting, that is, interim and annual reports.

Clearstream has developed its own corporate risk structure and distinguishes between operational, financial, business and project risks (see also [3.3 Risk structuring](#) on page 3-5).

The members of Executive Management of Clearstream are responsible for the management of all risks. Clearstream's risk management organisation is decentralised. The various operational units are responsible for identifying risks and for reporting them promptly to Clearstream Risk Management, a central function unit with group-wide responsibilities.

Clearstream Risk Management assesses all new and existing risks. It also reports on a quarterly basis and, if necessary, ad-hoc to the particular Executive Management. Controlling risks is performed in the decentralised business areas, that is, in the areas where the risks occur.

Risk control in the Clearstream operational units is ensured by nominating "Operational Risk Representatives", who are responsible, as mentioned above, for identifying, notifying and controlling any risk in their area whereas Clearstream Risk Management is responsible for the assessment and reporting of risks.

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

These five key processes, as well as adequate quality standards, have been established in the Group Risk Management Policy and are reviewed on an ongoing basis.

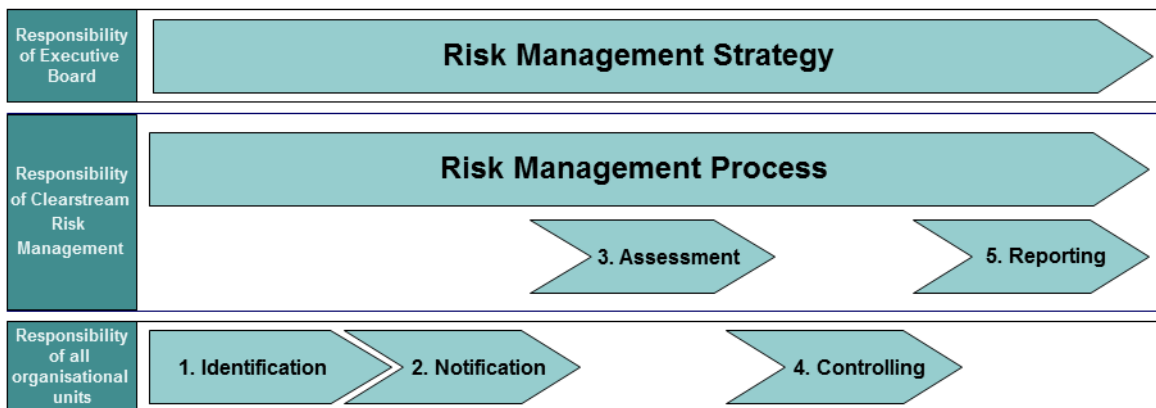


Figure 3-1. Five-level risk management system with central and decentralised responsibilities

3.1.1 Risk identification

Risk identification consists in the identification of all threats to Clearstream, as well as causes of loss and potential disruptions. Risks may arise as a result of internal activities or external factors and the risk examination must be performed with regard to existing or new processes, when concluding new business or entering new service areas.

The risk identification process is on the one hand proactive, based on regular review of processes in order to identify weak areas and points of failure (manual input required, process without double keying or four-eyes controls in place, specific procedures subject to high volumes or tight deadlines etc.) or based on scenarios of disruption or failure taking into consideration all sources of issues (unavailability of systems, human error etc.). On the other hand, the risk identification process is also reactive, following an incident and, where appropriate, learning from this event.

Risk identification also involves a phase of quantification involving the definition of parameters that can be based either on statistical data, in the case of actual process monitoring, or on subjective expert appraisal when insufficient statistics are available.

All organisational units and individual employees must themselves identify and quantify potential risks in their area of responsibility.

3.1.2 Risk notification

Risk notification is the step in the risk management process that ensures that risks are centrally recorded.

All organisational units and individual employees must notify Clearstream Risk Management, in a timely manner, of the risks that they have identified and quantified. Where a Clearstream entity, however, oversees its own risk management function, the timely notification of risks pertaining to that entity is made, in the first instance, to that dedicated risk management function, which in turn and without delay must notify Clearstream Risk Management of matters of relevance.

3.1.3 Risk assessment

The assessment of an incident or a potential risk development aims at quantifying the risk in financial terms using the "Value at Risk" methodology and comparing the result with the available risk cover. It takes into account mitigation measures currently in place, such as business continuity measures, insurance policies etc. (see also [3.2 Risk management methodology](#) on page 3-3 and [3.3 Risk structuring](#) on page 3-5).

A qualitative assessment may be used whenever it adds value or is deemed more adequate.

The risk assessment phase is carried out by Clearstream Risk Management based on data and information collected and produced either in a periodic or ad-hoc report by the relevant area or upon request of Clearstream Risk Management.

Moreover, 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.

3.1.4 Risk control

Risk control involves determining and implementing the most appropriate treatment for the identified risk. It encompasses risk avoidance, risk reduction, risk transfer and intentional risk acceptance.

All organisational units and employees must perform risk control and implement mitigating actions according to the established escalation process.

3.1.5 Risk reporting

The relevant boards and committees are informed consistently and in a timely manner about material risks - whether existing or potential - and about the related risk control measures in order to take appropriate action. Clearstream Risk Management is in charge of providing this information to the relevant boards and committees (see also [3.5 Group-wide risk reporting and monitoring](#) on page 3-10). Moreover, upon request of the relevant boards, Clearstream Risk Management will issue reports to external parties.

3.2 Risk management methodology

Clearstream has installed a standardised approach for measuring and reporting all operational and financial business and project risk across its organisation: the concept of "Value at risk" (VaR). The purpose is to allow the overall risk appetite to be expressed in a comprehensive and easily understandable way and to facilitate the prioritisation of risk management actions.

Risk management overview

The VaR quantifies the risks to which a company is exposed. It indicates the maximum cumulative loss that Clearstream could face if certain independent loss events materialise over a specific time horizon for a given probability. Clearstream's models are based, in line with the Basel II framework, on a one-year time horizon and correlations between individual risk estimates are recognised when calculating the capital charge for operational risk.

The VaR is calculated at a confidence level of 99.0% (Management VaR), 99.9% (Regulatory VaR) as well as 99.98% (Economic Capital). Clearstream also performs VaR calculations in order to detect potential risk concentrations, as well as stress test calculations, which consider even more conservative model parameters than the regular VaR calculations.

In addition to classical stress tests, which analyse the impacts of predefined stress scenarios, Clearstream calculates so-called reverse stress tests since 2011. With the help of this instrument, stress scenarios that would exceed the risk bearing capacity are identified. The findings in the reverse stress tests can give rise to further analyses and implementations of measures to reduce risks.

In the example in the following figure, there is a 99.98% probability that the cumulative loss within the next year will be below EUR 2.5 million and, conversely, that there is consequently a 1% probability of a loss incurred through one or more incidents within the next year that, in total, will be equal to or greater than the VaR calculated.

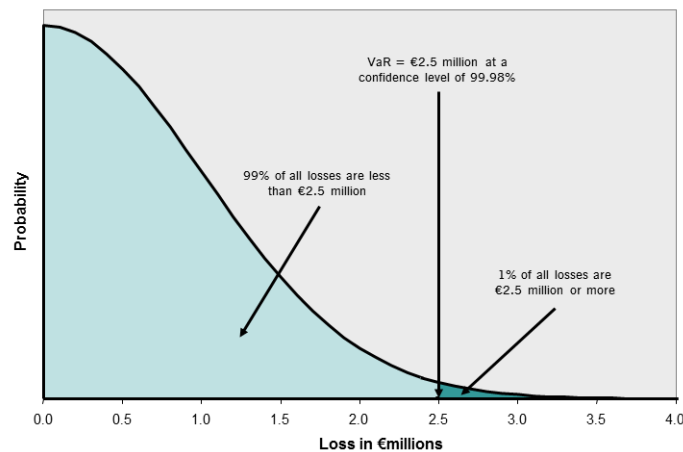


Figure 3-2. Example of VaR allocation

The calculation of the VaR is a three-step process:

1. Determination of the loss distributions for every single risk: This is performed for each risk on the basis of historical data (such as market data, default, claim or outage history) or risk scenarios. This distribution may be, for example, a Log-Normal distribution (often used for operational risk of processing errors) or a Bernoulli distribution (used, for example, for credit risk where a counterparty either defaults or fulfils).
2. Simulation of losses using the Monte Carlo method: A Monte Carlo simulation is used to run multiple trials of all random loss distributions at the same time in order to achieve a stable VaR calculation. This produces a spread of possible total losses.
3. Calculation of VaR on the basis of the Monte Carlo simulation: The losses calculated by the Monte Carlo simulation are arranged in descending order of size and the corresponding losses are determined for the specified confidence levels.

3.3 Risk structuring

Clearstream defines risk as a potential negative impact on its financial, revenue and liquidity situation. CH differentiates between four major risk types that are managed and controlled with distinct methods. These risk types are operational risk, financial risk, business risk and project risk which are illustrated in the following figure:

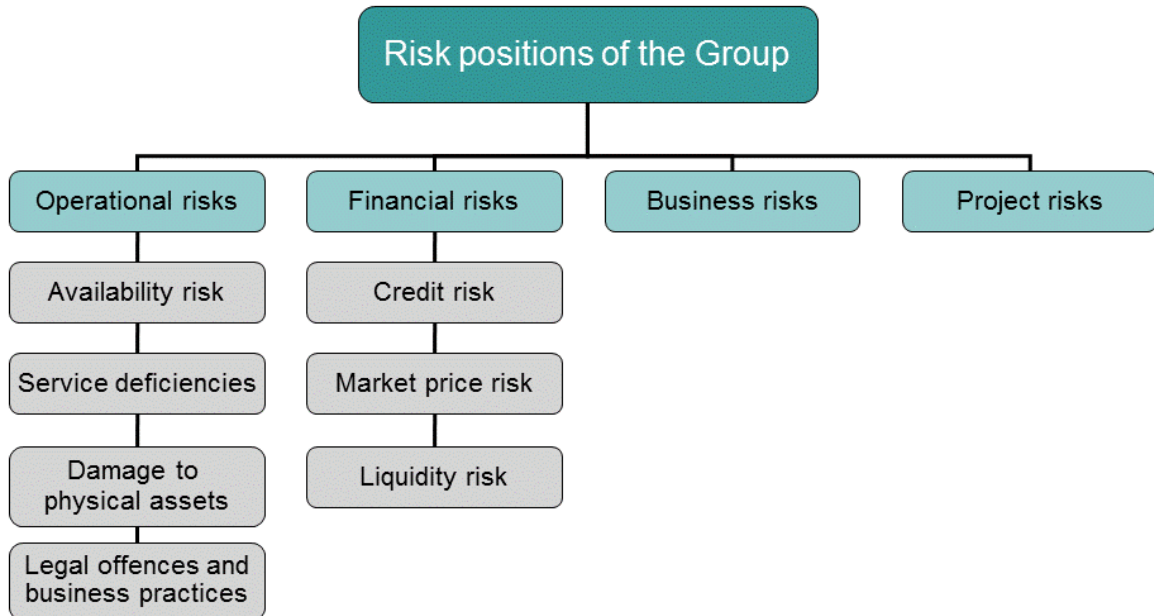


Figure 3-3. Risk structure of Clearstream

The following sections describe the relevant individual risks in more detail.

3.3.1 Operational risks

Operational risk encompasses all existing and newly arising risks in the context of the ongoing provision of services by Clearstream. In accordance with the Basel II framework¹, 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 risks² and risks associated with business practices.

Operational risks that Clearstream does not want to run and that can be insured against at reasonable cost are transferred by closing insurance policies. All insurance policies are coordinated centrally for the entire Deutsche Börse Group, thereby ensuring uniform risk/cost benefit insurance cover.

3.3.1.1 Availability risk

Availability risk results from the fact that resources essential to Clearstream’s service offering could fail, thereby making it impossible to deliver services in a timely manner or at all. Possible root causes include hardware and software failures, operator and security errors, physical damage to the data centres, loss of buildings and non-availability of staff.

In particular, Clearstream manages availability risk through intensive activities in the field of business continuity management (BCM). BCM encompasses all the processes that ensure that business continues as normal, even if a crisis occurs, and therefore substantially reduces availability risk. BCM relates to arrangements to ensure the availability of all key resources (systems, space, staff, suppliers/service providers), including the redundant design of all critical IT systems and technical

1. No. 644 “International Convergence of Capital Measurement and Capital Standards” (see <http://www.bis.org/publ/bcbs128.htm>).
 2. Legal risk includes, but is not limited to, exposure to fines, penalties or punitive damages resulting from supervisory actions, as well as private settlements.

Risk management overview

infrastructure, as well as backup workspaces for mission-critical employee functions in each of the main operational centres (see also [4.3.2 Business Continuity Management](#) on page 4-8).

No significant losses were incurred as a result of unavailability of resources in the year under review.

3.3.1.2 Service deficiencies

In contrast to availability risk, the occurrence of service deficiencies does not prevent Clearstream from providing services to its customers. However, errors or omissions may occur that relate mainly to manual input and suppliers' errors.

Despite all the automated systems and efforts aimed at delivering straight-through processing (STP), there is still a requirement for manual activity. In addition, manual intervention in market and system management is, in special cases, necessary.

In previous years, sustained improvements were made on an ongoing basis to reduce the potential risk of processing errors, either through a reduction in the amount of necessary manual intervention or through better protection.

Nevertheless, it should be noted that risk mitigation measures do not guarantee that incidents, claims and resulting loss will not occur, nor can they predict the specific occurrence of particular risk events. Despite all the risk mitigation measures deployed, Clearstream remains exposed to the risk of inadequate handling of customer instructions, which could, in extreme circumstances, result in significant losses.

No significant losses occurred as a result of service deficiency in the year under review.

3.3.1.3 Damage to physical assets

This category includes risks due to accident and natural hazard, as well as to terrorism and sabotage.

In the year under review, no significant losses occurred as a result of damage to physical assets.

3.3.1.4 Legal offences and business practices

Risk from legal offences include 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.

Risks associated with business practices include losses resulting from money laundering, violations of competition regulations or breaches of banking secrecy. Clearstream has established a Compliance function that seeks to protect Clearstream from any prejudice that may result from failures to comply with applicable laws, regulations and standards of good practice, with a particular focus on the following topics:

- Prevention of money laundering and terrorist financing;
- Compliance with professional and banking secrecy;
- Prevention of insider dealing;
- Prevention of market manipulation;
- Prevention of fraud;
- Prevention of conflicts of interest and corruption;
- Data protection.

Losses can also result from ongoing legal proceedings. Deutsche Börse judges the probability that this operational risk will occur to be medium, although damage can be substantial. As a result, GRM continually monitors ongoing legal proceedings. These can occur if Deutsche Börse Group breaches laws or requirements, enters into inadequate contractual agreements, or fails to observe case law to a sufficient degree. Legal risks also include losses due to fraud and labour law issues. They further include losses as in its corporate report 2012, Deutsche Börse Group informed about proceedings, Peterson vs. CBL, the first Peterson proceeding, initiated by various plaintiffs seeking turnover of

certain customer positions held in CBL's securities omnibus account with its U.S. depository bank, Citibank NA, and asserting direct claims against CBL for damages of USD 250 million. It was settled between CBL and the plaintiffs and the direct claims against CBL were dismissed.

In July 2013, the U.S. court ordered turnover of the customer positions to the plaintiffs, ruling that these were owned by Bank Markazi, the Iranian central bank. Bank Markazi appealed, and the decision was affirmed on 9 July 2014. Bank Markazi sought review in the Supreme Court of the United States and on 1 October 2015, the Supreme Court decided that it will hear the case.

Once that process is complete, if the funds are turned over, a related case, Heiser vs. CBL, also seeking turnover of the same assets, will be dismissed.

On 30 December 2013, a number of U.S. plaintiffs from the first Peterson case, as well as other U.S. plaintiffs, filed a complaint targeting certain blocked assets that CBL holds as a custodian in Luxembourg. The defendants in this action, including CBL, have moved to dismiss the case.

On 19 February 2015, the US court issued a decision dismissing the lawsuit. Plaintiffs appealed the decision to the competent US court of appeals on 6 March 2015.

On 2 April 2014, CBL was informed that the United States Attorney for the Southern District of New York has opened a grand jury investigation against CBL due to the CBL's conduct with respect to Iran and other countries subject to US sanction laws. The United States Attorney has initiated a request from the US Justice Department under the Mutual Legal Assistance Treaty (MLAT) with the Grand-Duchy of Luxembourg, seeking information from CBL. CBL is cooperating with the US Attorney.

A dispute has arisen between MBB Clean Energy AG (MBB), the issuer of a bond eligible in CBF, and end investors. MBB issued a first tranche of the bond in April 2013 and a second tranche of the bond in December 2013. The global certificates for the two tranches of the bond were delivered into CBF by the paying agent of the issuer. The dispute relates to the non-payment of the second tranche of the bond with a nominal value of 500 million and the purported lack of validity of the bond. CBF's role in this case is primarily to have accepted the note in its system as national central securities depository. At this stage, it is unclear if and to what extent potential damages exist and if so who would ultimately be responsible. MBB was put under preliminary administration (vorläufige Insolvenzverwaltung) by the lower court of Munich on 6 July 2015.

3.3.2 Financial risks

Clearstream is exposed to financial risks mainly in the form of credit risk. On a smaller scale, there is also market price risk from cash investments and pension funds and liquidity risk. Exposure to the above-mentioned risks is mitigated through the existence of effective control measures.

3.3.2.1 Credit risk

Credit risk consists in the risk that a counterparty may default and be unable to meet its liabilities against Clearstream in full or at all.

CBL and CBF within Clearstream Group grant loans to their customers in order to increase the efficiency of securities transaction settlement. However, these lending operations cannot be compared with those of other credit institutions. Firstly, the loans are extended solely on an extremely short-term basis. Secondly, they are extended solely for the purposes of increasing the efficiency of securities settlement and are largely collateralised and granted to creditworthy customers with very good credit ratings. Furthermore, credit lines granted are uncommitted and can be revoked at any time. The main credit product offered is the "Technical Overdraft Facility" (TOF). This overdraft facility is an intraday credit arrangement to facilitate the settlement of securities transactions even when cash balances in the relevant currency are, for one reason or another, (technically) unavailable at the right time.

As at 31 December 2014, a few TOF contracts allowed borrowing overnight. However, these contracts will be migrated into intraday facilities in the course of 2015.

Risk management overview

Clearstream is also exposed to credit risk arising from its strategic securities lending activity (ASLplus - CBL's automated securities lending programme). Only selected banks are approved as counterparties. All lending transactions are fully collateralised and only selected securities are permitted as collateral. The minimum country and issue rating permitted for selected bonds is A+. Short-term bonds and equities without an issue rating are allowed as collateral in cases where the issuer has a short-term rating of at least A-1.

The creditworthiness of potential customers is assessed before entering into a business relationship. CBL and CBF within Clearstream Group establish customer-specific credit lines on the basis of both regular reviews of the customer's creditworthiness and ad-hoc analyses as required.

Additional credit risks are associated with cash investments and cash holdings at CCBs. Clearstream reduces this risk by spreading placements in the money market across a number of counterparties with very good credit ratings, by defining credit limits for each counterparty and by largely making short-term, collateralised placements. Clearstream establishes credit limits on the basis of annual credit assessments and ad-hoc analyses as required. The creditworthiness of Clearstream's CCBs is also assessed on an annual or, if necessary, ad-hoc basis.

3.3.2.2 Market risk

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

Clearstream is exposed to interest rate risk in connection with cash investments. Interest rate risk is mitigated using a limit system that only permits maturity transformation to a small extent.

CI and CBF have entered into a Contractual Trust Agreement (CTA), shared within Deutsche Börse Group, that serves to cover fund pension plans of employees. The funds put into the CTA are invested into a special investment fund that is exposed to interest rate risk, currency risk and equity price risk.

3.3.2.3 Liquidity risk

Clearstream is exposed to liquidity risk in that it may lack sufficient liquidity to meet its daily payment obligations or incur increased refinancing costs in the event of liquidity bottlenecks. Daily and intraday liquidity is monitored closely by the Treasury and Credit Department and managed with the help of a limit system. Sufficient credit lines are available to provide cover in extreme situations (see also [7. Management of liquidity risk](#) on page 7-1).

In addition, Clearstream performs three classic liquidity stress tests and two reverse liquidity stress tests. The aim of the classic liquidity stress tests is to check for possible liquidity shortfalls under different stress scenarios (base scenario, market disruption scenario, and market disruption and idiosyncratic scenario).

The reverse liquidity stress tests are based on the market disruption and idiosyncratic scenario. Their aim is to determine what would need to happen to customer cash balances, for Clearstream to suffer a liquidity shortfall.

In the year under review, Clearstream had excess liquidity at all times as a result of which no liquidity bottlenecks occurred.

In 2015, Clearstream plans to perform a "Fire Drill" that will focus on liquidity risk management, governance, information flows and decision making in a time of crisis. The aim of the "Fire Drill" will be to test and enhance existing processes and procedures.

3.3.3 Business risks

The business risk reflects the sensitivity of Clearstream to macroeconomic developments and its vulnerability to event risks arising from other external threats. It is translated in EBIT¹ terms, reflecting both a potential revenue decrease and a potential increase of its cost base.

Clearstream's financial performance is directly or indirectly subject to the evolution of a number of macroeconomic factors and the related effects. Revenues are directly or indirectly impacted, for example, by the level of interest rates, economic growth, equity market valuations and trading volumes, the level of issuance of securities, but also investor confidence in the economic environment.

Clearstream could be affected by other external threats, like changes in the competitive or regulatory environment. Scenarios are established around the most significant risk events and quantitatively assessed. The respective departments monitor developments closely in order to take early mitigation actions if possible.

European and national regulatory evolutions are continuously monitored by Clearstream. Potential changes are analysed and appropriate measures are initiated in due time to fulfil all current and prospective regulations (see also [2.4 Regulatory environment](#) on page 2-4).

3.3.4 Project risks

Project risks can arise as a result of project implementation (launches of new products, services, processes or systems), which may have a significant impact on any of the three other risk categories (operational, financial and business).

Project risks are assessed by Clearstream Risk Management as described in the above sections and are addressed in the early stages of major projects. Risks connected with the delivery of projects, such as budget risk, quality/scope risk and deadline risk, are monitored and reported by the units running the projects.

Currently, for example, the implementation of the TARGET2-Securities settlement system is an important project for Clearstream.

Based on relevant monitoring and control, project risks are continuously analysed and assessed. Project risks can be operational, financial or business-related and are quantified in the respective risk category.

3.4 Risk mitigation

It is Clearstream's intention to confine risk to an appropriate and acceptable level. Depending on the risk characteristics, there are basically four types of management strategy further elaborated at the level of the single risk type:

- Risk acceptance: a deliberate decision to take risks and monitor their development;
- Risk reduction or elimination: measures to reduce either the severity or the frequency of losses;
- Risk transfer: contracts to give risks to the market;
- Risk avoidance: changes to the businesses that anticipate and prevent built-in risks.

The latter three management strategies are risk mitigating. Within Clearstream, several mechanisms are used to reduce both the frequency and impact of incidents according to the type of risk.

1. EBIT: Earnings Before the deduction of Interest and Tax.

Risk management overview

3.5 Group-wide risk reporting and monitoring

Monitoring and reporting are essential parts of Clearstream's risk management, designed to give Executive Management and the Board of Directors timely, consistent and accurate information about the material risks that Clearstream Holding and its subsidiaries may encounter or have encountered.

All relevant data and information is collected, assessed and prepared by Clearstream Risk Management, who assemble the relevant information and prepare the regular management reports according to the principles set down in this document (see also [3.1 Strategy and organisation](#) on page 3-1).

3.5.1 Regular reports

Risk reports are issued to the relevant Executive Management of Clearstream on a regular basis. These reports provide the status of a new risk situation and/or updates on existing risk developments covering causes, potential early mitigation measures, assessment and recommendations.

3.5.2 Ad-hoc reports

Clearstream Risk Management may issue ad-hoc reports when a new risk situation or the development of an existing risk should be reported to the relevant Executive Management of Clearstream, because of the material impact it has on the risk profile of the relevant units.

3.5.3 Monitoring

Internal Audit ensures, through independent audits, that the adequacy of the risk control and risk management functions is monitored. The results of these audits are also fed into the risk management system.

4. Management of operational risk

The information in this chapter is presented in the following sections:

[4.1 Strategy, process, structure and organisation](#) below;

[4.2 Measurement](#) on page 4-2;

[4.3 Operational risk mitigation](#) on page 4-7;

[4.4 Monitoring and reporting](#) on page 4-9.

4.1 Strategy, process, structure and organisation

Operational risk represents a major risk class for Clearstream and one that is systematically managed and controlled. Clearstream decided to cover business needs and regulatory requirements through the same approach to the largest extent possible. Therefore, Clearstream follows an Advanced Measurement Approach (AMA) for calculating the regulatory capital charge for operational risk. Thus, Clearstream established a comprehensive framework and set of instruments meeting the requirements from both a regulatory and a business perspective.

Since having received regulatory approvals as of January 2008, CBL and CBF apply the AMA to calculate their capital requirements for operational risk. In October 2010, CH received BaFin's approval to use the approach at group level in the course of the introduction of the supervision on CH group level.

Clearstream's risk strategy, as described in [3.1 Strategy and organisation](#) on page 3-1, also applies to the management of operational risk. In this risk strategy also, the risk capital dedicated to cover losses resulting from operational risk is defined, setting a limit for this risk type.

Operational risk can be differentiated according to the severity and frequency of losses. As operational risk management depends on the risk position of Clearstream, the general principles are as follows:

- All main risks are identified and continuously analysed with regard to the expected or real effect on frequency and severity.
- For risks with low frequency but high severity, risk transfers are considered, for example, through insurance contracts.
- For risks with high frequency but low severity, risk reduction is considered, for example, by optimising processes.

The ultimate responsibility for operational risk management lies with the members of Executive Management of Clearstream, who are supported by different units and functions. Clearstream has established a segregation of duties into the predominately central operational risk management, the mostly local operational risk control and an independent review function.

The five steps of the risk management process (as described in [3.1 Strategy and organisation](#) on page 3-1) are required to be taken into account.

Management of operational risk

It is the responsibility of line management to control operational risk within their area on a day-to-day basis. This includes the identification of suitable measures to mitigate operational risk and to improve the effectiveness and efficiency of the operational risk management. To achieve this target Executive Management appoints "Operational Risk Representatives" for their respective area with a direct reporting line to the respective member of the Executive Management.

The Operational Risk Representative is the key contact for both the employees in the respective organisational unit as well as for Clearstream Risk Management. They also support their line management with all tasks regarding operational risk and are especially responsible for the collection of operational risk event data within their organisational unit. In addition to this, the Operational Risk Representatives take an active role in further developing operational risk tools and instruments. They also coordinate operational risk training for their respective organisational unit.

It is the responsibility of any single employee to support Clearstream Risk Management, line management and the Operational Risk Representative of their organisational unit regarding any operational risk matters. Every employee is especially required to participate in the collection of operational risk event data. In addition, individual employees may be asked by line management, their Operational Risk Representative or Clearstream Risk Management to take an active role also in the operational risk management process, for example, as experts within scenario analysis.

4.2 Measurement

Operational risk capital is intended to represent the required risk capital for unexpected operational risk losses. As part of the AMA within Clearstream, a model for calculating operational risk capital requirements has been developed, based on the individual risk profile of the bank.

In line with common practice in other risk areas, capital requirements are calculated using the Value at Risk (VaR) concept. Based on a statistical analysis of relevant data, a loss distribution is determined, which enables calculation of the required figures.

The model has been designed to have the following properties:

- Capital requirements reflect the risk profile of Clearstream Group and individual group entities.
- Confidence levels can be adjusted according to the risk appetite of the bank.
- Incentives for proper risk management can be included into the model.
- Major risk drivers can be identified.
- Risk mitigation effects (such as insurance) can be taken into account.

Input data for the model are internal loss data, results of a structured scenario analysis or external loss data. If loss data is sufficiently available, the application of a statistical model gives a reliable estimate of the underlying risk represented by the data. However, operational risk losses are very rare and not sufficiently available for all risk drivers. Additionally, internal loss data usually does not cover extreme events as such cases have not occurred in the bank so far.

It is assumed that banks doing similar business have also a similar risk profile. If this assumption holds, publicly available losses or losses from a banking consortium could be used to fill the gap of missing internal loss information.

However, Clearstream has a unique business model that, as of today, is not sufficiently represented in any bank consortium or public database. Therefore, Clearstream decided to use external loss data only where appropriate. Furthermore, in cases where appropriate internal or external loss data is available, Clearstream decided to apply a statistical model to scenario losses that are created in a structured process by business experts.

During this process, experts from all areas of the bank estimate the potential impact and the likelihood of a scenario loss. These losses are modelled in a similar way as the internal loss data. Where the loss data history for a particular risk class becomes sufficiently large, the basis for modelling this risk class can be switched from scenario losses to internal losses without changing the operational risk model.

The soundness and reliability of the model and its results could therefore increase as the data basis broadens over time.

4.2.1 General concept

The overall objective of the operational risk model is to simulate a loss distribution for a given time frame, which is one year for regulatory purposes (according to the regulatory requirements the so-called "holding period").

In theory, this distribution could be determined directly based on the data. For such a model, one would either need hundreds of years of loss history or scenarios that cover aggregate annual losses rather than single events. Since neither of these is available, an actuarial technique is applied that models the likelihood of the occurrence of an event (that is, the frequency) independent of its severity. Combining these two distributions by Monte Carlo simulation gives the required aggregate loss distribution.

Due to the discrete nature of the occurrence of loss events, the frequency is modelled using a discrete probability distribution. In loss distribution approach (LDA) models, typically three different distributions are taken into account to model the frequency: the Poisson distribution, the negative binomial distribution and the binomial distribution. The latter two each have two parameters that need to be determined. One major difference of the two binomial distributions from the Poisson distribution is that the variance compared to the mean is larger or smaller, respectively.

The impact of an event - that is, the accumulated loss amount - can assume any value larger than zero and hence has to be modelled with a different approach compared to the frequency. Operational risk losses are usually modelled using an asymmetric, right-skewed distribution. A characteristic of operational risk is that the capital requirements are mainly driven by individual high losses. Severity distributions describing the size of losses are an important part of the operational risk capital model.

However, modelling the severity is very cumbersome. The main reason is the lack of information about large events. Even with a long and large data history (internal or external loss data) or a sound scenario analysis process, it is always necessary to extrapolate beyond the highest relevant data point. The technique chosen by Clearstream, in line with best practice, is to fit a parametric distribution to the losses or to the scenarios, respectively, and to assume that the parameters also provide a realistic model for potential events beyond the current experience.

Typical distributions to model such a population are Log-Normal, Log-Gamma, Weibull, Gamma, Pareto and Generalised Pareto. The decision as to which distribution should be applied is based on the results of the "fitting results" and "goodness-of-fit" tests.

The overall severity distribution is determined by two types of loss: the high-frequency, low-impact (HF-LI) losses that can be represented by internal loss data; and the low-frequency, high-impact (LF-HI) losses that are very rare and hardly found in the internal loss database.

The development of each of these types of event is usually very different. HF-LI are very process dependent and occur regularly with different outcomes (that is, losses) each time. LF-HI events usually occur only once due to a severe malfunction of the control or business continuity system. It is not feasible to model both severity ranges with a single distribution. Therefore, these two types of events are modelled separately as body (HF-LI) and tail (LF-HI) of the severity distribution.

The operational risk model is applied to Clearstream Group as a whole. The aggregate loss distribution for Clearstream Group covers the operational risk of all legal entities. In the model, each risk class is treated separately. The data is modelled in the following structure:

- Frequency distribution: Modelled for each risk class individually. Depending on availability of internal data, the frequency can be estimated from the historic losses and based on the results of the scenario analysis.

For a sound estimation of a Poisson frequency, a history of relevant data of at least 12 quarters is required.

Management of operational risk

- Body severity distribution: Modelled for each risk class individually. Depending on availability of internal data, the body severity is estimated from the historic losses. Otherwise, a stochastic model is applied to the results of the scenario analysis.

For a sound estimation of the body severity distribution, the number of relevant data points should, as a rule, exceed 100. The stability of the estimation depends significantly on the number of data points. Therefore, it needs to be decided, for each risk class individually, whether a loss data model or a scenario model should be applied.

- Tail severity distribution: Modelled for CH Group as a whole. The tail is modelled on the extreme scenarios as a result of the structured scenario analysis.
- Catenation point x_c : The body and tail distributions are combined at a catenation point, which is determined by the body distribution for each risk class. Therefore, each risk class is individually modelled with a combined severity distribution.

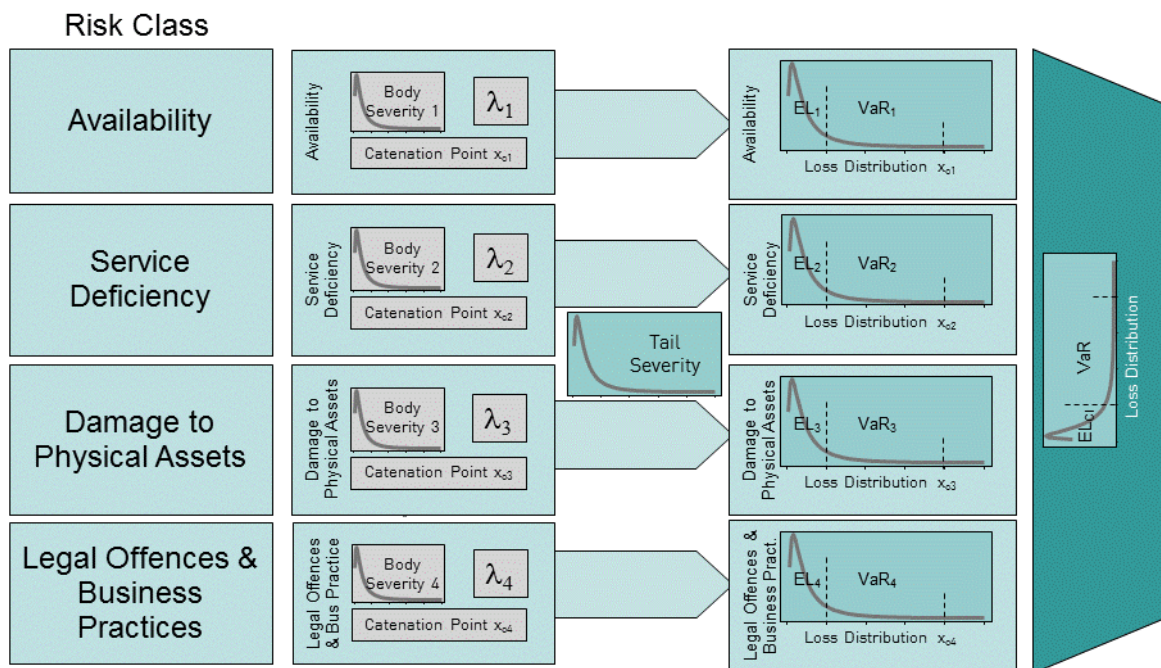


Figure 4-1. Overview of model structure

The body severity distribution, the frequency distribution and the catenation point are determined per risk class and combined with the group-wide tail severity distribution. An aggregate loss distribution is calculated for each risk class for the group.

4.2.2 Parameter estimation

Frequency estimation is based on internal loss data (if available to a sufficient degree) or the average number of events per year is estimated as part of the scenario analysis. The frequency model covers the entire severity range and does not differentiate between the body and the tail of the severity.

The distribution of loss amounts is based on two distinct datasets: either on internal loss data or scenarios covering the high frequency body part of the distribution, or on scenarios covering very rare events. The latter distribution is modelled for the group as a whole but combined with the body severity distribution on risk class level. This approach considers potentially severe events properly for every risk class and enables diversification effects between different risk classes to be taken into account.

Since internal loss data will never be sufficient to model extreme operational risk events, the tail of the severity distribution is modelled on the basis of scenario data only. For the tail, scenarios for all risk classes with a probability of one or less in 20 years are used and combined in one dataset. The tail distribution is modelled using all relevant data.

The parameters of the fitted distribution are obtained according to the above-described fitting process for the scenarios. Since only scenarios describing very rare events are taken into account for the tail model, it is offset by the lowest bound of the scenarios: hence, the implementation of a truncation on the lower end of the distribution. The relevant appropriate distributions are heavy tailed distributions (Generalised Pareto, Log-Gamma, Weibull etc.).

The body severity and tail severity distributions are taken together to form the combined severity distribution for a risk class. For modelling the body distribution, all scenarios or loss data are taken into account in order to use as much loss information as possible.

However, the fit is focused on the bulk part of the distribution and the part of severe losses is usually underestimated. Therefore, this part of the body distribution is not used for the capital calculation and is substituted by the tail severity distribution.

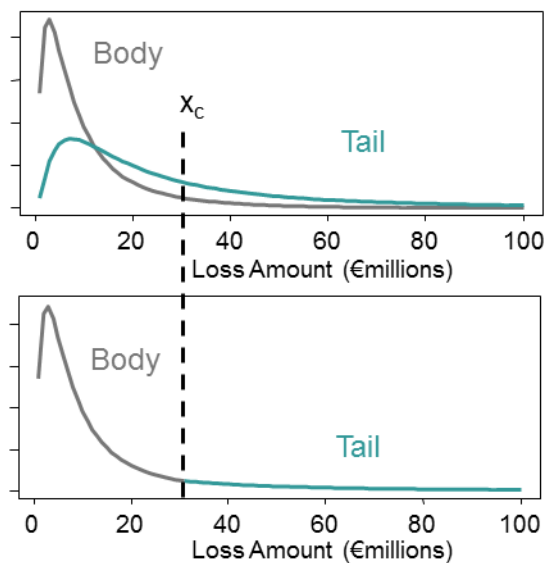


Figure 4-2. Example for substitution of the body distribution by the tail severity distribution

Management of operational risk

4.2.3 Insurance

Clearstream has insurance cover for different operational risks through multiple insurance policies and this is considered when calculating operational risk capital requirements.

The relevant insurance policies are analysed with respect to the terms and conditions, inclusions, exclusions and clauses. Following this analysis, the insurance policies are mapped to the specific risk classes and a coverage ratio is estimated taking into consideration the possibility of uncovered losses. The objective is to evaluate the likelihood of the losses or scenarios within a risk class being covered by the insurance policies.

In order to adequately reflect the insurance programme, with respect to limits purchased and deductibles carried as well as aggregate and stop loss conditions, Clearstream has implemented a modelling structure that enables the assessment of the likelihood of insurance payment for “each and every loss”, that is, per individual simulated loss.

The insurance coverage calculation uses the obtained coverage ratios. The individual losses per risk class generated in the Monte Carlo simulation are transferred into the insurance model and a Bernoulli trial is used to perform a random check to see whether the loss amount is covered.

4.2.4 Monte Carlo simulation

The distributions discussed so far (that is, the annual frequency and combined severity distributions) must be convoluted in order to derive the aggregate loss distribution for a risk class and, based on that, the total loss distribution for operational risk. Clearstream implemented a Monte Carlo simulation, which enables the numerical determination of the loss distribution with high precision.

A single Monte Carlo simulation cycle is carried out in three steps:

1. Generate a random number for the number of events for the body with λ_B and the respective loss amounts from the body severity distribution that is capped at x_c .
2. Generate a random number for the number of events for the tail with λ_T and the respective loss amounts from the tail severity distribution truncated from above at x_c .
3. Sum all loss amounts in order to calculate the total loss amount of one year.

Repeating the Monte Carlo cycles many times gives a loss distribution for a risk class with the required accuracy.

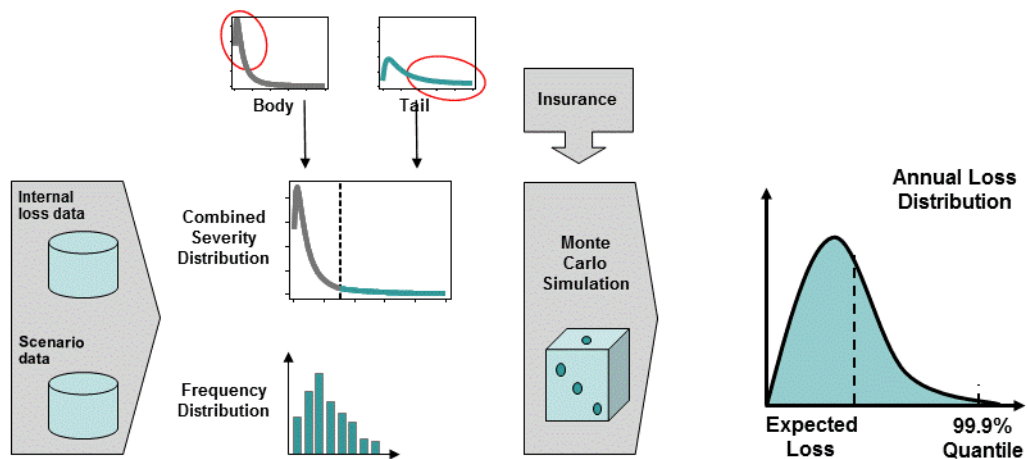


Figure 4-3. Steps of single Monte Carlo simulation

4.2.5 Stress testing of operational risks

Stress tests are performed to generate insights into the effectiveness of extreme event scenarios and to validate capital adequacy. Such stress includes the occurrence of several severe losses within one particular year. Given the fact that, in principle, any combination of existing risk scenarios is possible, the focus is on plausible stress events, considering the respective frequency of occurrence of the individual risk scenarios. Thus, for instance the combination of two extreme scenarios with a frequency of one loss in 1000 years is not considered, given the extremely limited likelihood.

Three particular stress tests are examined.

- The risk scenario with the biggest maximum loss is benchmarked with the Risk Bearing Capacity for Operational Risk.
- The combined maximum loss of the two extreme scenarios with the biggest maximum loss and a frequency not lower than one loss in 100 years is benchmarked with the Risk Bearing Capacity for Operational Risk.
- Three non-extreme risk scenarios (that are used when modelling the body distribution but are not considered when modelling the tail) with the biggest maximum loss are combined and the total loss amount is benchmarked with the Risk Bearing Capacity for Operational Risk.

In addition to the stress tests defined above, Clearstream Risk Management performs, since 2011, so-called reverse stress test for operational risk that assume that several risk scenarios materialise at once. As many operational risk scenarios are chosen as are needed so that the losses would exceed the regulatory own funds (risk bearing capacity (RBC)). For some operational risk scenarios, a recovery rate is available based on the operational business expert information provided. Scenarios that are mutually exclusive are not taken into account.

The following steps are performed to calculate the Reverse Stress Test for Operational Risk:

1. Take the operational risk scenario with the largest maximum loss.
2. If a loss would not consume the whole RBC, add the next largest operational risk scenario.
3. The Reverse Stress Test for Operational Risk is complete once the RBC is consumed completely.

4.3 Operational risk mitigation

As laid out in its risk strategy, Clearstream gives considerable attention to its risk mitigation process. The aim is to reduce the frequency and the severity of potential operational risk events. The process comprises several quality and control initiatives whose objective is to ensure that Clearstream's operations have sufficient controls to prevent any fraud or operational service deficiency. If an event of this kind occurs in Clearstream's operations, a thorough analysis is performed in order to be in the position to define measures to reduce the probability of recurrence.

The key preventive measures of risk mitigation consist of strong internal control processes and ongoing initiatives to further reduce errors and omissions. This is supported by a number of measures that will take effect at the time or after an incident, such as business continuity management (BCM) and insurance programs

4.3.1 Internal Control System

The Executive Management of Clearstream has implemented an internal control system, designed to ensure the effectiveness and profitability of the business operations, prevent or detect financial loss and thus protect all its business assets. Clearstream's internal control system, an integral part of the risk management system, continuously developed and adjusted to reflect changing conditions, comprises both integrated and independent control and safety measures.

Internal Auditing carries out risk-oriented and process-independent controls to assess the effectiveness and appropriateness of the internal control system.

Management of operational risk

4.3.2 Business Continuity Management

Because the unavailability of core processes and resources represents a substantial risk for Clearstream, and a potential systemic risk to the markets as a whole, Clearstream has implemented a comprehensive Business Continuity Management (BCM) approach as a key mitigator of availability risk.

BCM organisation at Clearstream

The Executive Management is responsible for ensuring the continuity of business at Clearstream. This responsibility is delegated to the various organisational units, which are directly responsible for the operational resilience and disaster tolerance of the respective business areas. Reporting to Executive Management, Group Risk Management is responsible for the overall coordination and monitoring of Clearstream's preparedness to deal with incidents and crises.

The organisational roles and responsibilities, and the guiding principles to ensure operational resilience, are documented in a formal BCM policy.

BCM arrangements

The implemented BCM arrangements aim to minimise the impact of the unavailability of key resources, addressing not only the unavailability of systems, workspace and suppliers, but also the loss of significant numbers of staff in order to ensure the continuity of the most critical operations even in cases of catastrophe. Thereby, Clearstream is making use of its operational locations at Eschborn, London, Luxembourg, Prague and Singapore to maintain the continuity of its services.

Systems unavailability

Data centres in the main operating locations are distributed to form active centres, acting as backups of each other. Data is mirrored in real time across the data centres. The infrastructure is designed to ensure the online availability and integrity of all transactions at the time of a disruption.

Workspace unavailability

Exclusively dedicated work facilities provide backup office space for mission critical staff in the event that an office location becomes unavailable. These backup facilities are fully equipped and networked to the distributed data centres and are operational at all times. In addition, business transfer plans between Clearstream's different operations locations can be used to mitigate workspace unavailability.

Staff unavailability

Business continuity measures address the loss of significant numbers of staff, covering catastrophe scenarios and potential pandemics. Solutions are designed to ensure that the minimum staff and skills required are available outside the impacted location. Staff dispersal and business transfer plans between Clearstream's different operations locations are employed such that, if one of these locations is impacted, mission critical activities can be continued by staff in other locations.

Supplier unavailability

Clearstream assures itself of the continuous provision of critical supplier services by a number of means, such as regular due diligence review of suppliers' BCM arrangements, provision of services by alternative suppliers if possible and service level agreements, describing the minimum service levels expected from suppliers, and contingency procedure requirements.

Incident and crisis management process

Clearstream has implemented a group-wide incident and crisis management process that facilitates coordinated response and rapid reaction to an incident or crisis in a controlled and effective manner. The process aims to minimise business and market impact, as well as enable the speedy return to regular business activity.

Incident Managers have been appointed in their respective business areas in case of incidents and crises. They will also ensure the appropriate escalation up to the Executive Management and notification to customers.

“Real-life” simulation testing

Clearstream adopts a comprehensive and ambitious business continuity testing approach that simulates scenarios as close as possible to real-life situations while reducing associated risks and avoiding customer impacts. BCM plans are tested on a regular basis, at least annually and mostly unannounced.

Three criteria are applied to validate the BCM test results:

- Functional effectiveness: validating all technical functionalities.
- Execution ability: ensuring that members of staff are familiar with and knowledgeable in the execution of BCM procedures.
- Recovery time: confirming that BCM plans can be executed within a defined recovery time objective.

Findings are reported to Executive Management. Customers are regularly invited to participate in Clearstream's BCM tests to validate their own BCM arrangements.

4.3.3 Insurance

An additional tool used by Clearstream to mitigate the impact of operational risk is the transfer of risks above a certain threshold to third parties through a comprehensive insurance programme.

The risk-reducing effect from insurance contracts is taken into account when calculating the capital requirements for operational risk according to the Advanced Measurement Approach (AMA).

In order to achieve the optimum risk/benefit versus premium ratio, insurance policies are negotiated either through highly reputable brokers or directly with prime rated insurers to purchase tailor-made policies reflecting the specificities of our business.

Each major insurance cover is reviewed annually following the evolution of Clearstream's operational risk profile. This review involves all relevant parties and is coordinated by Clearstream Risk Management.

4.4 Monitoring and reporting

The reporting approach laid out in [3.1.5 Risk reporting](#) on page 3-3 and [3.5 Group-wide risk reporting and monitoring](#) on page 3-10 also applies to the management of operational risk. A Supplementary Risk Report is also produced annually with the aim of providing the management body with additional background information pertaining to Clearstream's risk management.

This report includes additional summary statistics and trend analyses of operational risk events, but also a summary of major changes to the operational risk model, concept and methodology, and quality improvements in operational risk management.

Management of operational risk

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5. Management of credit risk

The information in this chapter is presented in the following sections:

- [5.1 Strategy, process, structure and organisation](#) below;
- [5.2 Credit risk exposures](#) on page 5-2;
- [5.3 Credit risk mitigation](#) on page 5-7;
- [5.4 Guarantees of the ASL business](#) on page 5-11;
- [5.5 Monitoring and reporting](#) on page 5-12;
- [5.6 Disclosures on derivative credit risk](#) on page 5-12;
- [5.7 Disclosures on equities in the non-trading book](#) on page 5-14;
- [5.8 Asset encumbrance](#) on page 5-15

5.1 Strategy, process, structure and organisation

Clearstream's general risk management structure, organisation and process, as well as the risk strategy, is specified in [3. Risk management overview](#) on page 3-1. The present status and the business direction for credit risk are stated in a credit risk strategy. The Executive Management periodically examines and adjusts the credit risk strategy as necessary.

The credit risk strategy is set in accordance with the Risk Management Policy and is reported annually to the responsible Board of Directors. The credit risk strategy represents the framework and defines, amongst others, the principle credit risk appetite, the credit authorities, possible collaterals, the basic counterparty quality as well as the fundamental country and currency risk categories.

With regard to credit risk, the credit risk strategy is translated into a limit system, which is also monitored on a regular basis and ad hoc.

Clearstream may grant credit limits that serve to facilitate the settlement of securities transactions, support the securities financing business and limit the placement of funds with counterparties. Credit is primarily granted on a collateralised basis. Borrowers in Clearstream are central banks, banks and financial institutions. The credit processing is arranged in guidelines and work instructions.

Credit limits are set in accordance with the customer's financial standing, as indicated by factors such as the customer's credit rating and net worth, as well as having regard for the level of activity on the customer's accounts and the level of collateralisation.

The evaluation of counterparties and the credit risk classification takes place within the "credit assessment", which is performed by the Credit section. Internal ratings are systematically compared with external ratings from Moody's, Standard & Poor's and Fitch and are adjusted where applicable.

Credit lines must be collateralised to the maximum extent possible. The monitoring of recoverability of collateral is also operated by the Credit section.

The sovereign risk of each country is reviewed and allocated to one of three categories according to country risk level (high, medium, low). Credit limit concentration thresholds relating to country group,

Management of credit risk

customer internal ratings and collateralisation levels are established and reported to the Executive Management on a monthly basis. Currency limits are established to cover currency exposure.

Any exception to the Credit Risk Policy must be approved by the Executive Management.

All credit risk exposures are regularly reviewed and monitored. Clearstream also conducts special reviews where information is received from external and internal sources indicating a negative change in the risk assessment of the exposure or of the collateral.

The above-mentioned exposure limits are set to ensure that Clearstream does not take too large an exposure, and therefore risk, on too few participants or counterparties. German and Luxembourg banking regulations also impose risk concentration limits that have to be respected for each applicable exposure.

In principle, exposures after risk weighting and credit risk mitigation techniques towards an individual customer or group of connected customers above 25% of own funds is reported as a breach under the large exposures regulation.

Credit risk control is performed by the Credit section, an independent function. The Credit section is responsible for issuing the monthly credit reporting to the Executive Management and to Group Risk Monitoring, as well as for the credit exposure reporting to Group Risk Monitoring, which forms the basis of the Credit VaR calculations.

5.2 Credit risk exposures

5.2.1 Application of the standardised approach

Clearstream uses the credit assessments by OECD¹ for the central governments and central banks exposure class. In addition, Clearstream nominated the external credit assessment institution (ECAI) Standard & Poor's for the same exposure class as OECD ceased to assess so called "high income countries" in 2013. For regional governments or local authorities, public sector entities and institutions (credit institutions, investment firms and other dedicated financial counterparties) exposure classes, the dedicated risk weight is derived from that of the respective country of residence. The use of these credit assessments by OECD and Standard & Poor's ratings has been notified to the German and Luxembourg supervisors.

The exposures of Clearstream belong mainly to the exposure classes of central governments and central banks and to institutions. The current exposures to central governments and central banks are mainly risk-weighted by 0%. The exposures to institutions have generally a short original maturity of less than or equal to three months, therefore, pursuant to Article 120 paragraph 2 CRR the risk weight is 20%.

The risk weighting for multilateral development banks is in most cases 0%.

Covered bonds obtain a risk weighting on the basis of the risk weightings assigned to senior unsecured claims on the credit institution that issues them.

All other exposures in the different exposure classes mostly achieve the prescribed risk weighting of an unrated position ("unrated" implies that no credit rating by an eligible ECAI exists or that no ECAI was nominated).

Clearstream complies with the risk weighting as defined in Section 2, Chapter 2 of Part Three, Title II of the CRR.

The following table shows the respective total credit risk exposure values in the standardised approach, before and after applying credit risk mitigation techniques, that have been allocated to each exposure class, as well as credit quality step prescribed in Chapter 2 of Part Three, Title II of the CRR.

1. Country Risk Classification: <http://www.oecd.org/tad/xcred/crc.htm>.

31 December 2014 (€' 000)		Exposure value			Exposure value after CRM*			Exposure value after considering Conversion Factor (CF)		
Exposure class	Risk weight class	CH-Group (*)	CBL(*)	CBF (*)	CH-Group (*)	CBL (*)	CBF (*)	CH-Group (*)	CBL (*)	CBF (*)
Central governments or central banks	0%	2,049,985	1,995,813	81,078	2,049,985	1,995,813	81,078	2,049,985	1,995,813	81,078
	20%	2,873	-	-	2,873	-	-	2,873	-	-
	50%	549	-	-	549	-	-	549	-	-
	100%	348	9,932	65	348	9,932	65	348	9,932	65
	150%	15	-	-	15	-	-	15	-	-
	Total	2,053,770	2,005,745	81,143	2,053,770	2,005,745	81,143	2,053,770	2,005,745	81,143
Regional governments or local authorities	0%	245,190	220,912	25,138	245,190	220,912	25,138	245,190	220,912	25,138
	Total	245,190	220,912	25,138	245,190	220,912	25,138	245,190	220,912	25,138
Public sector entities	0%	809,268	745,547	64,914	809,268	745,547	64,914	809,268	745,547	64,914
	100%	-	140	-	-	140	-	-	140	-
	Total	809,268	745,687	64,914	809,268	745,687	64,914	809,268	745,687	64,914
Multilateral development banks	0%	488,897	473,904	14,992	488,897	473,904	14,992	488,897	473,904	14,992
	Total	488,897	473,904	14,992	488,897	473,904	14,992	488,897	473,904	14,992
International organisations	0%	271	59	-	271	59	-	271	59	-
	Total	271	59	-	271	59	-	271	59	-
Institutions	20%	62,888,076	59,680,577	4,731,823	10,193,254	87,330,527	3,329,813	1,732,602	2,179,453	222,921
	50%	-	1,274	-	-	879	-	-	1,274	-
	100%	-	-	-	-	4,732	-	-	-	-
	150%	-	262	-	-	174	-	-	262	-
	Total	62,888,076	59,682,113	4,731,823	10,193,254	87,336,312	3,329,813	1,732,602	2,180,989	222,921
Corporates	20%	-	3,199	-	-	38,590	-	-	3,200	-
	50%	-	-	-	-	2	-	-	-	-
	100%	298,271	212,859	3,035	168,667	15,192	3,035	168,667	92,423	3,035
	150%	24	69	-	24	2,120	-	24	69	-
	Total	298,295	216,127	3,035	168,691	55,904	3,035	168,691	95,692	3,035
Equity	100%	10,689	3,630	1,858	10,689	7,098	1,858	10,689	3,630	1,858
	250%	7,971	1,905	-	7,971	-	-	7,971	1,905	-
	Total	18,660	5,535	1,858	18,660	7,098	1,858	18,660	5,535	1,858
Other items	0%	3	3	-	3	3	-	3	3	-
	100%	31,984	2,669	279	31,984	2,669	279	31,984	2,669	279
	Total	31,987	2,672	279	31,988	2,672	279	31,988	2,672	279
Total 2014		66,834,414	63,352,754	4,923,182	14,009,988	90,848,293	3,521,172	5,549,336	5,731,195	414,280
Total 2013		144,586,040	138,466,889	8,276,044	96,015,032	89,655,625	8,276,044	4,836,899	4,901,294	1,249,785

* CRM (Credit Risk Mitigation techniques) is described in detail in 5.3 Credit risk mitigation on page 5-7.

Table 5-1. Total credit risk exposure values

Note: The data for CH and CBF is based on the German GAAP according to the German Commercial Code (HGB)., The data for CBL is based on International Financial Reporting Standards (IFRS).

Investments in pension-linked fund shares and similar obligations in line with International Accounting Standards (IAS) 19/HGB §246 (2) are netted in Luxembourg (as in the accounting standard) and since 2014 also in Germany. The change in Germany resulted from the introduction of the CRR¹.

Collateral for specific securities lending products (for example, see "ASLplus" on page 5-10) are kept en bloc for various single loans (collateral pool). The necessary regulatory allocation of this collateral to the individual loans is performed by the reporting software. The collateral effectiveness varies according to different algorithms incorporated in the tools used for Germany and Luxembourg respectively. In addition, differences occur due to usage of differing FX rates. This leads mainly to deviations between CBL and CH Group in the figures for the "institutions" exposure class for the same loans.

In the tables that follow in this chapter, the credit exposures shown/used are always after consideration of CRM and Conversion Factors (CFs).

1. Point 109 of Article 4 CRR states that "defined benefit pension fund assets" shall be calculated as the assets after the reduction of obligations under the same fund or plan. This is in line with the treatment under § 246 (2) HGB.

Management of credit risk

5.2.2 Detailed information and distribution of credit risk exposures

Value adjustments and provisions:

Clearstream assesses, at each balance sheet date, whether there is objective evidence that a financial asset or group of financial assets classified as held-to-maturity, available for sale or loans and receivables, are impaired. Only indications of impairment incurred at the balance sheet date resulting from past events and current economic conditions can be considered. Losses expected as a result of future events, no matter how likely, are not recognised.

According to the policies of Clearstream and in line with sound banking practices and regulations, Clearstream makes value adjustments and provisions, when necessary and due to individual decisions. Clearstream does not have any value adjustments and provisions for credit risk exposures at present, because it does not have any impaired assets.

The geographical allocation of credit risk exposures is as follows:

31 December 2014 (€'000)		Geographical areas				
Exposure class	Companies	European Union	Rest of Europe	North America	Rest of World	Total
Central governments or central banks	CH-Group (*)	1,931,650	114,564	4	7,552	2,053,770
	CBL(*)	1,883,908	114,562	-	7,275	2,005,745
	CBF (*)	81,143	-	-	-	81,143
Regional governments or local authorities	CH-Group (*)	245,190	-	-	-	245,190
	CBL(*)	220,912	-	-	-	220,912
	CBF (*)	25,138	-	-	-	25,138
Public sector entities	CH-Group (*)	809,268	-	-	-	809,268
	CBL(*)	745,687	-	-	-	745,687
	CBF (*)	64,914	-	-	-	64,914
Multilateral development banks	CH-Group (*)	488,868	-	-	29	488,897
	CBL(*)	473,904	-	-	-	473,904
	CBF (*)	14,992	-	-	-	14,992
International organisations	CH-Group (*)	59	-	-	211	270
	CBL(*)	59	-	-	-	59
	CBF (*)	-	-	-	-	0
Institutions	CH-Group (*)	1,312,438	92,624	56,123	271,417	1,732,602
	CBL(*)	1,609,120	167,847	84,548	319,474	2,180,989
	CBF (*)	222,160	760	-	-	222,921
Corporates	CH-Group (*)	136,941	575	23,186	7,989	168,691
	CBL(*)	64,100	441	23,156	7,995	95,692
	CBF (*)	2,935	81	12	7	3,035
Equity	CH-Group (*)	18,659	1	-	-	18,660
	CBL(*)	5,429	-	-	106	5,535
	CBF (*)	1,858	-	-	-	1,858
Other items	CH-Group (*)	31,988	-	-	-	31,988
	CBL(*)	2,672	-	-	-	2,672
	CBF (*)	279	-	-	-	279
Total 2014	CH-Group (*)	4,975,061	207,763	79,313	287,198	5,549,336
	CBL(*)	5,005,791	282,850	107,704	334,850	5,731,195
	CBF (*)	413,420	841	12	7	414,280
Total 2013	CH-Group (*)	306,667	517,846	747,737	3,264,649	4,836,899
	CBL(*)	9,265,402	701,346	1,554,939	410,034	11,931,721
	CBF (*)	1,249,211	565	2	-	1,249,778

Table 5-2. Geographical allocation of credit risk exposures

Note: The data for CH and CBF is based on the German GAAP according to the German Commercial Code (HGB). The data for CBL is based on International Financial Reporting Standards (IFRS).

In addition, differences occur due to use of differing FX rates.

Related to shifts in the exposure class allocation and different collateral valuations between CBL and CH Group, please refer to the Note under [Table 5-1](#) on page 5-3.

Management of credit risk

Clearstream delivers settlement, custody and related services to financial markets. Clearstream does not incur exposures from its business to non-financial industrial sectors.

The following table provides information about the residual contract maturity, broken down by exposure classes. Most exposures are short-term with a significant part being intraday exposures.

31 December 2014 (€'000)		Maturity			
Exposure class	Companies	Not more than 3 months	Up to one year	Over one year	Total
Central governments or central banks	CH-Group (*)	2,018,798	34,972	-	2,053,770
	CBL(*)	2,005,745	-	-	2,005,745
	CBF (*)	46,171	34,972	-	81,143
Regional governments or local authorities	CH-Group (*)	36,977	-	208,213	245,190
	CBL(*)	37,020	-	183,892	220,912
	CBF (*)	-	-	25,138	25,138
Public sector entities	CH-Group (*)	506	202,186	606,576	809,268
	CBL(*)	140	202,246	543,301	745,687
	CBF (*)	423	-	64,491	64,914
Multilateral development banks	CH-Group (*)	418	-	488,479	488,897
	CBL(*)	417	-	473,487	473,904
	CBF (*)	-	-	14,992	14,992
International organisations	CH-Group (*)	271	-	-	271
	CBL(*)	59	-	-	59
	CBF (*)	-	-	-	0
Institutions	CH-Group (*)	1,732,602	-	-	1,732,602
	CBL(*)	2,180,989	-	-	2,180,989
	CBF (*)	222,921	-	-	222,921
Corporates	CH-Group (*)	168,691	-	-	168,691
	CBL(*)	95,692	-	-	95,692
	CBF (*)	3,035	-	-	3,035
Equity	CH-Group (*)	-	-	18,660	18,660
	CBL(*)	-	-	5,535	-
	CBF (*)	-	-	1,858	1,858
Other items	CH-Group (*)	31,988	-	-	31,988
	CBL(*)	2,672	-	-	2,672
	CBF (*)	279	-	-	279
Total 2014	CH-Group (*)	3,990,250	237,158	1,321,928	5,549,336
	CBL(*)	4,322,734	202,246	1,206,215	5,725,660
	CBF (*)	272,829	34,972	106,479	414,280
Total 2013	CH-Group (*)	3,356,220	250,319	1,230,360	4,836,899
	CBL(*)	3,136,208	252,289	1,512,797	4,901,294
	CBF (*)	1,212,778	-	37,007	1,249,785

Table 5-3. Residual contract maturity

Note: The data for CH and CBF is based on the German GAAP according to the German Commercial Code (HGB). The data for CBL is based on International Financial Reporting Standards (IFRS).

Related to shifts in the exposure class allocation and different collateral valuations between CBL and CH Group, please refer to the Note under [Table 5-1](#) on page 5-3.

Management of credit risk

According to the policies of Clearstream and in line with sound banking practices and regulations, Clearstream makes value adjustments and provisions, when necessary and due to individual decisions. Clearstream does not have any value adjustments and provisions for credit risk exposures at present, because it does not have any impaired assets.

Past due items and default or non-performing exposures:

Pursuant to the below-stated definitions, Clearstream has had no past due item or default or non-performing exposure in its books at the reporting date or during the year under review.

Definition of past due:

An exposure is classified by the CRR as "past due" where a counterparty has failed to make a payment when contractually due, when the debtor has exceeded an external limit communicated to him as well as when the debtor has utilised credit without prior consent.

Definition of default or non-performing:

According to Article 178 of the CRR, a debtor is in default when either or both of the following conditions apply:

- The institution has material reason to consider that the obligor is unlikely to pay its (credit) obligations in full, without recourse by the institution to actions such as realising collateral (if held).
- The obligor is past due more than 90 successive calendar days on any material part of its overall credit obligation to the institution.

The Clearstream internal definition of "impairment" according to the German Commercial Code (HGB) as well as International Financial Reporting Standards (IFRS) is compliant with the definition of "default" outlined in Article 178 CRR.

Credit risk mainly arises in the short term and with credit institutions or governmental counterparties. Treasury counterparties as well as CCBs for the operational network are selected based on a high degree of creditworthiness and operational reliability. Due to the short-term nature of the business performed by Clearstream, strict internal guidelines and a close monitoring of business, there were no credit losses within Clearstream since 1949.

5.2.3 Stress testing of credit risk

The term "stress test" comprises the entirety of qualitative and quantitative analysis methods of rare but plausible events. There are four stress tests performed for credit risk:

- The "Default of the Largest Counterparty Stress Test", where the default of the counterparty with the largest unsecured exposure is simulated on a monthly basis, after utilisation of all respective collateral and after taking the recovery rate into account.
- The "Economic Deterioration Stress Test", where the impact of a deterioration of the economic environment on Clearstream is simulated on a monthly basis. To capture the worsening of the economy, certain credit risk model parameters are adjusted compared to the standard VaR simulation.
- The "Multiple Failures Stress Test", whose purpose is to assess the impact of the simultaneous default of two or more large customers on Clearstream's solvency and liquidity position.
- The "Bridge Stress Test", where the test assumes an insolvency of our Bridge¹ counterparty.

The results of the "Default of the Largest Counterparty Stress Test" and the "Economic Deterioration Stress Test" are compared to limits, which are defined as a fraction of the available risk bearing capacity. The stress test results are reported to the Executive Management on a quarterly basis and to the Supervisory Board on a half-yearly basis.

1. The "Bridge" is the electronic communications platform that facilitates the efficient settlement of securities transactions between counterparties in Clearstream Banking S.A. and Euroclear Bank. Transactions between a Clearstream customer and counterparties in Euroclear Bank settle across the Bridge.

In addition to the stress tests defined above, a "Reverse Credit Stress Test" is being performed, whose aim is to identify the number of unsecured credit lines that exceed the available risk bearing capacity.

In the year under review, the stress tests did not reveal any risks that endanger the going concern of Clearstream's business.

In addition, CBL, as a central infrastructure ensuring the integrity of the capital markets possessing a banking license was included by the ECB in their Comprehensive Assessment and stress test. In its function of the highest regulatory authority for banks in the Eurozone, enforced by the implementation of the Single Supervisory Mechanism in November 2014, the ECB has undertaken a critical analysis of the balance sheets of 120 Eurozone banks and banking groups. Clearstream passed the stress test with very good results in all scenarios. The extensive assessment, which included an examination of the balance sheet and a verification of equity capital coverage levels, led to a confirmation by the ECB of the institution's high resilience.

5.3 Credit risk mitigation

Credit risk mitigation techniques, used by Clearstream for solvency purposes, are composed of hedging and collateralisation. Furthermore, a variety of account relation is maintained on a current account basis and therefore just net positions are relevant.

The companies of Deutsche Börse Group are highly integrated and perform a variety of services for each other. As a consequence, respective fees are invoiced and, as a result, payables and receivables arise. In order to optimise cash flows and to reduce payment efforts in such cases where cash flows in both directions are material, positions are held on current accounts based on netting agreements. Debits and credits are netted immediately and net positions are settled once a month.

The accounts with customers or CCBs are, in general, maintained on a current account basis. Therefore, all movements per account and currency are immediately netted to a single account balance.

For credit purposes, except as otherwise agreed between the customer and Clearstream, all accounts of the customer with Clearstream, in whatever currency they are held, are deemed to form the elements of a single, indivisible current account and Clearstream may at any time set off, in whole or in part, credit and debit balances standing to any accounts held by the customer with Clearstream.

Despite these netting possibilities, no netting takes place. For credit purposes, cash credit positions out of these arrangements are taken as cash collateral. For solvency purposes this collateral is not taken into account (see [5.3.1 Collaterals](#) on page 5-7).

CBL acts as principal in the securities lending business within the ASLplus product, which is operated on a matched principal broking basis. Lending is performed if the ultimate lender as well as the borrower are both willing and able to close the deal and the collateral is available.

5.3.1 Collaterals

5.3.1.1 Technical Overdraft Facilities

Under the terms and conditions of a Technical Overdraft Facility (TOF), CBF/CBL has a pledge on all their customer's assets held on the customer's account(s) defined as pledge account(s) to secure obligations towards CBF/CBL by the customer for the services rendered by CBF/CBL to this customer under the TOF. This is complemented by netting provisions. Unless CBF/CBL is specifically notified by the customer to the contrary, under the rules of CBF/CBL, as appropriate, all assets held by the customer in CBF/CBL are pledged in favour of CBF/CBL to the extent of any usage of the credit facilities.

Collateral eligibility is defined and approved by the Credit section. Eligibility and haircut are dependent on the security's credit, market, liquidity and legal risks.

Management of credit risk

Securities that are eligible are subject to a margin deduction from their market value; haircuts range from 2% to 100% depending on the issue type and credit quality.

Securities issued by or correlated to the customer are not eligible as collateral.

Collateral haircuts are automatically recalculated on a daily basis; collateral policy is reviewed at least once a year.

Customers' collateral positions are evaluated daily, based on prices received from various data vendors. Any transaction on a given account that would exceed the available collateral is automatically blocked by the system.

In some instances where no collateral can be provided by the customer, Clearstream may grant an overdraft facility on the basis of third-party bank guarantees.

		31 December (€ '000)	
		2014	2013
TOF (Technical Overdraft Facilities)			
CBL		88,843,322	84,616,054
CBF		7,971,749	7,049,888
Consolidated		96,815,071	91,665,942
Utilised lines	Unsecured		
	CBL	23,283	130
	CBF	0	-
	Consolidated	23,437	130
	Secured		
	CBL	2,400,318	1,724,805
CBF	452,881	33,379	
Consolidated	2,853,199	1,758,184	
Collaterals (available)	Cash	848,728	1,648,762
	Securities	192,357,457	110,032,655
Over-collateralisation (difference between utilised lines and available collaterals)		190,352,985	109,923,232

Table 5-4. External credit lines and utilisation

Like the cash credit positions, received securities collateral and guarantees are also not taken into account for solvency purposes as the average outstanding debit amount, especially after weighting with the respective risk weighting, is, in general and on average, low and additional cost for CRM usage does not give a positive cost-to-benefit ratio.

Since mid-2011, new Technical Overdraft Facility lines for CBL are granted on an intraday basis only (iTOF). Remaining TOF lines for CBL and all TOF lines for CBF are in the process of being changed to intraday basis.

5.3.1.2 Collateralised placing

CBL places a part of the group's liquidity - mainly in Euro - on the basis of reverse repo agreements with a maximum maturity of one year, but usually with maturities of three months or less. In general, repo transactions must be governed by a Global Master Repurchase Agreement (GMRA) and are only closed with banking counterparties fulfilling minimum rating criteria.

Repo transactions are, in principle, settled via Clearstream's settlement system. In some cases, the Euroclear system is also used via the "Bridge" or the domestic settlement systems of Clearstream's depositories are used. All settlement systems used are proven for that type of transaction.

Securities for placings taken as collateral have to fulfil specific requirements:

- Only the most liquid, least volatile and easily priced debt instruments with a defined credit rating (minimum long-term credit rating of Moody's [Aa3] or Standard & Poor's [AA-] or Fitch [AA-]; in the absence of a rating for the issue, the issuer rating (lowest available is relevant) are eligible as collateral for repo transactions.
- Issuers are limited to sovereigns, local governments, government agencies that are explicitly guaranteed by national governments, U.S. Government Enterprises (conventional [non-structured] instruments only), multilateral development banks and other supranational banks and banks. The rating requirements stated above vary depending on the issuer class.
- Not acceptable as collateral are: ABS, MBS (RMBS and CMBS) and other forms of non-standard collateral (such as CDOs, derivative bonds, credit-linked bonds, callable bonds, perpetual bonds, warrants).
- All collateral must have an active market and, in general, must be liquid.
- Subordinated securities are not eligible.
- Transactions in which the securities given as collateral are issued by or correlated to the counterparty ("own assets") are not allowed. For this reason, specific wrong way risk does not play a role in Clearstream.
- The maximum remaining life to maturity of the accepted securities is 10 years.

Cross-currency collateralisation is in general possible. It was not used for bilateral transactions but in the context of triparty repos. Bilateral transactions must be "plain vanilla" on a single fixed-income security. In triparty transactions, multiple fixed-income securities may be taken as collateral. Structured transactions are not allowed.

Haircuts on the securities are applied within triparty repo transactions only. All collaterals are valued daily. To secure the cash lent through reversed repurchase agreements, CBL agrees margin calls with the repo counterparty on a daily basis to keep cash and collateral in balance.

For solvency purposes, according to Article 227 CRR the application of zero volatility adjustments is possible in most cases. Where the conditions of the regulation stated above are not fulfilled, supervisory haircuts as laid down in Article 224 CRR apply. In cases of FX mismatch, further cross-currency haircuts are to be applied.

Management of credit risk

Counterparty/ Exposure Class Institutions (banks)	31 December (€' 000) 2014		31 December (€' 000) 2013	
	CH-Group	CBL	CH-Group	CBL
Exposure - book value	8,085,149	8,538,039	6,697,996	7,201,003
Collateral - market value	8,124,015	8,063,669	6,672,605	7,110,202
RWA	9,403	8,607	8,891	46,728

Counterparty/ Exposure Class Corporates	31 December (€' 000) 2014		31 December (€' 000) 2013	
	CH-Group	CBL	CH-Group	CBL
Exposure - book value	122,313	175,246	-	-
Collateral - market value	122,309	122,163	-	-
RWA	4	4,180	-	-

Table 5-5. Placements

5.3.1.3 ASLplus

The ASLplus Programme enables customers to enhance the revenues that can be realised as a lender by offering access to the wholesale trading market. CBL acts as principal to the lenders in ASLplus and lends on securities to market participants through various counterparties.

The Credit section defines collateralised securities borrowing limits for each borrower and credit limits are agreed on the basis of standard framework agreements between CBL and each borrower. Only securities rated A+ and above are eligible for collateral with haircuts ranging from 2% to 12% depending on the issuer type. Furthermore, both the exposure and the collateral are subject to daily valuation and remargining; the exposure and the collateral may be denominated in a different currency.

Mortgage-backed and other structured securities are not eligible as collateral.

In order to mitigate cross-currency risk in ASLplus, additional coverage is requested where there is a currency mismatch between a customer's loan and collateral portfolios. The add-on haircut is currently fixed at 1% (if the currency mismatch represents more than 33% of the exposure amount) and 2% (if it exceeds 66%) for one week.

The additional haircut requirement may be increased to the following marks if the foreign exchange mismatch amount exceeds the indicated thresholds:

- 3% for FX mismatch amount between EUR 2 billion and EUR 2.75 billion;
- 4% for FX mismatch amount between EUR 2.75 billion and EUR 3.5 billion;
- 6% for FX mismatch amount above EUR 3.5 billion.

Collateral for ASLplus business is delivered in a collateral pool serving several loans. Out of the pool, collateral valued at least to the requested collateral value based on internal credit rules is blocked for the total of the associated loans. No allocation on a loan by loan basis is done for credit purposes.

As for the collateralised placing, a zero weighting by the application of Article 227 CRR is, in general, possible. As the lending business is covering a wider scope of securities that do not fulfil the criteria as

laid down in Article 227 CRR, while the collateral given by the ultimate lender only partially fulfils these criteria, only a portion is zero weighted. For the remainder, the supervisory haircuts are applied. As there is a notable portion of cross-currency collateralisation, additional FX haircuts apply.

Counterparty Institutions (banks)	31 December (€' 000) 2014		31 December (€' 000) 2013	
	CH-Group	CBL	CH-Group	CBL
Exposure - book value	44,716,154	44,716,154	41,849,263	41,858,360
Collateral - market value	52,539,842	52,539,842	43,063,990	43,624,324
RWA	104,288	200,043	93,991	87,371

Table 5-6. Exposures on the ASLplus Programme

Note: The necessary regulatory allocation of this collateral to the loans is performed by the reporting software. The collateral effectiveness varies according to different algorithms incorporated in the tools used for Germany and Luxembourg respectively. In addition, differences occur due to usage of differing FX rates. This leads to deviations between CBL and CH Group in the figures for the "institutions" exposure class for the same loans.

5.4 Guarantees of the ASL business

5.4.1 Business description

The Automated Securities Lending (ASL) Programme is a fails lending programme that is integrated into CBL's settlement engine and enables settlement efficiency to be maximised.

CBL acts as:

- Lending Agent, offering:
 - Automatic detection of loan requirements to cover a failed trade;
 - Automatic identification of loan supply from ASL lenders;
 - Anonymous transfer of securities to the ASL borrower (undisclosed relationship between lender and borrower);
 - Administration of the loan.
- Collateral Agent, monitoring the quality and sufficiency of collateral with regard to:
 - Eligibility;
 - Collateral value;
 - Concentration limits;
 - Fluctuations in the market values of positions pledged as collateral (mark-to-market of the loan and the collateral);
 - Securities prices, reviewed several times a day depending on the closing time of the market;
 - Automatic collateral substitution.
- Guarantor for the collateralised loans:
 - Underwriting the risk involved if the borrower defaults on its obligations;
 - Managing collateral securities pledged by the borrower to CBL;
 - Assigning loan limits to borrowers to avoid any new loan opening if the limit is reached.

Management of credit risk

5.4.2 Risk guarantee

In the ASL Programme, every loan of securities is guaranteed by CBL. The guarantee is backed by securities pledged by the borrower, as follows:

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

5.4.3 Coverage value

The coverage value of the guarantee related to an ASL loan is equal to the market value of the securities plus an additional margin. Standard margins, varying from 0% to 15%, are applied depending on the securities lent.

5.4.4 Collateral eligibility

The collateral eligibility criteria of the ASL Programme are the same as those for Clearstream's settlement engine.

Collateral eligibility is defined and approved by the Credit section. Eligibility and haircut are dependent on the credit, market, liquidity and legal risks of the security.

Securities that are eligible are subject to a margin deduction from their market value; haircuts range from 2% to 100% depending on the issue type and credit quality.

Securities issued by or correlated to the customer are not eligible as collateral.

Collateral haircuts are automatically recalculated on a daily basis; collateral policy is reviewed at least once a year.

Customers' collateral positions are evaluated daily, based on prices received from various data vendors. Any transaction on a given account that would exceed the available collateral is automatically blocked by the system.

5.5 Monitoring and reporting

The Credit section reports new credit lines and changes of credit lines (increases as well as reductions), changes of the internal rating for customers and credit exposures to the Group Risk Monitoring section. Besides that, limit breaches - if any - are reported to the relevant Executive Management and to Group Risk Monitoring.

The reporting approach as described under [3.1.5 Risk reporting](#) on page 3-3 and [3.5 Group-wide risk reporting and monitoring](#) on page 3-10 also applies to the management of credit risk. On this basis, Group Risk Monitoring assesses the credit risk and reports VaR results as well as risk issues to the Executive Management. Besides the assessment of the VaR, Group Risk Monitoring also measures credit risk concentration and performs stress test calculations on credit risk (see [5.2.3 Stress testing of credit risk](#) on page 5-6).

5.6 Disclosures on derivative credit risk

Clearstream is, in general, not involved in the derivatives business. In particular, at the end of 2014, there were no credit derivatives in the books of any Clearstream entity.

However, derivatives are, to a small extent, used to hedge interest rate or foreign exchange risk. Such instruments can only be used in established and regularly tested operational procedures. In compliance with IAS 39, hedging documentation must be established. The dealings with interest rate or foreign

Management of credit risk

exchange risks (measurement, assignment of internal capital and limits etc.) are described in detail in [6. Management of market risk, including interest rate risk in the non-trading book](#) on page 6-1.

In cases where a certain level of foreign exchange exposure, and therefore risk, is exceeded, the risk of each individual currency exposure should be hedged. For the group, the level of materiality is expressed as 10% of consolidated EBIT of the budget year to be hedged for each individual currency exposure. For the protection of Clearstream's budgeted interest income, the Treasury section may hedge the budgeted interest income for up to 50% of the customer credit balances for the upcoming budget period(s) through approved hedging instruments.

Forward foreign exchange contracts hedging the foreign exchange risk are settled via Continuous Linked Settlement (CLS)¹, to minimise settlement risk, and executed with counterparties only where a Credit Support Annex (CSA) is signed to mitigate credit risk resulting from unfavourable market movement.

Correlations of market and credit risk are taken into account within the models for calculation of the credit risk.

The original exposure method pursuant to Part VII, Section 4.2.1 of CSSF Circular 06/273 is used by Clearstream to calculate the exposure value for OTC derivative instruments and long settlement transactions. The original exposure thus obtained is the exposure value.

FX swaps are considered as funding or an investment vehicle for currencies where no or limited deposit market exists (overnight swaps) or to convert USD liquidity (overnight and/or term FX swaps) into EUR used to purchase/repo against highly liquid paper delivered to BCL serving as liquidity buffer.

Exposure Value	Currency	31 December 2014 (mn)	31 December 2013 (mn)
Cross-currency swaps	EUR	36.0	45.7
Forward Foreign Exchange Contracts	EUR	0.2	0.1

Gross positive Fair Value	Currency	31 December 2014 (mn)	31 December 2013 (mn)
Cross-currency swaps	EUR	34.8	691.0
Forward Foreign Exchange Contracts	EUR	0.0	-

Notional/Trade Value	Currency	31 December 2014 (mn)	31 December 2013 (mn)
Cross-currency swaps	EUR	1,798.8	2,352.5
Forward Foreign Exchange Contracts	EUR	8.6	4.6

Table 5-7. Exposures in derivatives

1. CLS (Continuous Linked Settlement): CLS is a global multi-currency settlement system that aims to eliminate foreign exchange (FX) settlement risk due to time-zone differences by settling both legs of an FX transaction simultaneously (payment vs. payment).

Management of credit risk

5.7 Disclosures on equities in the non-trading book

Equities held in the non-trading book concern strategic participations in companies with business related to the business of Clearstream and a forced participation in the Society for Worldwide Interbank Financial Telecommunication (SWIFT), as CBL is one of the largest users of SWIFT. Due to the strategic alignment, no participation is held in order to make short-term profits (no trading intent).

5.7.1 Equities in the non-trading book

Clearstream Fund Services Ireland Ltd (CFSI), as well as Clearstream Global Securities Services Ltd (CGSS) are not included in the consolidated reporting of Clearstream Holding because their total assets were below the minimum level outlined in Article 19 paragraph 1 CRR (see [5.2.1 Application of the standardised approach](#) on page 5-2). Therefore, they are shown as equities in the non-trading book.

Owing to the SWIFT constitution, CBL - and, since 2012, also CBF - must hold a participation in SWIFT. In addition, the 50% participation of CBL in the trade repository REGIS-TR is held as equity in the non-trading book as well.

5.7.2 Valuation and accounting of equities in the non-trading book

For valuation and accounting purposes the German GAAP according to the German Commercial Code (HGB) is relevant for CH Group on a consolidated level and for CBF's equities in the non-trading book. According to the specifications of HGB, equities in the non-trading book are defined as long-term financial assets.

According to § 340e HGB in connection with §§ 252 and 253 HGB, such assets may not be recognised at an amount higher than their purchase price, reduced by depreciation, amortisation and write-downs in accordance with particular requirements for fixed assets. Items of fixed assets may be written down in order to carry them at the lower of cost or market value at the balance-sheet date. Impairment losses shall be recognised if impairment is expected to be permanent.

The valuation and accounting specifications of International Financial Reporting Standards (IFRS) are relevant for CBL's participations. In accordance with IAS 39.9, the participations of CBL are treated as available-for-sale financial assets.

The initial measurement is based on its fair value. For the purposes of subsequent measurement, the fair value without deduction for transaction costs that the financial asset may incur on sale or other disposal has to be taken into account. Fair value is defined as the amount for which an asset could be exchanged between knowledgeable willing parties in an arm's length transaction.

The following table considers in particular the participations in CGSS, CFSI, SWIFT and REGIS-TR that are held as equities in the non-trading book:

	31 December 2014 (€' 000)			31 December 2013 (€' 000)		
	CH-Group	CBL	CBF	CH-Group	CBL	CBF
Fair value of investments	20,331	5,535	1,931	6,404	4,910	1,599
Balance sheet value	18,660	5,535	1,858	5,689	4,910	1,858
Total unrealised gains (losses)	1,671	1,598	73	715	0	-259
thereof total revaluation gains (losses)	1,671	1,598	73	715	0	-259
Amounts included in the original or additional own funds	-	1,131	-	-	689	-

Table 5-8. Equities in the non-trading book

Note: The data for CH and CBF is based on the German GAAP according to the German Commercial Code (HGB). The data for CBL is based on International Financial Reporting Standards (IFRS).

None of the participations is listed on any exchange.

5.8 Asset encumbrance

The disclosure of information on asset encumbrance pursuant to Article 443 CRR was specified by EBA with the EBA guidelines on the disclosure of encumbered and unencumbered assets on 26 June 2014¹. Based on this guideline, the below disclosures are made.

Main source of encumbrance is a security from the portfolio of CBL that was partially used as a default fund contribution to a CCP. However, the overall level of encumbrance is very low as shown in [Table 5-9](#) on page 5-16. Unencumbered assets in column 60 are mainly related to the following positions:

- Collateralised Placings: As described in [5.3.1 Collaterals](#) on page 5-7, CBL enters into repo transactions which account for around 62% of the unencumbered assets in column 60;
- Placings: Customer liquidity that is mainly placed overnight amounts to around 15% of the unencumbered assets;
- Own Securities: Approximately 15% of unencumbered assets are investments of both CBL and CBF in debt securities;

Other positions: The remaining unencumbered assets are mainly other receivables and intangible assets.

1. Guidelines on disclosure of encumbered and unencumbered assets: <http://www.eba.europa.eu/documents/10180/741903/EBA-GL-2014-03+Guidelines+on+the+disclosure+of+asset+encumbrance.pdf/c65a7f66-9fa5-435b-b843-3476a8b58d66>.

Management of credit risk

31 December 2014 (€' 000) CH-Group					
		Carrying amount of encumbered assets	Fair value of encumbered assets	Carrying amount of unencumbered assets	Fair value of unencumbered assets
		010	40	60	90
010	Assets of the reporting institution	2,021		13,321,704	
030	Equity instruments			18,660	18,660
040	Debt securities	2,021	2,021	1,957,197	1,956,846
120	Other assets			229,871	

Table 5-9. Encumbered and unencumbered assets

In table 5-10 the fair value of the non-encumbered collaterals from collateralised placings is shown.

31 December 2014 (€' 000) CH-Group			
		Fair value of encumbered collateral received or own debt securities issued	Fair value of collateral received or own debt securities issued available for encumbrance
		010	040
130	Collateral received by the reporting institution		9,741,047
160	Debt securities		9,741,047

Table 5-10. Collateral received

As there were no matching liabilities to the only source of encumbrance, no sources can be shown in the following table.

December 2014 (€' 000) CH-Group			
		Matching liabilities, contingent liabilities or securities lent	Assets, collateral received and own debt securities issued other than covered bonds and ABSs encumbered
		010	030
010	Carrying amount of selected financial liabilities	0	0

Table 5-11. Encumbered assets/collateral received and associated liabilities

6. Management of market risk, including interest rate risk in the non-trading book

The information in this chapter is presented in the following sections:

[6.1 Strategy, process, structure and organisation](#) below;

[6.2 Measurement](#) on page 6-1;

[6.3 Market risk mitigation](#) on page 6-2;

[6.4 Monitoring and reporting](#) on page 6-2;

[6.5 Specific disclosures for market risk](#) on page 6-2;

[6.6 Specific disclosures on interest rate risk on positions not included in the trading book](#) on page 6-3.

6.1 Strategy, process, structure and organisation

Clearstream is not involved in proprietary trading activities and does not maintain a trading book. Market risks arise as currency risk in the area of net positions in foreign currencies. 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 leads to interest rate risk in the non-trading book. The Treasury Policy defines the limits set for securities purchase transactions. Furthermore, market risks arise in Clearstream’s portion of the Deutsche Börse group-wide CTA.

Clearstream’s general structure, organisation and process of risk management as well as the risk strategy is described in [3. Risk management overview](#) on page 3-1.

The Treasury Investment Policy sets the frame for hedging future currency risk and interest income. It includes the approved hedging instruments and the delegation of power for hedging of interest income and foreign exchange risk. For the group, the level of materiality of future currency risk is expressed as 10% of consolidated EBIT of the budget year to be hedged for each individual foreign currency exposure. For the protection of Clearstream’s budgeted interest income, the Treasury section may hedge the budgeted interest income for up to 50% of the customer credit balances for the upcoming budget period(s) through approved hedging instruments.

With regard to market risk, the risk strategy is translated into a limit system, which is monitored on a regular basis. The Treasury Policy defines limits and responsibilities.

6.2 Measurement

Besides the overall risk appetite calculated via VaR (see [3.2 Risk management methodology](#) on page 3-3), interest rate risk is calculated on all positions under Treasury management, applying a predefined parallel shift on the yield curve (see [6.6.2 Interest rate risk situation](#) on page 6-3). On a daily basis, interest rate risk for CH Group’s and all Clearstream legal entities’ own positions is, applying a 2% parallel shift to the respective yield curve and assessing the resulting effect on the net present value (NPV) of this portfolio.

Management of market risk, including interest rate risk in the non-trading book

For Clearstream's investment portfolio, interest rate risk is also measured with the help of a duration approach.

In cases where Clearstream's budgeted interest income should be hedged, the effectiveness of potential hedges is measured and the credit rating of the trade counterparties is controlled on a regular basis.

Foreign exchange risk is controlled using a limit system. As Clearstream has payables and receivables in foreign currencies, only the net exposure is relevant for the exposure calculation. Clearstream's income and costs are partially in foreign currencies as well. In cases where a certain level of foreign exchange exposure, and therefore risk, is exceeded, the risk of each individual currency exposure should be hedged. For the group, the level of materiality is expressed as 10% of consolidated EBIT of the budget year to be hedged for each individual currency exposure. The effectiveness of potential foreign exchange risk hedges is measured and the credit rating of the trade counterparties is controlled on a regular basis.

6.3 Market risk mitigation

Market price risk can arise in connection with cash investments or borrowing as a result of fluctuations in interest rates and foreign exchange rates as well as through corporate transactions. In the year under review, no foreign exchange hedge was undertaken.

Testing of the effectiveness of hedging transactions is performed on a regular basis in compliance with IAS 39.

6.4 Monitoring and reporting

Market risk control is performed by Treasury Back Office. Treasury Back Office is responsible for monitoring compliance with limits and issues monthly reports to the relevant Executive Management and to Group Risk Monitoring. Limit excesses are monitored daily and are reported immediately to Executive Management, Group Risk Monitoring and Treasury. This function is independent from the Treasury Front Office department that controls liquidity and executes transactions (liquidity management function).

Treasury performance, exposure and breach of limits are controlled and reported by the Treasury Middle Office. Reports are performed daily, weekly and monthly to Executive Management, Group Risk Monitoring as well as to Treasury and Credit. Limit excesses occurring within treasury activity are reported by Treasury Middle Office to Group Risk Monitoring.

6.5 Specific disclosures for market risk

Foreign exchange risk:

CBL and CBF transact settlement and custody services business in more than 40 different currencies.

Customers maintain cash and securities accounts with CBL or CBF in those currencies in which they transact their business. Amounts in currency transmitted to CBL or CBF by customers are registered on the respective customers' account(s) in that currency. The same is true for any withdrawal of funds by customers (for example, for settlement purposes or for custody payments).

Debits and credits of all customers in the same currency are held by the respective Clearstream legal entity (CBL or CBF) at its cash correspondent banks (CCBs). For most of the business, CBL is the CCB for CBF and CBF's net customer position is therefore already included in CBL's position. The information used by Treasury as a basis for placings is analysed by currency. Where there is a requirement to fund net currency credit facilities, such takings are always made in the relevant currency. Therefore, with respect to multicurrency settlement, currency risk is not borne by CBL or CBF.

Management of market risk, including interest rate risk in the non-trading book

A limited amount of local currency is held in each location, at CBL representative offices, to cover expenses. In addition, interest earned on currency placings above interest payable to customers on currency balances will cause small (generally long) currency positions.

Customer foreign exchange orders are covered in the foreign exchange markets on a daily basis. Any residual open foreign exchange position is not considered significant and, in any case, is monitored daily by Treasury within established modest limits.

6.6 Specific disclosures on interest rate risk on positions not included in the trading book

6.6.1 Interest rate risk nature

Customer liquidity of CBL and CBF is placed and refinanced primarily through overnight secured reverse repos, placings with Banque centrale du Luxembourg in EUR currency and overnight foreign exchange swaps. In addition, CBL and CBF primarily purchase highly liquid and low risk-weighted investments for capital ratio purposes. The investment portfolio of CBL and CBF is aimed at providing core capital investment. Consequently, these portfolios are constructed to minimise and credit risk and consist mainly of zero risk-weighted debt securities.

Derivative instruments are not offered to customers or employed in day-to-day liquidity management. The use of proprietary derivative instruments is restricted to:

- Interest rate swaps and forward foreign exchange contracts that hedge or eliminate structural foreign exchange and interest rate exposures.
- FX swap contracts to avoid large unsecured exposures with commercial banks and/or to convert available funds in a currency into another currency where funds are required to support the securities settlement efficiency.

Clearstream monitors currency and interest rate exposures daily by means of reporting generated by the general ledger accounting system and its customer cash ledgers or the Treasury ledger.

6.6.2 Interest rate risk situation

Clearstream's assets and liabilities are managed to minimise interest rate risk (IRR) within the limits established by the Treasury Policy. Liabilities usually determine the structure of its assets. The close matching of investments and customer deposits ensures that Clearstream is able to control its IRR.

The Treasury Policy defines the maturity mismatch limits, the IRR sensitivity limits and the maximum tenor for each currency or group of currencies. Limits are based on IRR, the concept of duration and gap. Duration means the remaining maturity of every deal on the asset and liability side. Gap means the IRR on the asset side minus the IRR on the liability side. The IRR is calculated daily on the basis of the net present value (NPV) of a 1% interest rate change for trades/instruments with a remaining life to maturity less than one year and 2% otherwise.

	31 December 2014 (€' 000)				31 December 2013 (€' 000)			
	Mismatch/Portfolio limit		Interest Rate Risk (IRR)		Mismatch/Portfolio limit		Interest Rate Risk (IRR)	
	Exposure	Limit	Exposure	Limit	Exposure	Limit	Exposure	Limit
CBL Investment portfolio (Fixed and FRN)	1,433,299	2,000,000	53,493	72,000	1,449,299	1,900,000	44,877	85,000
CBF Investment portfolio (Fixed and FRN)	175,000	175,000	4,257	8,000	35,000	175,000	1,319	12,000
CBL MM portfolio	5,383,235	6,400,000	6,023	24,000	4,476,602	4,700,000	4,175	8,700
CBF MM portfolio	100,117	300,000	123	1,000	-	-	-	-

Table 6-1. Limits for Clearstream Group according to the Treasury Policy

Management of market risk, including interest rate risk in the non-trading book

Based on BaFin and CSSF requirements, Clearstream calculates also the IRR of the non-trading book as a percentage of own funds. The IRR is measured as a 2% parallel shift of the yield curve. The non-trading book includes the investment portfolio and related fair value hedges, cash flow hedges and the short-term portfolio.

- * The Base Capital for CBL is based on International Financial Reporting Standards (IFRS) and consists of eligible own funds plus the profit of the year minus interim dividends (not taking into account deductions).
- ** The own funds for CBF are based on German Commercial Code (HGB) modified by the own funds rules for solvency purposes by the German Banking Act (KWG).

Clearstream Banking S.A., Luxembourg		31 December 2014	31 December 2013
Interest Rate Risk - Banking Book (IRRBB) as per circular CSSF 08/338			
Net Asset position (in EUR equivalent)	(€' 000)	5,400,366	4,446,499
IRRBB based on parallel shift of the yield curve of 200 bps	(€' 000)	12,048	8,248
Base Capital*	(€' 000)	909,323	649,916
IRRBB as percentage of own funds		1%	1%
Threshold for reporting to CSSF		20%	20%
Clearstream Banking AG, Frankfurt			
Interest Rate Risk - Banking Book (IRRBB) as per BaFin circular 11/2011 (BA)			
Net Asset position (in EUR equivalent)	(€' 000)	174,900	34,880
IRRBB based on parallel shift of the yield curve of 200 bps	(€' 000)	768	412
Own funds**	(€' 000)	248,727	217,919
IRRBB as percentage of own funds		0%	0%
Threshold for reporting to BaFin and Deutsche Bundesbank		20%	20%

Table 6-2. Investment portfolio limits and interest rate risks

The regulatory prescribed threshold has never been reached within the year under review.

6.6.3 Foreign exchange risk measurement

On 31 December 2014, no foreign exchange hedging exposure was reported.

7. Management of liquidity risk

The information in this chapter is presented in the following sections:

- [7.1 Strategy, process, structure and organisation](#) below;
- [7.2 Measurement](#) on page 7-2;
- [7.3 Liquidity risk mitigation](#) on page 7-3;
- [7.4 Scenarios](#) on page 7-4;
- [7.5 Governance, Approval and Validation](#) on page 7-6;
- [7.6 Monitoring and reporting](#) on page 7-6.

7.1 Strategy, process, structure and organisation

Liquidity is managed on a centralised basis by CBL Treasury for all Clearstream entities. The objective of liquidity management is as follows:

- To meet all payment obligations within changing net long/short customer cash balances, intraday and overnight by currency

Customers maintain cash balances with CBL and may draw on credit facilities as a result of their securities settlement activities. For EUR, USD and GBP, mismatch and portfolio limits are allocated to Treasury on the basis that a minimum customer cash balance and own funds are available at all times for Treasury investments with a tenor exceeding overnight. Therefore, payment requests to pay out customer long balances and payments related to trades initiated by Treasury are addressed in the described scenarios.

- To support the efficiency of customers' intraday securities settlement

In support of its international customers, CBL needs to provide intraday liquidity to enable timely German domestic settlement against central bank money and bridge settlement. Delay in providing liquidity will result in a low settlement efficiency postponing settlement and slowing down the settlement process. Settlement liquidity is provided through collateral held at the Banque centrale du Luxembourg (BCL), letter of credit (L/C) related to the Bridge¹ and available cash balances held with depositories, BCL and CCBs. Through an active management of those liquidity sources CBL targets to provide such liquidity on a timely basis (mainly intraday) in order to achieve maximum settlement efficiency.

Clearstream's general structure, organisation and process of risk management as well as the risk strategy is described in detail in [3. Risk management overview](#) on page 3-1.

With regard to liquidity risk, the risk strategy is translated into a limit system, which is monitored on a regular basis. The Treasury Policy defines limits and responsibilities. As a result of customers settlement activity and related customers' cash dispositions Clearstream is generally long.

1. The "Bridge" is an electronic communications link that facilitates the efficient settlement of securities transactions between counterparties in CBL and Euroclear Bank SA/NV (EB).

Management of liquidity risk

To safeguard against unforeseen cash dispositions in this regard Clearstream has a focus on liquid assets. The majority of its liabilities have an overnight maturity. Commercial papers can be issued to a maximum amount of EUR 1 billion to secure liquidity.

No bonds are issued. The receivables are made up mainly by overnight amounts on customer or nostro accounts, collateralised and unsecured placements as well as highly liquid exchange traded bonds. The main position determining liquidity needs is therefore the (overnight) net customer cash balance.

Besides the regulatory requirements for CBL and CBF, Clearstream has defined more prudent internal liquidity limits on group level through a more restrictive definition of liquid assets. Liquid assets should amount to a minimum 50% of the last 30-day average net customer cash balances.

In addition, Clearstream monitors, on a monthly basis, the ratio of Clearstream Banking liquidity sources versus customer credit usage.

The liquidity management function is governed by the "Clearstream Treasury Liquidity" policy and is performed by Treasury in cooperation with Credit and Clearstream Risk Management Treasury Middle Office is responsible for issuing monthly reports to Executive Management and to Clearstream Risk Management. Limit excesses are monitored daily by Treasury Middle Office and are reported immediately to Executive Management and Clearstream Risk Management, as well as to Treasury and Credit.

7.2 Measurement

For CBF and CBL, regulatory ratios have been defined by national law. The definition is different in each country. Reporting duties are on a monthly basis. The target ratio for CBL is 30% and for CBF 100% (both minimum ratios). The regulatory ratios were more than met throughout the whole of the year under review.

With the implementation of the CRR the Liquidity Coverage Ratio (LCR) was introduced in 2014. This percentage of required liquidity cover was not yet binding and only needs to be reported. The timetable foresees an application of the LCR of 60% as of 1 October 2015 reaching its full implementation as of 1 January 2018.

The institutions need to hold a liquidity buffer of high quality liquid assets (HQLA) to cover their net cash outflows in stressed conditions over a thirty day period. The HQLA at CBF and CBL consist of cash held with central banks, own securities and securities received in reverse repo transactions. As at 31 December 2014 CBF had a Liquidity Coverage Ratio of 110% and CBL a LCR of 112% respectively.

In addition to the regulatory ratios, the Treasury Policy has defined two internal liquidity ratios:

7.2.1 Internal liquidity ratio I (Liquid assets / Net customer cash)

The objective of the internal liquidity ratio I limit is to ensure a more dynamic adaptation to a changing liquidity situation. These limits prevent the new creation of mismatch positions by traders in cases of a sudden/temporary decrease of net customer cash balances until the liquidity risk exposure allows it again.

The basis for the calculation of the Liquid Assets and Net Customer Cash is the Treasury Operating System, in which all Treasury transactions are recorded. Liquidity is calculated for EUR, USD, GBP and combined EUR and USD.

The ratio is calculated daily and reported on a monthly basis by Treasury Middle Office to Executive Management. During 2014, no oversteppings were reported. The internal liquidity ratios I on 31 December 2014 were as follows:

Currencies	Ratio (%)	Limits (%)
EUR and USD	109	50
EUR	137	50
USD	75	50
GBP	99	90

Table 7-1. Internal liquidity ratio I

7.2.2 Internal liquidity ratio II (Liquid sources / Customer credit usage)

The objective of the internal liquidity ratio II is that liquidity sources provide sufficient liquidity to cover peak customer end-of-day overdraft balances observed over the preceding two years.

During 2014, the liquidity sources / customer credit usage were comfortably above the limits set in the Treasury Investment Policy. The internal ratios II on 31 December 2014 were as follows:

Currencies	Ratio (%)	Limits (%)
EUR and USD	878	200
EUR	665	100
USD	650	100

Table 7-2. Internal liquidity ratio II

7.3 Liquidity risk mitigation

Liquidity management guidelines are defined in the Clearstream Treasury Liquidity Management Policy. The objective of liquidity management is the ability to respond to daily changing customer net long/short cash balances. Customers maintain cash balances with Clearstream and draw on credit facilities (TOFs) as a result of their securities settlement activities.

To meet its objective, CBL maintains several liquidity sources, including a liquidity buffer and a EUR 1 billion multicurrency euro commercial paper programme. The EUR liquidity buffer (target EUR 4 billion) is the sum of cash held with BCL and the collateral portfolio (enabling CBL to generate liquidity through ECB standing facilities). The USD liquidity buffer (target EUR 1 billion equivalent) consists of the central bank eligible USD-denominated securities purchased or received as collateral through reverse repo transactions. CBL maintains a network of Cash Correspondent Banks to support the funding requirements in relation to CBL's settlement operations in more than 40 currencies. In addition, CBL has established three committed repo funding lines with three major commercial banks (USD 250 mn each).

Management of liquidity risk

CBF maintains a cash account with CBL where it can withdraw funds same day.

Clearstream Holding acts as a holding company without an operating business. As such, its main earnings source is dividend income from Clearstream International. Available liquidity is to a large extent lent to Deutsche Börse AG in a cash pool with daily availability of funds. Besides that, Clearstream Holding holds limited balances in a current account with a commercial bank. As a holding company, Clearstream Holding does not conduct customer business, and is therefore not subject to the associated liquidity risks.

7.4 Scenarios

Clearstream uses scenario analysis as part of its regular stress testing in reference to the BaFin minimum requirements for risk management as defined in the MaRisk of 14 December 2012 (BaFin Circular 10/2012) and CSSF Circular 09/403 requiring that institutions conduct liquidity stress tests that enable them to assess the potential impact of extreme but plausible stress scenarios on their liquidity positions and their current contemplated risk mitigation.

7.4.1 Scenarios for the overnight liquidity

Clearstream has defined three scenarios to stress liquidity risk:

Scenario 1 - Base scenario

The Base scenario takes into account the lowest net cash balances by currency in the most recent five-year time horizon.

Scenario 1 result:

In this scenario, based on the lowest net cash balances in past five years, Clearstream is able to cope with expected outflows in cash balances for all currencies.

Scenario 2 - Market Disruption scenario

The market disruption scenario considers a disruption in the macro economic environment. The assumption is that customer cash balances would drop by 10% (from their lowest historical five year level), money market funding lines would decline by 50% and overdraft lines at CCBs/Depositories by 20%.

Scenario 2 result:

The scenario is based on net customer cash balances dropping by 10% (from their lowest historical five year level), money market funding lines would decline by 50% and overdraft lines at CCBs/Depositories by 20%. Despite the reduce availability of funding sources, Clearstream is able to fund the short positions in most currencies. Remaining short balances can be covered through FX swaps.

Scenario 3 - Market Disruption / Idiosyncratic scenario

The market disruption / idiosyncratic scenario considers a disruption in the macro economic environment and a downgrade of Clearstream's credit rating. The assumption is that customer cash balances would drop by 30% (from their lowest historical five year level), money market funding lines would no longer be accessible, and overdraft lines at CCBs/Depositories would decline by 60%.

Scenario 3 result:

The scenario is based on net customer cash balances dropping by 30% (from their lowest historical 5 year level), money market funding lines would no longer be accessible, and overdraft lines at CCBs/Depositories would decline by 60%. In this scenario, USD currency short balances can be covered through uncommitted CCBs/depositories overdraft lines. The excess funding capacity can be used to cover short balances in other currencies through FX swaps. In this scenario, exceptional overnight credit usage could also be restricted to be in line with available liquidity and CCBs/depositories overdraft lines since credit facilities in Clearstream are allocated on an unconditionally revocable basis and primarily for intraday usage in support of customer settlement activities.

7.4.2 Medium-term liquidity sources

Despite the very short-term nature of the Clearstream's liquidity risk as a consequence of its core settlement activities, situations might arise where funding requirements exceed the usual maximum of 48 hours.

The following instruments are available for funding:

- EUR 1 billion multi-currency Euro Commercial Programme;
- BCL tender participation in EUR and USD;
- Repurchase Agreements;
- Foreign exchange swaps.

7.4.3 Permanent Available liquidity

Permanent available liquidity consists of the own funds of all Clearstream entities managed by CBL Treasury and the stable part of the net customer cash in EUR and USD currencies based on historical data, as follows:

- Based on historical data over the most recent two-year horizon (with a 99% confidence level), the permanent available liquidity must be sufficient to cover all term investments (fixed and variable coupon bonds, CBL reversed repos and structured products) in EUR and USD.
- Based on historical data over the most recent five-year horizon (with a 99% confidence level), the permanent available liquidity must be sufficient to cover all long-term investments.

From January 2013 to December 2014, the investable own funds amount ranged from EUR 1.259 billion to EUR 1.506 billion. At year-end 2014, the own funds amounted to EUR 1.447 billion.

Figures for the stable part of the net customer cash in EUR and USD currency, based on historical data, were as follows:

- Based on historical data over the most recent two-year horizon (with a 99% confidence level), the stable part of the net customer cash (EUR and USD combined) amounted to EUR equivalent 8.227 billion. Together with the own funds, the sum of permanent available liquidity is EUR equivalent 9.674 billion, which is sufficient to cover the size of all term investments of EUR equivalent 5.483 billion.
- Based on historical data over the most recent five-year horizon (with a 99% confidence level), the stable part of the net customer cash (EUR and USD combined) amounted to EUR equivalent 4.532 billion. Together with the own funds, the sum of permanent available liquidity is EUR equivalent 5.979 billion, which is sufficient to cover the size of long-term investments of EUR equivalent 1.608 billion.

7.4.4 Contingency funding plan

Additional liquidity generation capabilities are available to face a contingency situation. They are not included in the three stress scenarios, which only include liquidity instruments used in the day-to-day liquidity management by Treasury. These additional contingency funding capabilities and actions are listed below.

- Contingency liquidity generation capabilities:
 - EUR 750 million revolving credit facility;
 - Sale of customer collateral (in the event of customer's default);
 - Liquidation/Buy-in of securities for Clearstream Treasury repo transactions;
 - Intra-group funding;
- Other actions:
 - Cancellation of customer UCF/TOF lines;

Management of liquidity risk

- Flagging income and redemption proceeds 'Upon Receipt of Funds' (URF);
- Sale of proprietary fixed-coupon and/or FRN portfolio.

7.5 Governance, Approval and Validation

In accordance with the MaRisk of 14 December 2014 and CSSF Circular 09/403, Clearstream has formulated its Clearstream Treasury Liquidity Management Policy, which is reviewed on a quarterly basis.

This Policy contains specific requirements to implement a liquidity risk strategy that includes contingency planning, governance and the definition of senior management responsibilities. Required changes are proposed to Executive Management within the annual update for approval.

Day-to-day implementation of the liquidity management strategy is under the responsibility of the Head of Clearstream Treasury.

7.6 Monitoring and reporting

Clearstream's liquidity risk exposure and breaches of limits are controlled and reported by the Treasury middle office. Reports are performed daily, weekly and monthly to Executive Management, Clearstream Risk Management and Treasury. Limit excesses occurring within the Treasury activity are reported by Treasury middle office to Executive Management.

8. Capital structure, capital ratio and Return on Assets

The information in this chapter is presented in the following sections:

- [8.1 Capital components](#) below;
- [8.2 Internal management of capital \(Risk-Bearing Capacity\)](#) on page 8-9;
- [8.3 Capital levels](#) on page 8-10;
- [8.3 Capital levels](#) on page 8-10.

8.1 Capital components

8.1.1 Overview

The following table summarises the total amount of Clearstream's regulatory capital. "Tier 1" capital in 2014 corresponds to Core Equity Tier 1 (CET1) capital according to Article 26 CRR.

		31 December 2014 (€' 000)			31 December 2013 (€' 000)			
		CH-Group	CBL	CBF	CH-Group	CBL	CBF	
Tier 1:	Eligible Capital							
		Paid up capital	101,000	92,000	25,000	101,000	75,000	25,000
		Share premium	2,014,314	136,836	1,108	2,014,314	3,836	1,108
	Eligible Reserves	Reserves	-980,546	685,886	223,096	-1,027,988	546,145	192,900
		Interim profits	-	-	-	48,315	48,315	-
	Deductions:	-55,073	-38,104	-477	-19,060	-23,830	-1,089	
Tier 2:	Core additional own funds							
		Revaluation reserves	-	-	-	-	1,811	-
		Subordinated Loan Capital	-	-	-	-	150,000	-
	Deductions:	-	-	-	-	-	-	
Eligible own funds:		1,079,695	876,618	248,727	1,116,581	801,278	217,919	

Table 8-1. Regulatory capital components

Note: The data for CH and CBF is based on the German GAAP according to the German Commercial Code (HGB). The data for CBL is based on International Financial Reporting Standards (IFRS).

Tier 1 capital of CH, CBL and CBF consists mainly of subscribed capital, share premium, reserves and retained earnings. Deductions of core capital arise from intangible assets. Different from the IFRS treatment, own work capitalised is not included at CH level as the relevant choice under German GAAP is not taken.

At year-end 2013, the "Genussrechte", or profit participation rights, issued by CBL were classified as subordinated debt and considered as part of tier 2 eligible own funds. In May 2014, the existing 150.0 million Euro subordinated debt were transformed into subscribed capital (17.0 million Euro) and share premium (133.0 million Euro). Consequently, at year-end 2014, the amount has been reflected in the tier 1 capital.

Capital structure, capital ratio and Return on Assets

The following subsections disclose the information as required by Article 437 paragraph 1 CRR and details set out in Commission Implementing Regulation (EU) No 1423/2013.

8.1.2 Reconciliation of own funds items to audited financial statements

A full reconciliation of own funds to audited financial statements pursuant to point (a) of Article 437 paragraph 1 CRR has to be applied by institutions as laid out in the Implementing Regulation (EU) No 1423/2013. As CH is exempted from the preparation of consolidated annual accounts in line with § 291 (1) HGB a reconciliation with consolidated own funds is not possible. The balance sheet reconciliation for CBL and CBF is shown in Table 8-2.

Balance Sheet Reconciliation	31 December 2014 (€' 000)	
	CBL	CBF
Own Funds elements in the Annual Financial Statements		
Subscribed Capital	92,000	25,000
Share premium	136,836	1,108
Capital Reserve	-	195,892
Legal Reserve	6,736	1,392
Other reserves and retained earnings	679,150	55,842
Total Own Funds Elements in Audited Financial Statements	914,722	279,234
Profits allocated to other reserves with the approval of financial statements (i.e. after reporting of Own Funds)	-	-30,030
Eligible Capital (CET1) before regulatory adjustments	914,722	249,204
Regulatory adjustments		
Deduction other intangible assets	-17,295	-477
Other CET 1 capital adjustments	-20,809	-
Common Equity Tier 1 Capital/Total Eligible Own Funds	876,618	248,727

Table 8-2. Balance Sheet Reconciliation

8.1.3 Description of the main features of capital instruments

Disclosures under point (b) of Article 437 CRR are shown in the next tables for CH, CBL and CBF in line with the disclosure templates set out in the Implementing Regulation (EU) No 1423/2013.

Capital structure, capital ratio and Return on Assets

Capital Instruments' main features ¹	
Features	Instrument
1 Issuer	Clearstream Holding AG
2 Unique identifier (e.g. ISIN, etc.)	DE000A0TGKK3
3 Governing law(s) of the instrument	German Stock Corporation Act (AktG)
<i>Regulatory treatment</i>	
4 Transitional CRR rules	Common Equity Tier 1
5 Post-transitional CRR rules	Common Equity Tier 1
6 Eligible at solo/ (sub-)consolidated/ solo & (sub-)consolidated	Consolidated
7 Instrument type (types to be specified by each jurisdiction)	Ordinary Shares
8 Amount recognised in regulatory capital (currency in million, as of most recent reporting date)	€ m 101
9 Nominal amount of instrument (in million, in currency of issuance)	€ m 101
9a Issue price	€ m 2,115
9b Redemption price	N/A
10 Accounting classification	Shareholders' equity
11 Original date of issuance	04/06/2007
12 Perpetual or dated	perpetual
13 Original maturity date	N/A
14 Issuer call subject to prior supervisory approval	No
15 Optional call date, contingent call dates and redemption amount	N/A
16 Subsequent call dates, if applicable	N/A
<i>Coupons/dividends</i>	
17 Fixed or floating dividend/coupon	Floating
18 Coupon rate and any related index	N/A
19 Existence of a dividend stopper	N/A
20a Fully discretionary, partially discretionary or mandatory (in terms of timing)	Fully discretionary
20b Fully discretionary, partially discretionary or mandatory (in terms of amount)	Fully discretionary
21 Existence of step up or other incentive to redeem	No
22 Noncumulative or cumulative	Noncumulative
23 Convertible or non-convertible	Nonconvertible
24 If convertible, conversion trigger(s)	N/A
25 If convertible, fully or partially	N/A
26 If convertible, conversion rate	N/A
27 If convertible, mandatory or optional conversion	N/A
28 If convertible, specify instrument type convertible into	N/A
29 If convertible, specify issuer of instrument it converts into	N/A
30 Write-down features	No
31 If write-down, write-down trigger(s)	N/A
32 If write-down, full or partial	N/A
33 If write-down, permanent or temporary	N/A
34 If temporary write-down, description of write-up mechanism	N/A
35 Position in subordination hierarchy in liquidation (specify instrument type immediately senior to instrument)	N/A
36 Non-compliant transitioned features	No
37 If yes, specify non-compliant features	N/A

(1) 'N/A' inserted if the question is not applicable

Table 8-3. Capital Instruments of CH

Capital structure, capital ratio and Return on Assets

Capital Instruments' main features ¹		
	Features	Instrument
1	Issuer	Clearstream Banking SA
2	Unique identifier (e.g. ISIN, etc.)	N/A
3	Governing law(s) of the instrument	Luxembourg Company Law : Law of 10th August 1915 on commercial companies
<i>Regulatory treatment</i>		
4	Transitional CRR rules	Common Equity Tier 1
5	Post-transitional CRR rules	Common Equity Tier 1
6	Eligible at solo/ (sub-)consolidated/ solo & (sub-)consolidated	Solo
7	Instrument type (types to be specified by each jurisdiction)	Ordinary Shares
8	Amount recognised in regulatory capital (currency in million, as of most recent reporting date)	€ m 92
9	Nominal amount of instrument (in million, in currency of issuance)	€ m 92
9a	Issue price	€ m 229
9b	Redemption price	N/A
10	Accounting classification	Shareholders' equity
11	Original date of issuance	1970
12	Perpetual or dated	perpetual
13	Original maturity date	N/A
14	Issuer call subject to prior supervisory approval	No
15	Optional call date, contingent call dates and redemption amount	N/A
16	Subsequent call dates, if applicable	N/A
<i>Coupons/dividends</i>		
17	Fixed or floating dividend/coupon	Floating
18	Coupon rate and any related index	N/A
19	Existence of a dividend stopper	N/A
20a	Fully discretionary, partially discretionary or mandatory (in terms of timing)	Fully discretionary
20b	Fully discretionary, partially discretionary or mandatory (in terms of amount)	Fully discretionary
21	Existence of step up or other incentive to redeem	No
22	Noncumulative or cumulative	Noncumulative
23	Convertible or non-convertible	Nonconvertible
24	If convertible, conversion trigger(s)	N/A
25	If convertible, fully or partially	N/A
26	If convertible, conversion rate	N/A
27	If convertible, mandatory or optional conversion	N/A
28	If convertible, specify instrument type convertible into	N/A
29	If convertible, specify issuer of instrument it converts into	N/A
30	Write-down features	No
31	If write-down, write-down trigger(s)	N/A
32	If write-down, full or partial	N/A
33	If write-down, permanent or temporary	N/A
34	If temporary write-down, description of write-up mechanism	N/A
35	Position in subordination hierarchy in liquidation (specify instrument type immediately senior to instrument)	N/A
36	Non-compliant transitioned features	No
37	If yes, specify non-compliant features	N/A

(1) 'N/A' inserted if the question is not applicable

Table 8-4. Capital Instruments of CBL

Capital structure, capital ratio and Return on Assets

Capital Instruments' main features ¹		
Features	Instrument	
1 Issuer	Clearstream Banking Aktiengesellschaft	
2 Unique identifier (e.g. ISIN, etc.)	DE0008053604	
3 Governing law(s) of the instrument	German Stock Corporation Act (AktG)	
<i>Regulatory treatment</i>		
4 Transitional CRR rules	Common Equity Tier 1	
5 Post-transitional CRR rules	Common Equity Tier 1	
6 Eligible at solo/ (sub-)consolidated/ solo & (sub-)consolidated	Solo & Consolidated	
7 Instrument type (types to be specified by each jurisdiction)	Ordinary Shares	
8 Amount recognised in regulatory capital (currency in million, as of most recent reporting date)	€ m 25	
9 Nominal amount of instrument (in million, in currency of issuance)	€ m 25	
9a Issue price	€ m 26	
9b Redemption price	N/A	
10 Accounting classification	Shareholders' equity	
11 Original date of issuance	12/07/1949	
12 Perpetual or dated	perpetual	
13 Original maturity date	N/A	
14 Issuer call subject to prior supervisory approval	No	
15 Optional call date, contingent call dates and redemption amount	N/A	
16 Subsequent call dates, if applicable	N/A	
<i>Coupons/dividends</i>		
17 Fixed or floating dividend/coupon	Floating	
18 Coupon rate and any related index	N/A	
19 Existence of a dividend stopper	N/A	
20a Fully discretionary, partially discretionary or mandatory (in terms of timing)	Partially discretionary	
20b Fully discretionary, partially discretionary or mandatory (in terms of amount)	Partially discretionary	
21 Existence of step up or other incentive to redeem	No	
22 Noncumulative or cumulative	Noncumulative	
23 Convertible or non-convertible	Nonconvertible	
24 If convertible, conversion trigger(s)	N/A	
25 If convertible, fully or partially	N/A	
26 If convertible, conversion rate	N/A	
27 If convertible, mandatory or optional conversion	N/A	
28 If convertible, specify instrument type convertible into	N/A	
29 If convertible, specify issuer of instrument it converts into	N/A	
30 Write-down features	No	
31 If write-down, write-down trigger(s)	N/A	
32 If write-down, full or partial	N/A	
33 If write-down, permanent or temporary	N/A	
34 If temporary write-down, description of write-up mechanism	N/A	
35 Position in subordination hierarchy in liquidation (specify instrument type immediately senior to instrument)	N/A	
36 Non-compliant transitioned features	No	
37 If yes, specify non-compliant features	N/A	

(1) 'N/A' inserted if the question is not applicable

Table 8-5. Capital Instruments of CBF

Capital structure, capital ratio and Return on Assets

8.1.4 Disclosure of additional information during the transitional period

Common Equity Tier 1 capital: instruments and reserves		(A) Amounts at 31.12.2014 (€'000)	(B) REGULATION (EU) No. 575/2013 ARTICLE REFERENCE	(C) AMOUNTS SUBJECT TO PRE- REGULATION (EU) No. 575/2013 TREATMENT OR PRESCRIBED RESIDUAL AMOUNT OF REGULATION (EU) 575/2013 (€'000)
1	Capital Instruments and Share premium	2,285,314	26 [1], 27, 28, 29, EBA list 26 [3]	
	of which: Subscribed capital	101,000	EBA list 26 [3]	
	of which: Share premium	2,184,314	EBA list 26 [3]	
2	Retained Earnings	-71,448	26 [1] [c]	
3	Accumulated other comprehensive income (and other reserves, to include unrealised gains and losses under the applicable accounting standards)	-1,250,911	26 [1]	
3a	Funds for general banking risk	169,309	26 [1] [f]	
4	Amount of qualifying items referred to in Article 484 (3) and the related share premium accounts subject to phase out from CET1	0	486 [2]	
	Public sector capital injections grandfathered until 1 January 2018	0	483 [2]	
5	Minority interests (amount allowed in consolidated CET1)	2,505	84, 479, 480	
5a	Independently reviewed interim profits net of any foreseeable charge or dividend	0	26 [2]	
6	Common Equity Tier 1 (CET1) capital before regulatory adjustments	1,134,768		
Common Equity Tier 1 (CET1) capital: regulatory adjustments				
8	Intangible assets (net of related tax liability) (negative amount)	-55,073	36 [1] [b], 37, 472 [4]	
26	Regulatory adjustments applied to Common Equity Tier 1 in respect of amounts subject to pre-CRR treatment	44,058		
26b	Amount to be deducted from or added to Common Equity Tier 1 capital with regard to additional filters and deductions required pre CRR	44,058	481	
	of which: Intangible assets	44,058		
27	Qualifying AT1 deductions that exceeds the AT1 capital of the institution (negative amount)	-44,058	36 [1] [j]	
28	Total regulatory adjustments to Common Equity Tier 1 (CET1)	-55,073		
29	Common Equity Tier 1 (CET1) capital	1,079,695		
Additional Tier 1 (AT1) capital: instruments				
36	Additional Tier 1 (AT1) capital before regulatory adjustments			
Additional Tier 1 Capital (CET1) capital: regulatory adjustments				
41	Regulatory adjustments applied to additional tier 1 capital in respect of amounts subject to pre-CRR treatment subject to phase out as prescribed in Regulation (EU) No 575/2013 (i.e. CRR residual amounts)	-44,058		
41a	Residual amounts deducted from Additional Tier 1 capital with regard to deduction from Common Equity Tier 1 capital during the transitional period pursuant to article 472 of Regulation (EU) No 575/2013	-44,058	472, 472[3][a], 472 [4], 472 [6], 472 [8] [a], 472 [9], 472 [10] [a], 472 [11] [a]	
	of which: Intangible assets	-44,058		
	Excess of deduction from AT1 items over AT1 Capital (deducted in CET1)	44,058		
43	Total regulatory adjustments to Additional Tier 1 (AT1) capital	0		
44	Additional Tier 1 (AT1) capital	0		
45	Tier 1 capital [T1 = CET1 + AT1]	1,079,695		

Table 8-6. Own funds details CH

Capital structure, capital ratio and Return on Assets

Common Equity Tier 1 capital: instruments and reserves		(A) Amounts at 31.12.2014 (€'000)	(B) REGULATION (EU) No. 575/2013 ARTICLE REFERENCE	(C) AMOUNTS SUBJECT TO PRE- REGULATION (EU) No. 575/2013 TREATMENT OR PRESCRIBED RESIDUAL AMOUNT OF REGULATION (EU) 575/2013 (€'000)
1	Capital Instruments and Share premium	228,836	26 (1), 27, 28, 29, EBA list 26 (3)	
	of which: Subscribed capital	92,000	EBA list 26 (3)	
	of which: Share premium	136,836	EBA list 26 (3)	
2	Retained Earnings	0	26 (1) (c)	
3	Accumulated other comprehensive income (and other reserves, to include unrealised gains and losses under the applicable accounting standards)	685,887	26 (1)	
3a	Funds for general banking risk	0	26 (1) (f)	
4	Amount of qualifying items referred to in Article 484 (3) and the related share premium accounts subject to phase out from CET1	0	486 (2)	
	Public sector capital injections grandfathered until 1 January 2018	0	483 (2)	
5	Minority interests (amount allowed in consolidated CET1)	0	84, 479, 480	
5a	Independently reviewed interim profits net of any foreseeable charge or dividend	0	26 (2)	
6	Common Equity Tier 1 (CET1) capital before regulatory adjustments	914,722		
Common Equity Tier 1 (CET1) capital: regulatory adjustments				
8	Intangible assets (net of related tax liability) (negative amount)	-17,295	36 (1) (b), 37, 472 (4)	
26	Regulatory adjustments applied to Common Equity Tier 1 in respect of amounts subject to pre-CRR treatment	-20,809		
26b	Amount to be deducted from or added to Common Equity Tier 1 capital with regard to additional filters and deductions required pre CRR	0	481	
	of which: Intangible assets	0		
27	Qualifying AT1 deductions that exceeds the AT1 capital of the institution (negative amount)	0	36 (1) (j)	
28	Total regulatory adjustments to Common Equity Tier 1 (CET1)	-38,104		
29	Common Equity Tier 1 (CET1) capital	876,618		
Additional Tier 1 (AT1) capital: instruments				
36	Additional Tier 1 (AT1) capital before regulatory adjustments	0		
Additional Tier 1 Capital (CET1) capital: regulatory adjustments				
41	Regulatory adjustments applied to additional tier 1 capital in respect of amounts subject to pre-CRR treatment subject to phase out as prescribed in Regulation (EU) No 575/2013 (i.e. CRR residual amounts)	0		
41a	Residual amounts deducted from Additional Tier 1 capital with regard to deduction from Common Equity Tier 1 capital during the transitional period pursuant to article 472 of Regulation (EU) No 575/2013	0	472, 472(3)(a), 472 (4), 472 (6), 472 (8) (a), 472 (9), 472 (10) (a), 472 (11) (a)	
	of which: Intangible assets	0		
	Excess of deduction from AT1 items over AT1 Capital (deducted in CET1)	0		
43	Total regulatory adjustments to Additional Tier 1 (AT1) capital	0		
44	Additional Tier 1 (AT1) capital	0		
45	Tier 1 capital (T1 – CET1 + AT1)	876,618		

Table 8-7. Own funds details CBL

Capital structure, capital ratio and Return on Assets

Common Equity Tier 1 capital: instruments and reserves		(A) Amounts at 31.12.2014 (€'000)	(B) REGULATION (EU) No. 575/2013 ARTICLE REFERENCE	(C) AMOUNTS SUBJECT TO PRE- REGULATION (EU) No. 575/2013 TREATMENT OR PRESCRIBED RESIDUAL AMOUNT OF REGULATION (EU) 575/2013 (€'000)
1	Capital Instruments and Share premium	26,108	26 (1), 27, 28, 29, EBA list 26 (3)	
	of which: Subscribed capital	25,000	EBA list 26 (3)	
	of which: Share premium	1,108	EBA list 26 (3)	
2	Retained Earnings	27,204	26 (1) (c)	
3	Accumulated other comprehensive income (and other reserves, to include unrealised gains and losses under the applicable accounting standards)	195,892	26 (1)	
6	Common Equity Tier 1 (CET1) capital before regulatory adjustments	249,204		
Common Equity Tier 1 (CET1) capital: regulatory adjustments				
8	Intangible assets (net of related tax liability) (negative amount)	-477	36 (1) (b), 37, 472 (4)	
26	Regulatory adjustments applied to Common Equity Tier 1 in respect of amounts subject to pre-CRR treatment	382		
26b	Amount to be deducted from or added to Common Equity Tier 1 capital with regard to additional filters and deductions required pre CRR	382	481	
	of which: Intangible assets	382		
27	Qualifying AT1 deductions that exceeds the AT1 capital of the institution (negative amount)	-382	36 (1) (j)	
28	Total regulatory adjustments to Common Equity Tier 1 (CET1)	-477		
29	Common Equity Tier 1 (CET1) capital	248,727		
Additional Tier 1 (AT1) capital: instruments				
36	Additional Tier 1 (AT 1) capital before regulatory adjustments			
Additional Tier 1 Capital (CET1) capital: regulatory adjustments				
41	Regulatory adjustments applied to additional tier 1 capital in respect of amounts subject to pre-CRR treatment subject to phase out as prescribed in Regulation (EU) No 575/2013 (i.e. CRR residual amounts)	-382		
41a	Residual amounts deducted from Additional Tier 1 capital with regard to deduction from Common Equity Tier 1 capital during the transitional period pursuant to article 472 of Regulation (EU) No 575/2013	-382	472, 472(3)(a), 472 (4), 472 (6), 472 (8) (a), 472 (9), 472 (10) (a), 472 (11) (a)	
	of which: Intangible assets	-382		
	Excess of deduction from AT1 items over AT1 Capital (deducted in CET1)	382		
43	Total regulatory adjustments to Additional Tier 1 (AT1) capital	0		
44	Additional Tier 1 (AT 1) capital	0		
45	Tier 1 capital (T1 = CET1 + AT1)	248,727		

Table 8-8. Own funds details CBF

8.2 Internal management of capital (Risk-Bearing Capacity)

Risk-Bearing Capacity serves as a buffer to absorb potential (unexpected) losses resulting from the risks Clearstream faces in its various activities. It is the internal view on the amount of capital and, therefore, the maximum loss that the Executive Management is willing to assume in one year, the tolerance in the light of the risk as well as the desired performance levels (risk appetite is determined in the risk strategy - see also [3.1 Strategy and organisation](#) on page 3-1).

The concept regarding Risk-Bearing Capacity is to ensure that emerging risks can be absorbed and thus to safeguard the continued existence (as going concerns) of Clearstream's affiliated companies.

The risk appetite corresponds to the amount of risk that Clearstream is prepared to run to carry out its business. The risk appetite is set by the Executive Management per risk confidence level and risk type:

- For the 99% risk confidence level, the Risk-Bearing Capacity is the planned EBIT for the current business year.
- For the 99.9% and 99.98% risk confidence levels, the Risk-Bearing Capacity is defined as the regulatory own funds, which are updated according to the regulatory reporting frequency of the respective Clearstream entities.
- The Risk-Bearing Capacity for individual risk types (operational, financial, business) is defined as a fraction of the overall Risk-Bearing Capacity. Through this allocation, the members of the Executive Management ensure that risk is limited regarding each risk type.

The risk limits as defined above are monitored all in parallel and on a monthly basis. For CH as well as for all individual affiliated companies that must comply with the regulations regarding the adequacy of regulatory own funds, the capital ratio is monitored in parallel.

Capital structure, capital ratio and Return on Assets

8.3 Capital levels

8.3.1 Regulatory capital levels

Capital requirements for credit risk positions

Clearstream uses the Standardised Approach to calculate the capital requirements. The following table shows the capital requirements for credit risk exposures:

Capital requirements for counterparty risk for portfolios calculated using the Credit Risk Standardised Approach (CRSA)						
	31 December 2014 (€' 000)			31 December 2013 (€' 000)		
	CH-Group	CBL	CBF	CH-Group	CBL	CBF
Central governments and central banks	98	795	5	81	91	5
Regional governments, local authorities and other public bodies	-	11	-	-	-	-
Institutions (banks)	27,722	34,635	3,567	40,228	41,654	18,600
Corporates	13,497	7,453	243	981	2,087	60
Undertakings for collective investment (Investment shares)	-	-	-	3,658	-	3,303
Other (including equity holding)	5,008	885	171	3,135	568	571
Capital requirements from contributions to the default fund of a CCP	5	5	-	-	-	-
Total	46,330	43,784	3,986	48,083	44,400	22,539

Table 8-9. Capital requirements for credit risk

Note: The data for CH and CBF is based on German GAAP according to the German Commercial Code (HGB). The data for CBL is based on International Financial Reporting Standards (IFRS).

Differences in the capital usage for institutions derive mainly from different allocation algorithms related to collateral, as described in the Note under [Table 5-1](#) on page 5-3.

Capital requirements for market risk positions

Clearstream uses the Standardised Approach to calculate the capital requirements. The following table shows the capital requirements for market risk exposures:

Capital requirements for market risk						
	31 December 2014 (€' 000)			31 December 2013 (€' 000)		
	CH-Group	CBL	CBF	CH-Group	CBL	CBF
Foreign Exchange risk (total)	-	-	-	940	1,779	477

Table 8-10. Market price risk

Note: The data for CH and CBF is based on German GAAP according to the German Commercial Code (HGB). The data for CBL is based on International Financial Reporting Standards (IFRS).

Capital structure, capital ratio and Return on Assets

Capital requirements for operational risk

The capital requirements for backing operational risk according to the Advanced Measurement Approach (AMA) amounted to a capital charge as follows:

	Due to group internal allocation mechanism assigned capital requirements for operational risk					
	31 December 2014 (€' 000)			31 December 2013 (€' 000)		
	CH-Group	CBL	CBF	CH-Group	CBL	CBF*
Operational risk (AMA)	312,948	215,934	97,014	289,570	223,027	74,749

* Due to divergent remittance requirements the CBF report in 2013 was issued prior to final December calculation and is therefore based on November figures.

Table 8-11. Operational risk

The capital figure calculated as described above and in 4. Management of operational risk on page 4-1 applies for Clearstream Group. It covers the risk of all legal entities of the group and is allocated to CBL and CBF afterwards. The allocation key is defined as the ratio between the net operating income of the entity and the sum of the net operating income of CBF and CBL.

As described in 4.2 Measurement on page 4-2, the defined scenarios are reviewed on an ongoing basis and are, if necessary, adjusted. Also, in 2012, a review of operational risk scenarios took place taking into account actual business environment and control factors, and internal and external loss data.

Capital requirements for credit valuation adjustment

Clearstream uses the Standardised Method to calculate the capital requirements for CVA risk which arises from transactions of CBL only. The following table shows the resulting capital requirements:

	Capital requirements for Credit Valuation Adjustment		
	31 December 2014 (€' 000)		
	CH-Group	CBL	CBF
Standardised Method	44	44	-

Table 8-12. Credit valuation adjustment

8.3.2 Solvency ratio

Basis of calculation	31 December 2014			Basis of calculation in 2013	31 December 2013		
	CH-Group	CBL	CBF		CH-Group	CBL	CBF
Regulation (EU) No 575/2013	24.04%	27.00%	19.70%	German Solvency regulation	26.34%	-	17.83%
				CSSF circular 06/273	-	23.81%	-

Table 8-13. Capital ratios of 2013 and 2014

Note: The data for CH and CBF is based on the German GAAP according to the German Commercial Code (HGB). The data for CBL is based on International Financial Reporting Standards (IFRS).

Capital structure, capital ratio and Return on Assets

8.4 Return on Assets

In regard to the average capital employed (monthly calculation) the return on assets (based on the net income before transfer of profit) in the financial year is shown in the table below:

	31 December 2014	31 December 2014
	CBL	CBF
Return on Assets	1.01%	5.11%

Table 8-14. Return on Assets

9. Governance arrangements

9.1 Clearstream Holding AG

9.1.1 General arrangements

Clearstream Holding AG is a stock corporation incorporated in Germany. The German Stock Corporation Act (AktG) requires such a company to set up an Executive Board and a Supervisory Board, §§ 76 et seq.

AktG maintains a comprehensive suitability policy. The objective of this policy is to ensure that the members of the Executive Board, the members of the Supervisory Board and key function holders of CH (as well as of the subsidiaries of CH that are to be qualified as credit institutions) are suitable in terms of reputation, experience and governance criteria, as stipulated in the "EBA Guidelines on the assessment of the suitability of members of the management body and key function holders" (EBA/GL/2012/06) and BaFin guidance notice BA 53-FR 1903-2012/0003 as amended. CH follows a stringent recruitment policy for the selection of members of the Supervisory Board and Executive Board as described below.

9.1.2 Supervisory Board

CH has established a Supervisory Board to supervise the Executive Board, in accordance with the mandatory provision of the German Stock Corporation Act (AktG). The members of the Supervisory Board of CH are elected by the shareholders. This in principle takes place during the annual meeting of shareholders. The members are elected for a period of five years.

In general, the Supervisory Board consists of three members. The Supervisory Board in its entirety must have the necessary skills, capabilities and experience to supervise and control the Executive Board of CH. This requires understanding of the business of a Financial Holding Company. In addition, the Supervisory Board must have:

- At least one member with expertise in the area of accounting and auditing; and
- At least one member with expertise in the area of risk management and risk controlling.

The rules of the limitation of mandates in accordance with § 25d (3) KWG must be complied with. Under this definition, on 31 December 2014, the three members of the Supervisory Board of CH held a total of eight directorships.

The Supervisory Board meets as often as business requires, but at least two meetings are scheduled each year, that generally take place around May and December each year.

During the meeting of the Supervisory Board of CH on 3 December 2014, the Supervisory Board members recorded that there was no female representation in the newly appointed board. When, after the expiration of the term of office, new appointments to the Supervisory Board of CH take place in 2018, the Supervisory Board could aim to increase the female participation of the Supervisory Board to 33.3%.

Governance arrangements

9.1.3 Executive Board

According to § 25a KWG and MaRisk certain functions and duties in several business areas have to be segregated up to the level of the Executive Board. In addition, all tasks have to be allocated in a clear manner to the responsible areas. Furthermore, the four-eyes principle as well as the role of a deputy should be determined. In order to fulfil the above mentioned organisational requirements and in the light of the systemic importance of CH the size of the Executive Board is assumed to consist of not less than four members.

The Executive Board is inter alia responsible for the proper business organisation (in accordance with § 25c (3) number 1 in connection with § 25a of the German Banking Act). Provided that all members of the Executive Board agree to the business distribution plan, the Executive Board is also responsible for the adoption of the business distribution plan which regulates the allocation of tasks between the board members in order to enable a more efficient management of the group.

Meetings of the Executive Board shall be held regularly; further details, including but not limited to the interval between the meetings, shall be determined by the chairperson. Meetings must take place if required for the well-being of CH. In fact, the Executive Board meets monthly.

The members of the Executive Board must be professionally suitable and reliable for the management of a Financial Holding Company and must be able to devote sufficient time to fulfil their tasks. Their professional competence requires sufficient theoretical and practical knowledge of the business of a Financial Holding Company.

Members of the Executive Board must have:

- An understanding of financial markets, especially within the regulatory framework;
- Professional experience with credit institutions;
- Sufficient practical and professional experience in managerial positions.

The rules of the limitation of mandates in accordance with § 25c (2) KWG must be complied with. Under this definition, on 31 December 2014, the nine members of the Executive Board of CH held a total of twenty-six directorships.

9.2 Clearstream Banking S.A.

9.2.1 General arrangements

Clearstream Banking S.A. is a Luxembourg company incorporated in Luxembourg under the form of a public limited company (société anonyme). It is governed by the Articles of Incorporation and by the law of 10 August 1915, as amended, on commercial companies (the "Companies' Act").

CBL maintains a comprehensive suitability policy. The objective of this policy is to ensure that members of the Group Executive Management (GEM) of CBL, the members of the Board of Directors of CBL and key function holders of CBL are suitable in terms of reputation, experience and governance criteria, as stipulated in the 'EBA Guidelines on the assessment of the suitability of members of the management body and key function holders' (EBA/GL/2012/06) and Circulaire CSSF 12/552 as amended. CBL follows a stringent recruitment policy for the selection of members of the Board of Directors and of the Group Executive Management as described below.

Clearstream Banking S.A. is a Luxembourg company incorporated in Luxembourg under the form of a public limited company (société anonyme). It is governed by the Articles of Incorporation and by the law of 10 August 1915, as amended, on commercial companies (the "Companies' Act").

CBL maintains a comprehensive suitability policy. The objective of this policy is to ensure that members of the Group Executive Management (GEM) of CBL, the members of the Board of Directors of CBL and key function holders of CBL are suitable in terms of reputation, experience and governance criteria, as stipulated in the 'EBA Guidelines on the assessment of the suitability of members of the management body and key function holders' (EBA/GL/2012/06) and Circulaire CSSF 12/552 as amended. CBL follows

a stringent recruitment policy for the selection of members of the Board of Directors and of the Group Executive Management as described below.

9.2.2 Board of Directors

The directors of CBL are members of the Board of Directors (BoD) which operates as a body in accordance with Article 64 of the Companies' Act. They may act only at duly convened meetings or by written consent in accordance with Article 8 of the Articles of Incorporation.

The Board of Directors is vested with the broadest powers to perform all acts of administration and disposition in the interest of CBL, except where such powers have been expressly reserved by law or by the Articles of Incorporation to the general meeting of shareholders and without prejudice to the daily management delegated to the GEM in accordance with Article 10 of the Articles of Incorporation and the rules set-out in Section 5 hereafter.

The number of directors shall be determined from time to time by the annual meeting of shareholders in accordance with Article 7.1. of the Articles of Incorporation. In addition, the directors shall be elected by the annual meeting of shareholders. The members are elected for a period of four years. The Board of Directors cannot have among its members a majority of persons who take on an executive role within CBL (authorised directors or other employees of CBL, with the exception of staff representatives).

A member of a Board of Directors has to fulfil certain criteria and in order to be compliant with regulatory requirements every candidate for a position to a Board of Directors has to run through an internal suitability assessment which is conducted by Boards & Committees Clearstream unit.

Special requirements for member of BoD according to CSSF Circular 12/552 (as amended):

- Members of the BoD of a credit institution must be reliable, possess the required expertise to perform the control function and to assess and monitor the management and invest sufficient time to fulfil their duties. When considering whether a person has the respective expertise, the scope and complexity of the business has to be considered;
- The BoD in its entirety shall have the knowledge, skills and experience that are necessary to perform the control function as well as to assess and monitor the daily management of the credit institution;

The rules of the limitation of mandates in accordance with Article 38-2 of the law of 5 April 1993 on the financial sector must be complied with. Under this definition, on 31 December 2014 the five members of the Board of Directors of CBL held a total of twenty-one directorships.

The Board of Directors meets whenever the interests of CBL so require. Meetings are convened in writing. The BoD should meet at least four times per year.

During the meeting of the Board of Directors of CBL on 15 December 2014, the BoD members recorded that in the course of new appointments, the BoD could aim to increase the female participation.

The BoD appoints an Audit, Compliance and Risk Management Committee composed of three board members (among which the chairman and the vice-chairman and one member) and other external members (if and as appropriate). The Chief Internal Auditor, the Compliance Officer and the external auditor will attend the meetings as permanent guests. The CEO/relevant Co-CEO will attend as permanent guests too. The Audit, Compliance and Risk Management Committee reviews CBL's financial statements and makes recommendations to the BoD, approves annually the internal audit functions, objectives, the audit plan, staffing and financial budgets, ensures true and proper accounting and reporting of financial results, oversees the proper financial management, reviews the adequacy and effectiveness of accounting systems and internal financial controls, monitors the efficiency and independence of the internal audit function and meets regularly with the external auditor. The Audit, Compliance and Risk Management Committee reviews at least on a yearly basis a compliance status report obtained from the GEM.

Governance arrangements

9.2.3 Group Executive Management

Main tasks and competencies of GEM are:

- To manage and monitor daily operations;
- To retain and grow the customer base, taking into account pricing strategies, credit decisions and compliance requirements;
- To develop product strategies in the context of changing market and customer requirements, competitor's moves and regulatory developments, including the necessary budget releases;
- To make human resources 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);
- To prepare and consult the Board of Directors of CBL in substantive decisions concerning the banking, settlement & custody area.

In accordance with Article 60 of the Companies' Act, the Board of Directors delegates the day-to-day management of CBL as well as the representation of CBL towards third parties in relation with such management to the GEM.

The GEM determines the daily management of CBL in accordance with Article 10 of the Articles of Association and Article 19 of the law of 5 April 1993, as amended, on the financial sector. It further proposes strategies and budgets to the Board of Directors. GEM meetings take place on a monthly basis.

It is reminded that the Board of Directors of CBL cannot have among its members a majority of persons who take on an executive role within CBL (authorised directors or other employees of CBL, with the exception of staff representatives). In addition, the chairman of the Board of Directors cannot be a member of the daily management of CBL.

The members of the Group Executive Management must be professionally suitable and reliable for the management of a credit institution and must be able to devote sufficient time to fulfil their tasks. Their professional competence requires sufficient theoretical and practical knowledge of the business of a credit institution.

Members of the Group Executive Management must have:

- An understanding of financial markets, especially within the regulatory framework;
- Professional experience with credit institutions;
- Sufficient practical and professional experience in managerial positions.

The rules of the limitation of mandates in accordance with Article 38-2 of the law of 5 April 1993 on the financial sector must be complied with. Under this definition, on 31 December 2014 the nine members of the Group Executive Management of CBL held a total of twenty-six directorships.

9.3 Clearstream Banking AG

9.3.1 General Arrangements

Clearstream Banking AG (CBF) is a stock corporation incorporated in Germany. The German Stock Corporation Act (Aktiengesetz - AktG) requires such a company to set up an Executive Board and a Supervisory Board, §§ 76 et seq. AktG.

Clearstream maintains a comprehensive suitability policy. The objective of this policy is to ensure that members of the Executive Board, members of the Supervisory Board and key function holders of CBF are suitable in terms of reputation, experience and governance criteria, as stipulated in the "EBA Guidelines on the assessment of the suitability of members of the management body and key function holders" (EBA/GL/2012/06) and BaFin guidance notice BA 53-FR 1903-2012/0003 as amended. CBF

follows a stringent recruitment policy for the selection of members of the Supervisory Board and Executive Board as described below.

9.3.2 Supervisory Board

CBF has established a Supervisory Board to supervise the Executive Board, in accordance with the mandatory provisions of the German Stock Corporation Act (AktG) in connection with the German One-Third Participation Act (Drittelbeteiligungsgesetz - DrittelbG). According to the DrittelbG, one third of the members of the Supervisory Board (two out of six) are employee representatives. The shareholders' representatives of the Supervisory Board of CBF are elected by the shareholders in the annual meeting of shareholders. The employee representatives are elected by the employees of CBF prior to that shareholders' meeting. All members are elected for a period of five years.

In general, the Supervisory Board consists of six members. The Supervisory Board in its entirety must have the necessary skills, capabilities and experience to supervise and control the Executive Board of CBF. This requires understanding of the business of a credit institution. In addition, the Supervisory Board must have:

- At least one member with expertise in the area of accounting and auditing; and
- At least one member with expertise in the area of risk management and risk controlling.

The rules of the limitation of mandates in accordance with § 25d (3) KWG must be complied with. Under this definition, on 31 December 2014 the six members of the Supervisory Board of CBF held a total of fifteen directorships.

The Supervisory Board meets as often as business requires, but at least two meetings are scheduled each year, which generally take place around May and December.

Due to the risk profile of CBF no separate risk committee has been established. However, risk reports are provided by Clearstream Risk Management to the Supervisory Board of CBF on a regular basis.

During the meeting of the Supervisory Board of CBF on 17 December 2014, the Supervisory Board members recorded that there was no female representation in the newly appointed board. When, after the expiration of the term of office, new appointments to the Executive Board of CBF take place in 2018, the Supervisory Board could aim to increase the female participation.

9.3.3 Executive Board

According to § 25a KWG and MaRisk certain functions and duties in several business areas have to be segregated up to the level of the Executive Board. In addition, all tasks have to be allocated in a clear manner to the responsible areas. Furthermore, the four-eyes principle as well as the role of a deputy should be determined. In order to fulfil the above mentioned organisational requirements and in the light of the systemic importance of CBF the size of the Executive Board is assumed to consist not less than two members.

The Executive Board is inter alia responsible for the proper business organisation (in accordance with § 25c (3) number 1 in connection with § 25a of the German Banking Act). Provided that all members of the Executive Board agree to the business distribution plan, the Executive Board is also responsible for the business distribution plan which regulates the allocation of tasks between the board members in order to enable a more efficient management.

Meetings of the Executive Board shall be held regularly; further details, including but not limited to the interval between the meetings, shall be determined by the chairperson. Meetings must take place if required for the well-being of CBF. In fact, the Executive Board meets monthly

The members of the Executive Board must be professionally suitable and reliable for the management of a credit institution and must be able to devote sufficient time to fulfil their tasks. Their professional competence requires sufficient theoretical and practical knowledge of the business of a credit institution.

Governance arrangements

Members of the Executive Board must have:

- An understanding of financial markets, especially within the regulatory framework;
- Professional experience with credit institutions;
- Sufficient practical and professional experience in managerial positions.

The rules of the limitation of mandates in accordance with § 25c (2) KWG must be complied with. Under this definition, on 31 December 2014 the four members of the Executive Board of CBF held a total of nine directorships.

Appendix A. Abbreviations used in this document

ABS	Asset Backed Securities
AMA	Advanced Measurement Approach
ASL	Automated Securities Lending Programme
BaFin	Bundesanstalt für Finanzdienstleistungsaufsicht (Federal Financial Supervisory Authority)
BCBS	Basel Committee on Banking Supervision
BCL	Banque centrale du Luxembourg
BCM	Business Continuity Management
BIA	Basis Indicator Approach
CBF	Clearstream Banking AG
CBJ	Clearstream Banking Japan Ltd
CBL	Clearstream Banking S.A.
CCB	Cash Correspondent Bank
CCP	Central Counterparty
CDO	Collateralised Debt Obligation
CF	Conversion Factor
CFO	Chief Financial Officer
CFSI	Clearstream Fund Services Ireland Ltd
CH	Clearstream Holding AG
CGSS	Clearstream Global Securities Services Ltd
CI	Clearstream International, S.A.
CLS	Continuous Linked Settlement
CMBS	Commercial Mortgage-Backed Security
CNB	Czech National Bank
COP	Clearstream Operations Prague s.r.o.
CRD	Capital Requirements Directive
CRD IV	Capital Requirements Directive IV
CRM	Credit Risk Mitigation
CRR	Capital Requirements Regulation
CS	Clearstream Services S.A.
CSA	Credit Support Annex
CSC	Collective Safe Custody
CSD	Central Securities Depository
CSSF	Commission de Surveillance du Secteur Financier
CVA	Credit Valuation Adjustment
DBAG	Deutsche Börse AG
DVP	Delivery Versus Payment
EB	Euroclear Bank SA/NV
EBA	European Banking Authority
EBIT	Earnings Before Interest and Tax
EC	European Commission
ECAI	External Credit Assessment Institution
ECB	European Central Bank
EEA	European Economic Area
EMIR	European Market Infrastructure Regulation
ESMA	European Securities and Markets Authority
EU	European Union

Abbreviations

FIRB	Foundation Internal Rating Based Approach
FRN	Floating Rate Note
FX	Foreign Exchange
GAAP	Generally Accepted Accounting Principles
GMRA	Global Master Repurchase Agreement
GSF	Global Securities Financing
HF-LI	High-Frequency, Low-Impact
HGB	Handelsgesetzbuch (German GAAP Code)
HQLA	High Quality Liquid Assets
IAS	International Accounting Standards
ICAAP	Internal Capital Adequacy Assessment Process
ICSD	International Central Securities Depository
IFRS	International Financial Reporting Standards
IRB	Internal Rating Based Approaches
IRBA	Advanced Internal Rating Based Approach
IRR	Interest Rate Risk
iTOF	Intraday Technical Overdraft Facility
KWG	Gesetz über das Kreditwesen (German Commercial Code)
LDA	Loss Distribution Approach Models
LF-HI	Low-Frequency, High-Impact
LGD	Loss Given Default
LSI	Less Significant Institution
MaRisk	Mindestanforderungen an das Risikomanagement (Minimum Requirements for Risk Management)
MBS	Mortgage-Backed Securities
MEIP	Minimum Export Insurance Premium
NCSC	Non-Collective Safe Custody
NPV	Net Present Value
OECD	Organisation for Economic Cooperation and Development
OTC	Over-The-Counter
PD	Probability of Default
PSF	Professional of the Financial Sector
RBC	Risk Bearing Capacity
RMBS	Residential Mortgage-Backed Security
RWA	Risk-weighted asset
SA	Standardised Approach (in connection with operational risk)
SI	Significant Institution
SIB	Systematically Important Bank
SREP	Supervisory Review and Evaluation Process
SRP	Supervisory Review Process
SSM	Single Supervisory Mechanism
SSS	Securities Settlement System
StA	Standardised Approach (in connection with counterparty credit risk)
STP	Straight-Through Processing
SWIFT	Society for Worldwide Interbank Financial Telecommunication
T2S	TARGET2-securities
TOF	Technical Overdraft Facility
VaR	Value at Risk

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