2016

Disclosure Report

Helaba

Disclosure report of the Helaba Group in accordance with the Capital Requirements Regulation (CRR)

31 December 2016

Contents

Preamble

The Helaba Group

Landesbank Hessen-Thüringen Girozentrale of Frankfurt am Main and Erfurt (Helaba) provides financial services in Germany and other countries for companies, banks, institutional investors and the public sector. Helaba serves as the Sparkasse central bank for Hesse, Thuringia, North Rhine-Westphalia and Brandenburg, making it a strong partner for 40 % of all Germany's Sparkassen.

Frankfurter Sparkasse (FSP), the regional market leader in retail banking, is a wholly owned subsidiary of Helaba. The Helaba Group also includes 1822direkt online bank, Landesbausparkasse Hessen-Thüringen (LBS) and Wirtschafts- und Infrastrukturbank Hessen (WIBank). The latter implements development programmes on behalf of the State of Hesse.

One key aspect of Helaba's business model is its legal form as a public-law institution. Helaba operates as a for-profit entity in line with the applicable provisions of the Charter and the Treaty of the Formation of a Joint Savings Banks Association Hesse-Thuringia. The Treaty and the Charter establish the legal framework for Helaba's business model. Other factors central to this business model are Helaba's status as part of the Sparkassen-Finanzgruppe with its institutional protection scheme, the distribution of tasks between Sparkassen, Landesbanken and other S-Group institutions, the large stake in Helaba owned by the Sparkassen organisation, and Helaba's retention and expansion of its activities in the S-Group and public development and infrastructure business.

Helaba's strategic business model centres on the three business units: Wholesale Business; S-Group Business, Private Customers and SME Business; and Public Development and Infrastructure Business. The Bank's registered offices are situated in Frankfurt am Main and Erfurt, and it also has branches in Düsseldorf, Kassel, Paris, London and New York. The branches allow Helaba to strengthen its local presence close to customers and Sparkassen. The foreign branches provide Helaba with access to the funding markets, particularly those markets based on the US dollar and pound sterling. The organisation also includes representative and sales offices, subsidiaries and affiliates.

Helaba's sound strategic business model is based on three business units

Helaba …
… a Universal Bank with strong Regional Focus

Wholesale Business	S-Group Business, Private Customers and SME Business	Public Development and Infrastructure Business
Helaba	Verbundbank	WIBank Wirtschafts- und Infrastrukturbank Hessen
	LBS	
Business Divisions: Real Estate; Corporate Finance; Financial Institutions and Public Finance; Global Markets; Asset Management; Transaction Banking	Frankfurter Sparkasse 1822	
	1822direkt Ein Unternehmen der Frankfurter Sparkasse	
	Frankfurter Bankgesellschaft PRIVATBANK Zürich Frankfurt	

Frankfurt a. M. · Erfurt · Düsseldorf · Kassel · London · Paris · New York

Zurich · Madrid · Moscow · Shanghai · Singapore · Stockholm

Disclosure Report

Helaba is the superordinated institution in the Group and, as such, is responsible for meeting the disclosure requirements at Group level in accordance with Part 8 of the Capital Requirements Regulation (CRR). This Disclosure Report satisfies these requirements for the reporting date of 31 December 2016. The supplementary provisions set out in Sections 10 and 10a of the German Banking Act (Kreditwesengesetz – KWG), Article 13 CRR, the transitional provisions set out in Part 10 CRR and the regulatory and implementing standards of relevance to disclosure are also taken into account.

The frequency and scope of the Disclosure Report are based on the requirements of the European Banking Authority (EBA) as specified in EBA/GL/2014/14. The information to be disclosed in this report is subject to the materiality principle as specified in Article 432 CRR in conjunction with the EBA guidelines. Helaba applies the materiality principle in relation to the presentation of the geographical distribution of the main credit exposures in the "Countercyclical capital buffer" section. Further details can be found in the section concerned.

Helaba's approach to disclosures is regularly reviewed on the basis of a framework of requirements established by the Group to ensure that the approach is appropriate and fit for purpose; operational responsibilities are set out in detailed operating procedures. Helaba's entire Board of Managing Directors is responsible for approving publication of the document.

Following a review of the requirements, there will also be a half yearly report for 2017, given the Helaba Group's total assets and its leverage ratio exposure.

Article 13 CRR requires significant subsidiaries of EU parent institutions and those subsidiaries that are of material significance for their local market to prepare their own disclosure report on an individual or sub-consolidated basis.

Helaba's FSP subsidiary, which is the regional market leader in retail banking, falls under this separate disclosure requirement. Since the disclosure reporting date of 31 December 2015, the disclosure report for Frankfurter Sparkasse (FSP) as an individual bank has been published in a "Disclosure report" section within its annual report, which is available on FSP's website. FSP updates its disclosure report each year in the same way as its annual report.

The regulatory capital requirements and Helaba's own funds are based on financial reporting in accordance with IFRS.

The remuneration policy details in accordance with Article 450 CRR are presented in a separate remuneration report and published on Helaba's website.

Country-by-country reporting in accordance with Section 26a KWG can be found in the Annual Report in the section thus entitled.

Please refer to the "Risk report" section in conjunction with the "Responsibility statement" in the Helaba Group's Annual Report (published on Helaba's website) for information on declarations by the Board of Managing Directors regarding the appropriateness of the risk management system at Helaba pursuant to Article 435 (1e) CRR. Given the differences between the basis of consolidation for regulatory purposes and that for accounting purposes, more detailed information relating to the financial statements can also be found in the Annual Report.

Scope of Application

These disclosures are provided for the Helaba Group on the basis of the group of consolidated companies for regulatory purposes pursuant to the KWG/CRR. The document is prepared and coordinated by the parent company – Helaba.

A total of 21 companies are fully consolidated in the consolidation process for regulatory purposes in accordance with Sections 10 and 10a KWG and Article 18 CRR in addition to Helaba as the superordinated institution, and one other company is included in the consolidation on a pro-rata basis. A further 46 companies are excluded from the scope of consolidation for regulatory purposes in accordance with Section 31 KWG in conjunction with Article 19 CRR. There were no changes in the scope of consolidation for regulatory purposes compared with the disclosure reporting date of 31 December 2015.

Group of consolidated companies for regulatory purposes

Regulatory treatment	Number and type of companies
Full consolidation	**21 companies** 15 financial institutions 2 asset management companies 3 banks 1 provider of ancillary services
Pro-rata consolidation	**1 company** 1 financial institution
Excluded from the scope of consolidation for regulatory purposes	**46 companies** 45 financial institutions 1 provider of ancillary services

A detailed breakdown of the treatment of all corporate units included in the group of consolidated companies under either commercial law or regulatory provisions can be found in the separate Annex in the "Table of Consolidated Companies". Helaba does not avail itself of the exemptions listed in Article 7 CRR for institutions belonging to a group. There are no obstacles, either legal or in substance, to the transfer of funds or liable capital within the Helaba Group. Of the subsidiary enterprises included in the scope of prudential consolidation under the KWG, 21 companies are fully consolidated in the consolidated accounts under IFRS and one other company is accounted for using the equity method. Information on the group of consolidated companies under IFRS may be found in the Annual Report (Note (3) in conjunction with Note (87) in the Notes to the Consolidated Financial Statements).

Risk Strategy and Risk Management

Drafted in accordance with the requirements imposed by the law, the Charter and the banking regulatory authorities and the Rules of Procedure for the Board of Managing Directors (GaV), the risk strategy lays down the principal elements of the approach adopted to dealing with risk, the objectives of risk containment and the measures employed to achieve these objectives within the Helaba Group. The risk strategy covers the Helaba Group and therefore also the Helaba group of companies as defined by the KWG and the Capital Requirements Regulation (CRR). It covers all of the material business activities of the Helaba Group. Helaba's business strategy and risk strategy are integrally linked to the business strategy and risk strategy of Sparkassen-Finanzgruppe Hessen-Thüringen. Helaba aligns the management of its risk profile with the jointly agreed risk stipulations of Sparkassen-Finanzgruppe Hessen-Thüringen in accordance with the business strategy and risk strategy of Sparkassen-Finanzgruppe Hessen-Thüringen.

The risk strategy is modular in nature and consists of a general risk strategy and specific risk strategies. The general risk strategy sets out the universal stipulations for risk management, while the specific risk strategies lay down detailed ground rules and methods for the treatment of the various risk types. Methodological specifications are detailed in derived policies.

Helaba and the companies included in Group-wide risk management have introduced guidelines and general and detailed operating procedures for employees to ensure the propriety of business operations and provide a robust foundation for the implementation of the risk strategy. The risk strategies make direct reference to the relevant elements of this structural foundation where necessary.

The Helaba Group operates as a for-profit entity in line with the provisions of its Charter and of the Treaty of the Formation of a Joint Savings Banks Association Hesse-Thuringia. Careful consideration is given to the risks and opportunities arising from all exposures and business transactions, as dictated by the Helaba Group's prudent risk policy. Risks may be assumed only as permitted under the general risk strategy and the specific risk sub-strategies and only in pursuit of the strategic objectives of the Helaba Group – in particular in order to maintain the Group's long-term earnings power while protecting its assets as effectively as possible and accomplishing its mission – on the basis of a risk appetite framework (RAF). The principal objectives of the Helaba Group's risk strategy are to uphold the organisation's conservative risk profile and maintain risk-bearing capacity while ensuring that all regulatory requirements are satisfied.

Helaba defines the RAF as a holistic approach in which risk appetite is specified, communicated and reviewed. In addition to the risk appetite statement, the framework includes the risk limits and an overview of the roles and responsibilities of the managers charged with monitoring risk.

A core component of the RAF is the internal capital adequacy assessment process (ICAAP), which Helaba defines as all processes that are directly or indirectly associated with maintaining risk-bearing capacity (both from a regulatory perspective in Pillar I and from an economic perspective in Pillar II) and that also enable the Bank to monitor capital adequacy in a timely manner. The internal liquidity adequacy assessment process (ILAAP) is closely linked with the ICAAP. The ILAAP brings together and regularly validates the various aspects of liquidity risk management from both economic and regulatory perspectives. This process ensures that Helaba has an adequate level of liquidity at all times.

The risk appetite statement also sets out the risks to which Helaba is exposed (risk profile), the risks it is willing to take on to achieve its strategic objectives (risk appetite) and the maximum risk that Helaba can assume with its existing and planned resources (risk capacity). Within a clear governance structure, various units monitor activities to ensure that Helaba remains within its risk-bearing capacity at all times and that it complies with, and reviews, the requirements specified in the risk appetite framework. Overall responsibility lies with the Board of Managing Directors of Helaba. The Risk Committee and its subcommittees assist with the preparation work for risk-relevant decisions to be made by the Board of Managing Directors. The Supervisory Board monitors the activities of the Board of Managing Directors. In addition, there is a clear segregation within the risk management system between units that monitor risk and those units responsible for managing and/or assuming risk.

The components of the risk appetite framework are described below.

- Risk profile
  The main types of risk identified in the annual risk inventory check determine the risk profile to which Helaba is exposed at that point. The regulatory risk profile (Pillar I) and the economic risk profile (Pillar II) are drawn up using risk quantification methods specified by regulators and developed internally by the group. The management-related going concern approach for calculating risk-bearing capacity combines both risk profiles into one key performance indicator, which is expressed in the form of a going-concern CET1 ratio (assuming materialising economic risk).

- Risk capacity
  Risk capacity is the maximum risk that Helaba can assume with the given and planned resources without breaching supervisory and/or internal minimum requirements. From a supervisory perspective, the minimum requirements in Pillar I are specified as capital ratios that the group must comply with. These ratios may be notified, for example, as part of an SREP capital decision. Internally, for the purposes of determining risk-bearing capacity under Pillar II (in accordance with the requirements arising from the German Minimum Requirements for Risk Management (MaRisk) and other documents issued by the national supervisory authority), the Helaba Group also specifies – in the going concern approach for calculating risk-bearing capacity – internal buffers that extend beyond the requirements in the CRR/CRD IV. In a base scenario, Helaba must not fall short of these internal buffers in order to maintain its risk-bearing capacity.

- Risk appetite
  Risk appetite is defined as those risks that Helaba plans to assume as part of its operating activities. A distinction may be made between medium-/long-term strategic risk appetite and short-term operating risk appetite. The strategic risk appetite expresses the target level of risk that Helaba intends to take on over the long term to attain its strategic objectives. Operating risk appetite is based on the long-term risk appetite, but may vary in the short term because of current economic and/or political circumstances; it is derived from the operational business planning for the coming or current financial year.

- Risk limits
  Operating risk appetite is quantified in the form of the maximum risks that Helaba is prepared to assume, expressed as risk limits. The utilisation of the limits is continuously monitored and presented to the Board of Managing Directors in regular reports. If the limits are exceeded, this triggers defined escalation processes with immediate notification of the relevant decision-makers.

The Bank's risk profile is largely shaped by default risk and market price risk due to the priorities set out in Helaba's business strategy. Default risks are limited by monitoring concentration limits, country risk limits and business type limits as well as observing basic earnings and risk requirements. Market price risk is limited by means of the daily monitoring of interest rate, exchange rate and other price risks and monthly monitoring of the residual and incremental risk.

Helaba applies a long-term approach to liquidity management and is correspondingly prudent in its liquidity planning, meaning that the liquidity risk is inherently limited. Daily monitoring of the short-term liquidity status and monthly monitoring of structural liquidity ensure that solvency is never compromised.

FSP operates as a legally independent institution and accordingly has its own comprehensive risk management system in accordance with Section 25a KWG in conjunction with the German Minimum Requirements for Risk Management (Mindestanforderungen an das Risikomanagement – MaRisk). The methods and processes employed and the system of implementation within its organisation are documented along with the strategies in FSP's Risk Manual and are updated regularly.

The Risk Manual includes descriptions of the risk management regime in place and the risk early warning system and of the manner in which responsibilities are allocated to ensure strict separation of the relevant functions. The measures associated with the implementation of the CRR are fully integrated into FSP's own procedural instruction system. FSP's comprehensive risk containment apparatus extends from front office to portfolio management processes.

Risk Types

The risk types of relevance to Helaba result directly from its business activities. The structured risk inventory process examines, at regular intervals and – where necessary – in response to relevant developments, which risks have the potential to cause material damage to the net assets (including capital resources), results of operations or liquidity position of the Helaba Group and Helaba Bank. The following primary risk types have been identified for the Helaba Group and Helaba Bank (real estate risk excepted).

- The default risk or credit risk is the potential economic loss as a result of non-payment by or a deterioration in the creditworthiness of borrowers, issuers, counterparties or equity investments and as a result of restrictions on cross-border payment transactions or performance (country risk). The potential economic loss is determined using internal or external credit assessments and risk parameters assessed by Helaba itself or set out in regulatory specifications. Default risk does not include credit risk already forming part of market price risk under residual risk or incremental risk.

- The equity risk – the potential economic loss as a result of non-payment by or a deterioration in the creditworthiness of an equity investment – that is not managed at the level of the individual risk types also forms part of the default risk. Such developments can lead to a decline in the value of the holding or the reduction or cancellation of dividend payments, to loss transfers or to contribution, margin call and liability obligations.

- The market price risk is the potential economic loss as a result of disadvantageous movements in the market value of exposures due to changes in interest rates, exchange rates, share prices and commodity prices and their volatility. In this context changes in interest rate levels in one market segment lead to general interest rate risks, specific interest rate changes (for example on the part of an issuer) lead to residual risks and changes in the price of securities subject to a credit rating as a result of rating changes (including default) lead to incremental risks.

- The liquidity risk is broken down into three categories. The short-term liquidity risk is the risk of not being able to meet payment obligations as they fall due. Structural liquidity risks result from imbalances in the medium- and long-term liquidity structure and a negative change in the organisation's own funding curve. Market liquidity risks result from insufficient liquidity of assets, with the consequence that positions can be closed out only, if at all, at a disproportionately high cost. The liquidity risks associated with transactions not included in the statement of financial position lead to short-term and/or structural liquidity risks depending on their precise nature.

- The operational risk is defined as the risk of loss resulting from inadequate or failed internal processes, people and systems or from external events. Reputation risk falls into this category too in circumstances where the origin of the reputation risk can be traced back to an operational risk. Operational risk also includes the following risks:
  - Legal risk is defined as the risk of loss for the Bank resulting from infringements of legal provisions that have the potential to result in legal proceedings or internal actions to avert such losses. Breaches of contract relating to matters of creditworthiness (for example in the case of loan contracts) do not fall within this definition.
  - Conduct risk is defined as the current or potential risk of loss for an institution as a result of an inappropriate offer of financial/banking services, including cases of intentional or negligent misconduct.

– There are two distinct aspects to model risk for the Helaba Group.
  1. One involves the risk of own funds requirements being underestimated as a result of the use of models to quantify risks. This is in part a reflection of the fact that a model can never entirely capture reality. This aspect of model risk is mapped in the Helaba Group by means of a risk exposure surcharge for the primary risk types in economic risk containment.
  2. The other aspect of model risk involves the risk of losses associated with the development, implementation or inappropriate use of a different model (that is to say a model of a type other than that referred to directly above) by the institution for the purposes of decision-making. This aspect of model risk is factored into operational risk.
– The risk associated with the deployment of information technology (IT) is defined as the risk of loss resulting from the operation and development of IT systems (for example technical implementation of functional requirements and technical design activities for the provision, support and development of software and hardware). The risk of loss relates to situations in which the availability, confidentiality or integrity of data is compromised or in which unforeseen additional expenditure is incurred for data processing.
– Information security risk (IS risk) encompasses the risk of loss as a result of information that merits protection being compromised by the exploitation of technical, process or organisational weaknesses. The potential loss in this case stems from the availability, confidentiality or integrity of information being compromised, from unforeseen additional expenditure being incurred for data processing and from external attacks (cyber crime).
– Outsourcing risk is defined as the risk of loss resulting from contract, supplier and performance risks and risks associated with a failure to comply with regulatory requirements that can arise when procuring services externally.

▪ The business risk is the potential economic loss attributable to possible changes in customer behaviour, in competitive conditions in the market or in general economic conditions. Damage to Helaba's reputation could also trigger a change in customer behaviour.

▪ The reputation risk involves the possibility of a deterioration in Helaba's public reputation in respect of its competence, integrity and trustworthiness as a result of perceptions of the individuals having a business or other relationship with the Bank. The material consequences of reputation risks impact on the business and liquidity risk and are accordingly considered under these two risk types insofar as the origin of the reputation risk cannot be traced back to an operational risk.

▪ Real estate risk comprises the real estate portfolio risk – the potential economic loss from fluctuations in the value of an entity's own real estate – and the real estate project management risk associated with project development business. Risks associated with the provision of equity and loan capital for a project are excluded from this risk type, as are risks associated with real estate finance.

Risk Management Process

The risk management methods employed at Helaba are designed to be appropriate to the type, magnitude, complexity and risk content of business activities and the priorities of the Bank's business strategy and risk strategy. These risk management methods have been approved by management in accordance with the requirements imposed by the Charter, national and international law and the banking regulatory authorities. Helaba develops its risk management methods continuously to accommodate changing circumstances, new findings and newly introduced regulatory requirements in both national and international contexts. The risk management methods instituted consider all of the Bank's material risks and are appropriate to the institution's profile and strategy.

Responsibility for identifying and containing risks rests with local management units in the various components of the organisation, but the quantification and monitoring/controlling functions, which include the reporting duty and the associated methodological authority, are performed by the central monitoring units. Helaba's organisational structure keeps risk controlling and risk containment segregated at all levels including the Board of Managing Directors. This clear separation of roles and the close co-operation between the units concerned is intended to ensure efficient implementation of risk policy containment mechanisms.

Risk management at Helaba comprises four elements that are best understood as consecutive phases in a single continuous process.

1. Risk identification
The risks affecting Helaba and the companies included in risk management at Group level are identified continuously as an integral part of daily operations. Once identified, each risk is assigned to the relevant risk type.

Comprehensive identification and incorporation into existing risk measurement systems and the associated risk monitoring processes is particularly important in connection with the introduction of new products and complex transactions. The central monitoring units are involved in the authorisation of new products as part of the New Product Process for lending business and trading business.

The risk inventory process to be completed for the Helaba Group annually and on an ad hoc basis also helps to identify previously unknown risks and ensure that any of material significance are incorporated into the risk management process.

2. Risk quantification
Effective mapping of individual transactions and risk parameters in the risk measuring systems enables qualitatively and quantitatively robust risk measurement and assessment for the various risk types. A variety of models, methods and processes are used for this purpose. The Bank applies corresponding premiums and discounts to cover the model risk that results from the use of models and is confirmed in the course of validations.

3. Risk containment
The information obtained in the risk identification and quantification phases provides the basis for risk containment by the local management units. Risk containment encompasses all of the measures implemented in order to reduce, limit, avoid and transfer risks and keep risk exposure within the limits defined by the Board of Managing Directors.

4. Risk monitoring/controlling and reporting
A comprehensive and objective reporting system keeps the relevant people within the organisation apprised of the existing risks as part of an independent risk controlling structure. The methods of the preceding process phases and the quality of the data used are also reviewed in this phase and plausibility checks are carried out on the results.

Risk Management Structure

Committees
The Helaba Board of Managing Directors is responsible for all of the risks to which the Bank is exposed and for implementing the risk policy throughout the Group. The Board of Managing Directors has also established a Risk Committee to implement and monitor Helaba's risk strategy, first and foremost, It is also responsible for aggregating all of the risks – that is to say the default risk, market price risk, liquidity risk, operational risk, business risk and real estate risk – assumed across the Bank and evaluate their combined implications. The Risk Committee is charged with identifying risks within the Helaba Group at the earliest possible stage, designing and monitoring the calculation of risk-bearing capacity and deriving measures to avoid risk and generate containment mechanisms for risk management. It also adopts the containment and quantification methods employed by the various units and assesses the appropriateness of the tools applied in light of the extent of the risk.

All members of the Board of Managing Directors are represented on the Risk Committee. The Risk Committee in principle meets every month and held a total of 16 meetings in 2016.

The Risk Committee is complemented by the Asset/Liability Management Committee, the Credit Management Committee (KMA) and the Credit Committee of the Board of Managing Directors (VS-KA). The Asset/Liability Management Committee has responsibility for monitoring market price risk, including the associated limit utilisation, and managing the strategic market price risk portfolio and the portfolio of non-interest-bearing liabilities. The Credit Management Committee is charged with the containment of default risks for the entire portfolio and of syndication risks, placement risks and country risks, while the Credit Committee of the Board of Managing Directors is responsible for credit and settlement risks associated with counterparties.

Appointments to the committees and the committees' duties, jurisdiction and responsibilities are governed in separate rules of procedure approved by the Board of Managing Directors.

The organisational guidelines specify that the approval of the entire Board of Managing Directors or of the Supervisory Board or one of its committees must be obtained for decisions on matters of particular significance such as acquiring, changing or disposing of equity investments, granting loans above a certain threshold and defining the cumulative limit for market price risk. The Bank's Charter, moreover, requires that any decision to take on or make changes to strategic equity investments involving a stake in excess of 25 % also be approved by the Board of Public Owners.

Members of the management bodies

Helaba's corporate governance statutes, which are based on the provisions of its Charter, assign responsibility for the appointment of members of the Board of Managing Directors to the Board of Public Owners acting with the consent of the Supervisory Board. Candidates for positions on Helaba's Board of Managing Directors are accordingly selected, with reference to Section 25 d (11) KWG, by the Board of Public Owners, which is assisted in this connection by a nine-member Public Owners' Committee.

The Public Owners' Committee helps the Board of Public Owners determine applicants for positions on Helaba's Board of Managing Directors. The committee takes into account the balance and variety of knowledge, capabilities and experience provided by all the members of the Board of Managing Directors. It drafts a job description with an applicant profile and specifies the time that will be required for the responsibilities in question. The objective is to achieve a balance between the management/control and market functions represented on the Board of Managing Directors based on the size and structure of Helaba's business model.

The committee issues instructions in a suitable form for the operational selection process based on the following requirements profile:

- strategic and conceptual capabilities
- professional knowledge and experience in the area of responsibility for which the appointment is being made
- professional knowledge and experience in lending and capital markets business
- theoretical knowledge and practical expertise in regulation, risk management and corporate management
- leadership and communication skills
- professional experience in the financial services sector.

Article 1 of the Helaba company regulations stipulates that no employee of the organisation may be treated differently to others, either by the Bank or by other employees, on the basis of gender, race, age, religion, skin colour, origin or nationality.

Helaba signed the Diversity Charter, a German corporate initiative to promote diversity in companies and institutions, in 2011. Following the maxims of the Charter, it gives consideration when selecting members of the Board of Managing Directors to the differences in knowledge, skills and experience of all members of the Board of Managing Directors.

The Board of Public Owners additionally prepares a regular, at least annual, assessment of the knowledge, skills and experience of both the individual members of the Board of Managing Directors and of the Board of Managing Directors as a whole. In a further assessment, the Board of Public Owners regularly reviews the structure, size, composition and performance of the Board of Managing Directors, such review being carried out at least once a year. Close attention is paid to ensuring that the decision-making within the Board of Managing Directors by individuals or groups of individuals is not influenced in a way that might be prejudicial to Helaba's interests. The Public Owners' Committee assists the Board of Public Owners in both of these activities. In the year under review, the Board of Public Owners met on 23 March 2016, 27 June 2016, 30 September 2016 and 9 December 2016. The Public Owners' Committee held meetings on 23 March 2016, 30 September 2016 and 9 December 2016.

The members of the Helaba Board of Managing Directors held management or supervisory posts at 31 December 2016 as shown in the table below.

Mandates held by the members of the Board of Managing Directors (in accordance with Section 24 KWG)

	Number	Thereof subsidiaries/ equity investments > 10 %
Herbert Hans Grüntker	5	4
Jürgen Fenk	7	7
Thomas Groß	6	5
Dr. Detlef Hosemann	4	3
Klaus-Jörg Mulfinger	4	3
Dr. Norbert Schraad	2	2

Risk management and Helaba Group companies
Companies belonging to the Group are incorporated into risk management activities at Group level by taking account of the risks established in the course of the annual or, where applicable, an ad-hoc risk inventory. The risk inventory process identifies risks at the level of Helaba's direct equity investments, with each of these Group companies measuring the cumulative risk across its own organisation including its own equity investments. The starting point for determining inclusion is all direct equity investments of Helaba Bank under commercial law plus special purpose vehicles and special funds. The regular risk inventory covers the companies belonging to the Group for which there exists a material legal or economic reason for inclusion. The list of companies to be included is drawn up with reference to a catalogue of criteria. Companies belonging to the Group that are not included in the risk inventory are considered through the mechanism of the residual equity risk.

The outcome of the materiality assessment conducted as part of the risk inventory process is used to determine which Group companies are included in risk management at Group level with which risk types and which Group companies are considered only through the mechanism of the residual equity risk. Helaba (with WIBank and LBS) and FSP were included in their entirety in risk management at the level of individual risks in 2016. Other companies belonging to the Group are included in risk management at the level of individual risks in line with their primary risk types.

Companies belonging to the Group must in addition establish an appropriate risk management process for any of their own risks that are assigned to the risk type at Group level. The officers responsible for the relevant risk types and methods stipulate precisely how risks are to be included. The mode of inclusion in the methods used in the risk management process varies from risk type to risk type.

Principal Risk Monitoring Areas

Risk containment is a duty of the local front office units, but responsibility for the identification, quantification and monitoring/controlling functions, which include the reporting duty, and the associated methodological authority rests with the central monitoring units. Helaba's organisational structure keeps risk controlling and risk containment clearly segregated at all levels including the Board of Managing Directors.

This clear separation of roles and the close co-operation between the units concerned ensures efficient implementation of risk policy containment mechanisms.

The units indicated in the table below have central responsibility for containing and monitoring risks falling within the primary risk types. A number of other departments and functions also contribute to risk management within the Helaba Group in addition to the units indicated in the table.

Risk types grouped by unit(s) responsible for risk containment/monitoring

Risk Types	Responsible for risk containment	Responsible for risk monitoring
Default risk including equity risk	Front office units, Capital Markets, Asset/Liability Management (municipal loans)	Risk Controlling (portfolio level – Bank as a whole), Credit Risk Management (individual exposure level and individual portfolio level), Group Strategy and Central Staff Division (equity risk)
Market price risk	Capital Markets, Asset/Liability Management	Risk Controlling
Liquidity risk	Capital Markets (money market trading), Asset/Liability Management	Risk Controlling
Operational risk	All units	Risk Controlling, Legal Services (legal risk), Organisation and Information Technology (IT risk), Information Security Management (IS risk), Central Sourcing Management (outsourcing risk)
Business risk	Front office units	Risk Controlling
Real estate risk	Operationally independent subsidiaries ▪ Operational – discharged by management at the equity investment concerned ▪ Strategic – discharged by the supervisory bodies of the companies and the Real Estate Management unit	Risk Controlling, Real Estate Management

Internal risk reports are prepared by risk type, scale and frequency on the basis of the underlying risk types and counterparties.

The Risk Committee of the Board of Managing Directors receives detailed quarterly risk reports promptly following the reporting dates. These reports focus in particular on the primary risk types identified in the course of the annual risk inventory (default risks, market price risks, liquidity risks, operational risks, business risks and real estate risks). Risks arising in connection with equity investments/other financial instruments, legal risks and risks from Pfandbrief business are reported separately, also according to a quarterly cycle. The reporting system additionally includes a calculation of risk-bearing capacity across risk types plus reporting on the status of and compliance with the threshold values in the MaRisk indicators and in the early warning/recovery indicators in accordance with the German Minimum Requirements for the Design of Recovery Plans (MaSan).

The Risk Committee of the Board of Managing Directors usually receives an additional risk report on market price risks and liquidity risks every month. The weekly reports to the Asset/Liability Management Committee include information about the liquidity situation for new business, the utilisation of the MaR limits and the largest negative net asset changes and also about operating results.

The members of the Board of Managing Directors whose remit covers the monitoring of market price risk/results and the entities responsible for exposures receive a daily report concerning the current utilisation of the MaR limits and trading book operating results. All members of the Board of Managing Directors additionally receive a daily report detailing any significant breaches of counterparty limits.

The various regular reports mentioned are supplemented by ad hoc reports that are submitted to the Board of Managing Directors as necessary in response to the identification or materialisation of extraordinary risks.

The Supervisory Board and the Board of Public Owners are informed of the risk situation at Helaba by means of a risk report prepared on the basis of the quarterly reports to the Risk Committee of the Board of Managing Directors. The Supervisory Board has delegated the acceptance and discussion of the risk report to the Supervisory Board Risk and Credit Committee, whose chairman reports to both the Supervisory Board and the Board of Public Owners on the committee’s activities in connection with risk reporting.

Internal Audit

The Internal Audit function, which reports directly to the Board of Managing Directors but otherwise operates independently of any direction or control, examines and assesses the activities and processes of the Bank and of subsidiary companies selected on the basis of risk considerations. It plans and conducts its audits with risk in mind, paying particular attention to the assessment of the risk situation, the adequacy of processing and the effectiveness of the internal control system.

The scope and findings of each audit are documented in accordance with uniform standards. Informative audit reports are supplied to the Board of Managing Directors and the people responsible for the units audited. Internal Audit reports to the Supervisory Board on findings of particular significance every quarter.

Capital Market Compliance Office, Money Laundering and Fraud Prevention Compliance Office, MaRisk Compliance function and Information Security Management function

The Bank has established a Capital Market Compliance Office, a Money Laundering and Fraud Prevention Compliance Office, an MaRisk Compliance function (German Minimum Requirements for Risk Management – MaRisk), an Information Security Management function and a Data Protection Officer, all of which are independent functions.

The Capital Market Compliance Office advises the operating units and monitors and evaluates the principles, processes and practices applied against various criteria including, in particular, the requirements of the German Securities Trading Act (Wertpapierhandelsgesetz – WpHG), German Investment Services Conduct of Business and Organisation Regulation (Wertpapierdienstleistungs-Verhaltens- und Organisationsverordnung – WpDVerOV) and German WpHG Employee Notification Regulation (WpHG-Mitarbeiteranzeigeverordnung – WpHG-MaAnzV), statements of the German Federal Financial Supervisory Authority (BaFin) and pertinent statements of the European Securities and Markets Authority (ESMA). The Capital Market Compliance Office evaluates inherent risks and checks compliance with the relevant regulatory requirements. It also performs regular risk-oriented monitoring activities using a monitoring plan based on a prior risk analysis, paying particular attention in this regard to the rules prohibiting insider dealing and market manipulation, and identifies and regulates conflicts of interest throughout the Group that pose a potential risk.

The Money Laundering and Fraud Prevention Compliance Office, acting in its capacity as the central authority for the purposes of Section 25h KWG, develops internal principles and adequate transaction- and customer-related safeguards and checks to prevent money laundering, the funding of terrorism and other criminal acts. The precautionary organisational measures to be implemented are based in part on the Group risk analysis (money laundering, terrorism financing and fraud prevention) and also in part on the Group Policy. This Group Policy sets out the Group’s general ground rules, which reflect the pertinent national and international regulatory requirements. Monitoring and research software keeps business relationships under constant surveillance. The Money Laundering and Fraud Prevention Compliance Office is also responsible for the implementation of the legal requirements created by the Agreement Between the United States of America and the Federal Republic of Germany to Improve International Tax Compliance (FATCA) and the international Automatic Exchange of Information (AEOI) process.

The MaRisk Compliance function promotes the adoption of effective procedures to implement and ensure compliance with the principal legal rules and stipulations identified in the context of risk and conducts related checks. It also conducts regular checks and analyses in this connection of the adequacy and efficacy of the business processes and practices associated with the implementation of and compliance with the principal legal rules and stipulations in the Bank.

The Information Security Management function is responsible for ensuring the proper control, coordination and development of information security management in line with the Bank's business strategy, IT strategy and risk management strategy. It identifies and analyses the information security risks to this end using an information security management system (ISMS) and develops relevant measures and checks for sustainable risk reduction and risk monitoring. The Information Security Management function is also charged with ensuring that any necessary security requirements arising in connection with relevant laws and regulations (German Federal Data Protection Act – BDSG, German IT Security Act, German Minimum Requirements for the Security of Internet Payments – MaSI, MaRisk, etc.) are determined and defined on a permanent basis, that information protection classifications and infrastructures are analysed regularly and that technical and organisational measures appropriate for this purpose are coordinated to make certain that a proper level of security is maintained at the Bank.

The Data Protection Officer promotes compliance with and implementation of data protection requirements and serves the Board of Managing Directors and Bank Officers as a permanent point of contact for any questions relating to data protection matters. The Data Protection Officer maintains a process overview (Section 4g (2) BDSG) and monitors the proper use of data processing programs (Section 4g (1) 1. BDSG). The Data Protection Officer also carries out prior checks and ensures that training and measures to raise awareness of data protection matters are provided regularly for Bank employees.

These independent functions report directly to the Board of Managing Directors. The internal control structures and procedures in place to contain and monitor the specified risks are thus adequate – in terms of both structural and procedural organisation – and effective as required by the applicable regulatory provisions.

Risk monitoring using the global limit system
Helaba employs a global limit system that records counterparty-specific default risks promptly in a structured and transparent manner. The system uses counterparty limits based on a combination of the creditworthiness (rating) of counterparties and the Bank's risk-bearing capacity.

Cumulative limits for each borrower are recorded in the global limit system at Group level to help monitor, limit and contain default risks. All types of loans in accordance with Article 389 et seq. CRR made to borrowers in both trading and banking book activities are counted against these cumulative limits. Advance payment and settlement risks attributable to foreign currency and securities transactions, current account intraday risks and what are referred to as "additional risks from constructs" are approved as commercial risks and counted against separate limits.

The approved total limits are allocated to individual borrowers, product categories and the operating divisions concerned in accordance with the application for approval. The utilisation of the individual limits is monitored on a daily basis and appropriate measures are initiated immediately if any limit is exceeded.

Swaps, forward transactions and options are counted towards the total limit at their credit equivalent amounts calculated in accordance with the CRR. All other trading book exposures (such as money market trading and securities exposures) are measured at market prices.

Creditor risks associated with direct debits and secondary risks resulting from leasing commitments (lessees) or guarantees received are also recorded for the relevant entity bearing the risk as indirect economic risks.

Strategies and processes to counter and mitigate risks
Strategies and processes to counter and mitigate risks with recourse to suitable collateral are in place. The processes established by Helaba ensure that the collateral received is appropriately measured. Reporting, financial and non-financial covenants, including material adverse change (MAC) clauses, are agreed in line with the customary international standards insofar as this is established practice in the relevant markets. The Helaba Group unit responsible for managing the portfolio (generally the Credit Risk Management unit) continuously reviews compliance with the covenants. It is possible to proceed without a covenant provided that the market position or the credit standing of the borrower/sponsor is sufficiently strong.

The object of risk containment is to avoid operational risks wherever possible. Suitable measures have to be implemented to reduce the potential harm associated with unavoidable material operational risks if their occurrence could jeopardise or permanently impair the company's future prospects. The risk appetite for operational risk is specified and continuously monitored using a comprehensive system of limits. Risks that are sufficient in scale to put its existence in jeopardy have to be incorporated into Helaba's financial protection concept and transferred by means of insurance cover with due consideration given to the associated costs and benefits. Decisions in this context have to be made on the basis of a proper assessment of the various business administration factors involved and it will be entirely appropriate in certain cases knowingly to assume or accept operational risks.

Market price risk and interest rate risk can only be assumed in the banking book within the scope of approved limits (see "Limitation of market price risks"). All the processes and models used to reflect market price risk must be constantly reviewed to ensure that they are appropriate and then adjusted if required. This relates to both risk and measurement models. This issue must be taken into account especially in the authorisation of new products.

The number one liquidity management priority is initially to ensure that the Helaba Group has adequate day-to-day (short-term) liquidity to meet its payment obligations. The main objective of medium-/long-term funding management (funding) is to avoid cost risks when obtaining medium- and long-term funding (maturity-matched funding) and to limit dependency on short-term sources of funding. The activities to achieve both objectives are managed and monitored by using a detailed system of limits.

The funding strategy is derived from Helaba's business model and therefore makes optimum use of the "natural" sources of funding. The cornerstones are 1. S-Group funding from the Sparkassen and/or Sparkassen customers (retail), 2. the sale of Pfandbriefe, 3. the use of development funds and 4. wholesale funding, particularly from institutional clients. Helaba has a further direct retail funding base available at Group level in the form of FSP and LBS. An established collateral management regime and the systematic use of highly liquid securities portfolios create additional liquidity buffers to support short-term liquidity management. Access to markets is also continuously reviewed.

In addition, since 1 October 2015, the Bank has been satisfying the regulatory reporting requirements pertaining to the liquidity coverage ratio (LCR) in accordance with the CRR. The regulatory requirement to comply with a mandatory minimum ratio is being progressively introduced from this date. The Bank has adopted its own conservative roadmap to ensure compliance with these LCR requirements at all times. The regulatory requirements in connection with the internal liquidity adequacy assessment process (ILAAP) are also relevant.

Mandatory regulatory requirements for the CRR net stable funding ratio (NSFR) have yet to be issued.

Own Funds and Own Funds Structure

This section presents information about the Helaba Group's own funds together with a breakdown of the capital requirements for each risk type in accordance with the Pillar I return. The capital ratios and the determination of limits for risk-weighted assets are also reported.

The CRR defines own funds as Common Equity Tier 1 capital, Additional Tier 1 capital and Tier 2 capital. The summary below shows the extent and composition of the Helaba Group's own funds at 31 December 2016.

Composition of own funds for regulatory purposes

Helaba Group — in € m

	31.12.2016
Common Equity Tier 1 capital	**7,534**
Paid-in capital instruments	2,509
Capital reserves	1,546
Retained earnings	3,967
Accumulated other comprehensive income	–247
Regulatory adjustments	–242
Additional Tier 1 capital	576
Paid-in capital instruments	632
Regulatory adjustments	–56
Tier 1 capital	**8,110**
Tier 2 capital	2,699
Paid-in capital instruments	2,721
Regulatory adjustments	–22
Own funds, total	**10,809**

The Helaba Group's Common Equity Tier 1 capital essentially comprises the subscribed capital (paid-up capital and capital contributions), capital reserves and retained earnings.

Shown in the Additional Tier 1 capital category are the silent participations that constituted liable capital in accordance with Section 10 KWG until 31 December 2013 and that fall under the grandfathering provisions set out in the CRR, meaning that they can still be applied as Additional Tier 1 capital, on a steadily decreasing basis, until 2021.

The Tier 2 capital as defined in the CRR consists largely of profit participation rights and other subordinated liabilities of Helaba.

The Helaba Group's Common Equity Tier 1 capital remained virtually unchanged compared with the position as at 31 December 2015. Additions to retained earnings amounting to approximately € 198 m had a positive impact, although this was offset by effects from the transitional arrangements relating to deductible items and an increase in prudential filters. Total own funds contracted slightly by approximately € 70 m. Other than the effects referred to above relating to Common Equity Tier 1 capital , the main reason was the impact from residual maturity amortisation on Tier 2 capital instruments.

A description of the individual capital instruments together with a list of their key features can be found in the separate Annex under "Key Features of the Capital Instruments".

Details of the composition of the regulatory own funds and the regulatory deduction amounts are shown in the separate Annex under "Disclosure of Own Funds". The information in the separate Annex under "Reconciliation from the IFRS Consolidated Statement of Financial Position to the Consolidated Statement of Financial Position for Regulatory Purposes" additionally shows how the regulatory own funds components are derived from the corresponding items in the audited annual financial statements.

The table below shows the RWAs and capital requirements for default risks, broken down by exposure class, and market price risks, operational risks and CVA at 31 December 2016.

The most significant changes compared with 31 December 2015 resulted from a decline in the “Corporates – Specialised lending exposures” FIRB exposure class, equity exposures in accordance with the IRBA and in the “Institutions” CRSA exposure class. The decrease in the RWAs in the “Equity exposures” IRB exposure class (approximately € 276 m) and in the “Institutions” CRSA exposure class (approximately € 201 m) was largely attributable to a contraction related to business operations. The decline of around € 611 m in RWAs in the “Corporates – Specialised lending exposures” FIRB exposure class arose from changes related to credit ratings.

RWAs and capital requirements

in € m

Exposure class	RWAs	Capital requirement
Credit Risk Standardised Approach (CRSA)	**5,790**	**463**
Central governments or central banks	18	1
Regional governments or local authorities	22	2
Public-sector entities	249	20
Multilateral development banks	0	0
International organisations	0	0
Institutions	577	46
Corporates	1,733	139
Retail	87	7
Exposures secured by real estate	505	40
Exposures in default	188	15
Higher risk categories	66	5
Covered bonds	14	1
Exposures to institutions and corporates with a short-term credit rating	–	–
Collective investment undertakings (CIU)	–	–
Equity exposures	976	78
thereof: Grandfathered exposures	247	20
Other exposures	307	25
Securitisation exposures	1,047	84
Internal Ratings-Based Approach (IRBA)	**39,030**	**3,122**
FIRB	**35,367**	**2,829**
Central governments or central banks	1,376	110
Institutions	3,842	307
Corporates – SME	1,681	134
Corporates – Specialised lending exposures	15,794	1,264
Corporates – Other	12,674	1,014
AIRB	**1,041**	**83**
Central governments or central banks	–	–
Institutions	–	–
Corporates – SME	–	–
Corporates – Specialised lending exposures	–	–
Corporates – Other	–	–
Retail – Secured by real estate, SME	179	14
Retail – Secured by real estate, non-SME	489	39
Retail – Qualifying revolving	48	4
Retail – Other, SME	67	5
Retail – Other, non-SME	257	21
IRBA equity exposures	**311**	**25**
thereof: Simple risk-weight approach	255	20
Private equity exposures in sufficiently diversified portfolios (190 %)	98	8
Exchange traded equity exposures (290 %)	–	–
Other equity exposures (370 %)	156	12

in € m

Exposure class	RWAs	Capital requirement
thereof: PD/LGD approach	47	4
thereof: Risk-weighted equity exposures	10	1
IRBA securitisation exposures	**2,027**	**162**
Other non credit-obligation assets	**284**	**23**
Default fund contributions to a central counterparty (CCP)	**0**	**0**
Settlement and delivery risks	**0**	**0**
Position, foreign-exchange and commodities risks	**3,618**	**289**
In accordance with standardised approaches (SA)	**1,608**	**129**
Position risk	1,249	100
Foreign-exchange risk	350	28
Commodities risk	9	1
In accordance with internal models (IM)	**2,010**	**161**
Operational risks	**3,684**	**295**
Standardised Approach (STA)	3,684	295
Credit valuation adjustment (CVA)	**727**	**58**
Total	**52,849**	**4,228**

There were no capital requirements on the reporting date for trading book activities of the Helaba Group in relation to large exposures above the limits set out in Articles 395 to 401 CRR.

The table below shows the capital ratios of the Helaba Group, Helaba Bank and the significant subsidiary FSP.

Capital ratios

in %

Entity	Total capital ratio	Tier 1 capital ratio	CET1 capital ratio
Helaba Group (IFRS)	20.5	15.3	14.3
Helaba Bank (HGB)	19.9	14.0	12.7
Frankfurter Sparkasse (HGB)	19.3	17.9	17.9

The Helaba Group has a comfortable capital position with a Tier 1 capital ratio of 15.3 % and a Common Equity Tier 1 capital ratio of 14.3 % as at 31 December 2016.

The RWA limits are derived on the basis of the own funds available and the appetite for risk defined by the Board of Managing Directors, in the form of target ratios, in accordance with the following principles:

- Risk adequacy
- Earnings adequacy
- Operationalisability
- Consistency

The RWA limits are allocated as part of the annual planning process.

Planning proceeds in accordance with the business area strategy, the risk strategy and other provisions intended to ensure accurate alignment with customer and business requirements. The principal parameters of the operational planning process for the subsequent year are defined in the benchmark resolution adopted by the Board of Managing Directors. The profit centres plan elements including their business portfolios, new business, earnings, the regulatory expected loss (EL) resulting from the performance of the business and the RWAs during the local planning phase.

The results of the planning process for each unit are approved on the basis of an integrated earnings and risk assessment. An integrated overall plan comprising a volume plan, an earnings plan and a risk plan is adopted for each unit. The Board of Managing Directors passes a corresponding resolution and the RWA limit allocations are then submitted to the Supervisory Board and Board of Public Owners for approval as part of the annual planning submissions for the financial year.

Risk-Bearing Capacity

Helaba uses its established procedures for quantifying and containing risks to ensure that all primary risks within the Helaba Group are always covered by risk cover pools and that its risk-bearing capacity is thus assured.

The calculation of risk-bearing capacity across risk types takes into account risk exposures in relation to default risk, market price risks, operational risk, business risk and real estate risk. Risk exposures are quantified as part of an economic assessment and the regulatory expected loss (EL) and regulatory capital requirement are calculated using the regulatory measurement specifications. A capital deduction from the regulatory EL/impairment comparison is taken into account when quantifying the regulatory capital.

The liquidity horizon (for liquidity risks) is also reported in addition to the risk-bearing capacity based on cover pools.

Risk-bearing capacity is presented on the basis of a time frame of one year and both risk exposures and risk cover pools are designed and quantified for this period.

The scenarios applied comprise a base scenario, which maps the risk-bearing capacity as at the reporting date, plus historical and hypothetical stress scenarios whose implications for the risk-bearing capacity are regularly investigated. These scenarios include a macroeconomic stress scenario and a scenario simulating extreme market dislocation on the basis of observed market behaviour during a global financial crisis. Inverse stress tests are also conducted.

Helaba's Group calculation of risk-bearing capacity maps two distinct situations reflecting the regulatory requirements stipulating a going-concern approach and a gone-concern approach.

The going-concern approach aims to verify that the minimum capital requirements specified by the regulator can be satisfied even if expected and unexpected losses are incurred. Risk exposures are quantified with a 95.0 % confidence level for this purpose. The calculation of risk-bearing capacity under the gone-concern approach is intended to demonstrate that the Helaba Group's capital is sufficient to satisfy all creditors in full even in the event of exceptional and heavy losses being incurred (expected and unexpected losses at a confidence level of 99.9 %).

The going-concern approach involves comparing the total economic risk exposures according to the Group calculation of risk-bearing capacity against a sustainable result before risks and total own funds not committed for regulatory purposes (minus an internally defined risk buffer, depending on the scenario). The going-concern approach also regularly quantifies the implications of the stress scenarios for the regulatory capital requirement and regulatory own funds in order to analyse the impact on the regulatory capital ratios.

Helaba applies particular weight to the going-concern approach, which focuses on compliance with the regulatory capital ratios, in its capital allocation decisions and allocates regulatory capital to divisions and Group units on the basis of the associated anticipated changes in capital ratios. This ensures consistency between capital allocation assuming full utilisation of the limits and the result thus produced in the calculation of risk-bearing capacity. In addition, the economic risk exposures are limited to ensure that, if the allocated regulatory capital is utilised at the same time as the economic risk exposures, the capital does not fall below the internally specified minimum capital requirements even if economic risks materialise.

The gone-concern approach draws on an economic cover pool to cover the internal capital requirement. This pool takes into account the cumulative consolidated net profit on the reporting date, the equity capital and the subordinated debt under IFRS. Cover pool components are also adjusted in accordance with economic criteria. The gone-concern approach does not treat silent reserves as a cover pool.

The risk-bearing capacity assessment for the Group covering all risk types reveals that the existing risk cover pools once again exceeded the quantified risk exposures by a substantial margin at the end of 2016, underlining Helaba's conservative risk profile. The same applies in respect of the calculation of risk-bearing capacity for Helaba Bank.

The base scenario of the going-concern approach for the Group shows a capital buffer of € 3.5 bn (2015: € 3.2 bn) with respect to the economic risk exposures taking account of an internal risk buffer. The capital buffer with respect to the economic risk exposures under the gone-concern approach for the Group amounts to € 7.1 bn (2015: € 6.6 bn).

The capital ratios achieved under the simulated stress scenarios exceed the regulatory minimum requirements by a significant margin.

Helaba additionally conducts two inverse stress tests to investigate what nature of event could jeopardise its continued existence. The associated scenarios, "minimum capital requirements not met" and "illiquid", examine the implications of a variety of economic developments that could result in Helaba being unable to comply with the minimum capital requirements specified by the regulator or consuming its liquidity reserves. There is currently no indication of these scenarios becoming a reality.

Other Deposit Security Mechanisms

There are other deposit security mechanisms in addition to the risk cover pool. Helaba is a member of the Reserve Fund of the Landesbanken and Girozentralen and is thus included in the Sparkassen-Finanzgruppe's protection scheme, which comprises the eleven regional Sparkasse support funds, the aforementioned reserve fund and the deposit security reserve fund of the Landesbausparkassen.

The most notable features of this protection scheme are the way that it safeguards the viability of the affiliated institutions, especially their liquidity and solvency, its risk monitoring system for the early detection of specific risk profiles and its use of a method based on risk parameters defined by the supervisory authorities to calculate the amounts to be paid into the protection scheme by the various institutions. The legally dependent Landesbausparkasse Hessen-Thüringen, subsidiary FSP and Frankfurter Bankgesellschaft (Deutschland) AG, which is a subsidiary of Frankfurter Bankgesellschaft (Schweiz) AG, are also directly integrated into this protection system.

The German Deposit Guarantee Act (Einlagensicherungsgesetz – EinSiG), which implements the requirements of the EU Directive on Deposit Guarantee Schemes, came into force on 3 July 2015. The Sparkassen-Finanzgruppe acted promptly to bring its deposit protection scheme into line with the amended legal provisions. The scheme now includes a deposit protection scheme to protect qualifying deposits up to a value of € 100,000 per customer as well as safeguarding the viability of the affiliated institutions themselves. The deposits thus protected in the Helaba Group amount to € 15.1 bn in total. The target total value of the protection scheme to be contributed by 2024 was also increased and an amended basis for assessment was adopted. The German Federal Financial Supervisory Authority (BaFin) has recognised the Sparkassen-Finanzgruppe's institutional protection scheme as a deposit guarantee scheme for the purposes of the German Deposit Guarantee Act.

Helaba and FSP are also affiliated to the Reserve Fund of the Sparkassen- und Giroverband Hessen-Thüringen under the terms of their Charters. The reserve fund provides further protection in the event of a default in addition to the nationwide Joint Liability Scheme. It covers the liabilities of Helaba and FSP to customers, including banks, insurance companies and other institutional investors, and their securitised liabilities. Liabilities that serve or have served at the institutions as components of own funds pursuant to Section 10 KWG, such as asset contributions of dormant shareholders, liabilities under profit participation rights and subordinated liabilities, are not covered irrespective of their remaining term. The total volume of the fund is equal to 0.5 % of the affiliated institutions' total risk exposure amount and stood at € 522 m at the end of 2016 (31 December 2015: € 521 m).

The Sparkassen- und Giroverband Hessen-Thüringen has undertaken to make up the shortfall between the amount actually paid in and the full amount should the fund be required before such time as the full amount has been contributed.

Rheinischer Sparkassen- und Giroverband (RSGV) and Sparkassenverband Westfalen-Lippe (SVWL) have each also unilaterally set up an additional regional reserve fund for Helaba.

Development institution WIBank, which is organised as a dependent institution within Landesbank Hessen-Thüringen, enjoys the direct statutory guarantee of the State of Hesse as regulated by law and as permitted under EU law on state aid.

General Disclosures Concerning Default Risks

The Helaba Group's gross lending volume at 31 December 2016 amounted to € 168,375 m. Gross lending volume is defined in this connection as the total amount of exposures after accounting offsets and without taking into account the effects of credit risk mitigation. Default risk exposures per exposure class are shown below with the average values on the quarterly reporting dates. These figures do not include disclosures on equity investments and securitisations because these are covered in the "Equity Investments in the Banking Book" and "Securitisations" sections.

The figures include all companies comprising the group of consolidated companies for regulatory purposes in accordance with the KWG/CRR as at 31 December 2016.

Types of credit exposure with average values based on the quarterly reporting dates

in € m

		At 31 December 2016				
	Exposure class	On balance sheet	Off balance sheet	Derivatives and others	Total	Average in reporting year 2016
CRSA	Central governments or central banks	937	0	0	937	1,282
	Regional governments or local authorities	9,126	733	0	9,859	10,139
	Public-sector entities	1,075	1,887	92	3,054	2,834
	Multilateral development banks	188	0	0	188	203
	International organisations	558	0	0	558	599
	Institutions	11,425	2,173	2,178	15,776	16,295
	Corporates	3,193	387	175	3,755	3,827
	Retail	926	234	169	1,329	1,366
	Exposures secured by real estate	1,352	93	0	1,445	1,402
	Exposures in default	164	7	0	171	160
	Higher risk categories	61	29	0	90	96
	Covered bonds	151	0	0	151	155
	Exposures to institutions and corporates with a short-term credit rating	–	–	–	–	–
	Collective investment undertakings (CIU)	–	–	–	–	–
	Other exposures	310	0	0	310	328
		29,466	**5,543**	**2,614**	**37,623**	**38,686**
IRBA	Central governments or central banks	20,083	454	3,830	24,367	28,490
	Institutions	14,299	2,521	1,227	18,047	18,346
	Corporates	55,592	23,926	3,081	82,599	80,862
	thereof: SME	2,719	745	10	3,474	3,368
	thereof: Specialised lending exposures	30,421	5,621	1,077	37,119	36,957
	thereof: Other	22,452	17,560	1,994	42,006	40,537
	Retail	4,209	1,150	0	5,359	5,313
	Secured by real estate	3,373	63	0	3,436	3,417
	thereof: SME	506	31	0	537	523
	Qualifying revolving	55	769	0	824	828
	Other retail	780	318	0	1,098	1,068
	thereof: SME	98	122	0	220	216
	Other non credit-obligation assets	380	0	0	380	422
		94,563	**28,051**	**8,138**	**130,752**	**133,433**

The types of credit exposure by region, sector and residual maturity are presented in the separate Annex under "Types of credit exposure by exposure class".

Additional information relating to impaired loans and loans past due – similarly broken down by sector and region – is presented below to augment the gross lending volume data. Transactions involving a customer with which a default event as defined in Article 178 CRR has occurred are designated as impaired irrespective of the recognition of any allowance for losses on loans and advances. Transactions are deemed to be past due if they are 90 days in arrears and this has also been recorded as a default criterion in bank systems.

Impaired loans and loans past due by sector in € m

			Portfolio				Net additions/reversals			
Sector	**Total impaired exposures**	**Total past due exposures***	**SLLA**	**GSLLA**	**PLLA**	**Provision**	**SLLA**	**GSLLA**	**PLLA**	**Provision**
Civil engineering, real estate and housing	300	95	188	5	22	11	–35	–5	–4	–2
Data processing, telecommunication, media	8	1	13	1	1	0	13	0	–0	0
Energy, utilities, waste disposal	176	18	10	0	8	1	–18	0	–1	1
Financial enterprises and insurance companies	158	0	78	1	14	3	6	0	–2	–0
Trade and services	120	18	46	14	52	5	–32	–4	–57	–2
Banks	0	1	0	0	1	0	–1	0	–0	0
Public-sector entities, organisations, services	1	1	0	0	0	0	0	–0	–0	0
Manufacturing	63	15	23	11	4	1	–9	1	1	–1
Transport (including vehicle manufacturing)	471	0	205	1	166	10	23	–0	–11	8
Other	83	54	32	13	5	23	–41	–6	–1	6
Total	**1,379**	**202**	**595**	**46**	**274**	**54**	**–92**	**–15**	**–76**	**10**

* The total amount of past due exposures overlaps with the total amount of impaired exposures where loan loss allowances apply.

The extent of the allowance for losses on loans and advances is determined on the basis of an assessment of the financial circumstances including the use of appropriate rating results and including forecasts of going concern value or break-up value, and the measurement of collateral at the expected recovery value taking into account the time required for collateral recovery and appropriate recovery costs.

Specific and portfolio loan loss allowances, provisions and direct write-offs are submitted for approval in the form of an application for an allowance for losses on loans and advances. The adequacy of the allowance is reviewed regularly and adjustments are made where necessary. The allowance for losses on loans and advances for the Bank is recorded and updated in the central Credit Loss Database system. Detailed information on the calculation of the allowance for losses on loans and advances and the approval process is available in the form of an internal set of rules and regulations and can be found in note 14 of the notes to the consolidated financial statements in the Annual Report.

Impaired loans and loans past due by region in € m

			Portfolio			
Region	**Total impaired exposures**	**Total past due exposures***	**SLLA**	**GSLLA**	**PLLA**	**Provision**
Europe	1,190	120	456	42	274	44
North America	138	74	125	1	0	10
Central and South America	40	7	15	1	0	0
Africa	11	1	0	2	0	0
Asia	0	1	0	0	0	0
Australia and New Zealand	0	0	0	0	0	0
Total	**1,379**	**202**	**595**	**46**	**274**	**54**

* The total amount of past due exposures overlaps with the total amount of impaired exposures where loan loss allowances apply.

The table below shows the changes in the allowances for losses on loans and advances over the reporting period.

Changes in allowances for losses on loans and advances in € m

Type of allowance for losses on loans and advances	Opening balance	Additions	Reversals	Use	Change*	Closing balance
Specific loan loss allowance	687	324	77	327	– 11	595
Specific loan loss allowances evaluated on a group basis	61	14	21	9	0	46
Portfolio loan loss allowance	350	4	79	0	0	274
Provision	44	12	2	0	0	54

* Changes due to exchange rate fluctuations, changes in the group of consolidated companies, unwinding effects and other changes

Direct write-offs amounted to € 4.5 m and recoveries on loans written off were € 10.1 m at 31 December 2016.

The information in the tables above relates to the 31 December 2016 reporting date and comprises the amounts of the allowances for losses on loans and advances under IFRS based on the group of consolidated companies for regulatory purposes.

The quantitative information on the allowance for losses on loans and advances under IFRS that is included in the disclosures pursuant to the CRR differs from the allowance for losses on loans and advances in the consolidated accounts under IFRS due to differences between the group of consolidated companies for regulatory purposes and the group of consolidated companies for accounting purposes.

IRB Approach Exposures

Helaba's internal rating methods and processes were reviewed by the supervisory authority in a number of individual and follow-up audits conducted between 2006 and 2016. In December 2006, Helaba received approval from the German Federal Financial Supervisory Authority (BaFin) to use the FIRB Approach in accordance with the German Solvency Regulation (Solvabilitätsverordnung – SolvV). This approval covered both the Helaba Group and Helaba Bank. The parameters laid down in the Foundation Approach for internal ratings have been applied for both regulatory capital backing and internal management purposes since 1 January 2007. The approval of the rating method for aircraft finance in December 2010 marked the completion of the regulatory audits in relation to the use of the internal rating methods for the FIRBA and thus the full delivery of the IRBA implementation plan. The AIRB Approach has been applied for the retail portfolio of FSP since the third quarter of 2008. In 2013, LBS became the first Bausparkasse to gain permission to use the "LBS-Kunden-Scoring" rating method and the LGD model devised by Sparkassen Rating- und Risikosysteme GmbH (S-Rating) in the AIRB Approach for retail exposures.

The Combined Helaba Bank (excluding LBS and WIBank) uses internal rating methods for all material portfolios. A total of 14 rating methods are available for measuring IRBA exposures. These methods make it possible to measure the Bank's credit risks against a uniform standard and express the rating result using a uniform scale. All but one of these methods are maintained and refined in collaboration with other Landesbanken and Sparkassen. Helaba works together in this connection with Rating Service Unit GmbH & Co. KG (RSU) at Landesbank level and with Sparkassen Rating- und Risikosysteme GmbH (S-Rating), both of which are companies providing internal rating methods in accordance with the CRR. The remaining rating method has been developed for portfolios for which no pooling project has been initiated. The rating methods are based on statistical models and classify loan exposures by probability of default using a 25-point cardinal master scale.

The rating systems are based on two different methods:

- Scorecard method
  A scorecard (or scoring) method allocates scores to certain customer characteristics (quantitative and qualitative) using a mathematical/statistical analysis with the aim of determining an overall score that can be used as a measure of credit standing. The scores determined in this way are then converted into ratings using a calibration function. Warning indicators and liability scenarios are included in the method to complement the risk assessment.

- Simulation method
  Simulation methods are mainly used to classify risk arising in connection with asset finance. These rating methods generate scenarios for future cash flow trends, which are then used to determine a rating and probability of default based on loan-to-value and debt service coverage with the help of a default test that distinguishes between performing and non-performing loan situations. Qualitative factors and warning indicators are added to the quantitative risk assessment.

Helaba has developed a Rating Map, providing an overview of the approved rating methods, sub-modules, definition criteria and areas of application to help assign exposures and debtors to rating methods. The table below shows the Rating Map with the rating methods and their assignment to borrowers/exposures in simplified form. The table also shows the use of the rating methods in the regulatory exposure classes, although the regulatory exposure classes in the Helaba Group are determined and allocated in an automated downstream process after the ratings are created. This process takes into account information on the rating method applied as well as debtor-specific criteria. In this context the requirement on the assignment of exposure classes satisfies Article 112 et seq. (CRSA) and Article 147 (IRBA) CRR. Other than in the case of securitisations, external credit assessments are not used in calculating the regulatory capital for transactions handled in accordance with the IRBA.

Overview of approved IRBA methods in use at the Combined Helaba Bank (excluding LBS and WIBank)

Borrower/exposure	Rating system	Method	Origin of the method
Countries and central, regional and local authorities in Germany	Country and Transfer Risks	Scorecard	Pool method
Central, regional and local authorities outside Germany	International Public Finance	Scorecard	Pool method
Large/multinational corporations, public-sector enterprises (municipal corporations) in Germany and abroad	Corporates Rating	Scorecard	Pool method
Small and mid-sized domestic companies	DSGV Standard Rating	Scorecard	Pool method
Commercial domestic real estate business	DSGV Real Estate Business Rating	Simulation	Pool method
Banks, financial services institutions, financial companies	Bank Rating	Scorecard	Pool method
Insurance companies	Insurance Companies Rating	Scorecard	Pool method
Leasing companies, special purpose vehicles (SPV) for real estate leasing	Leasing Rating	Scorecard	Pool method
Special purpose vehicles (SPV) for project finance	Project Finance Rating	Simulation	Pool method
Special purpose vehicles (SPV) for ship finance	Ship Finance Rating	Simulation	Pool method
International commercial real estate business	International Commercial Real Estate	Simulation	Pool method
Special purpose vehicles (SPV) for aircraft finance	Aircraft Finance Rating	Simulation	Pool method
Securitisations in accordance with Article 259 (4) CRR with no external rating	Internal Assessment Approach (IAA) for Securitisations	Scorecard	Helaba development
Leveraged Finance	Leveraged Finance Rating	Scorecard	Pool method

Borrower/exposure	IRBA exposure classes: Central governments or central banks	Institutions	Corporates – SME	Corporates – Specialised lending exposures	Corporates – Other	Equity exposures	Securitisation exposures
Countries and central, regional and local authorities in Germany	x						
Central, regional and local authorities outside Germany	x	x					
Large/multinational corporations, public-sector enterprises (municipal corporations) in Germany and abroad	x	x	x[1]		x	x[2]	
Small and mid-sized domestic companies			x		x	x[2]	
Commercial domestic real estate business				x	x		
Banks, financial services institutions, financial companies		x				x[2]	
Insurance companies					x		
Leasing companies, special purpose vehicles (SPV) for real estate leasing			x	x	x		
Special purpose vehicles (SPV) for project finance				x	x		x[3]
Special purpose vehicles (SPV) for ship finance				x	x		x[3]
International commercial real estate business				x	x	x[2]	x[3]
Special purpose vehicles (SPV) for aircraft finance				x	x		
Securitisations in accordance with Article 259 (4) CRR with no external rating							x
Leveraged Finance				x	x		

[1] 1 Entities that individually constitute SMEs but belong to a corporate group with sales revenue of more than € 50 m.
[2] No separate IRB approach rating method has been registered for equity exposures. In the PD/LGD approach, treatment is on the basis of the specified IRBA rating system.
[3] These exposures are not conventional securitisation exposures, but financing with structural components similar to securitisation.

The use of the rating methods is governed by detailed internal specifications plus supplementary application guidelines issued by pooling service providers S-Rating and RSU. The latter are also incorporated as appropriate into the internal procedural instruction system. External credit assessments are mapped to the internal rating scale by RSU in a process that is updated every year in order to ensure equivalence between internal ratings and external credit assessments.

The rating methods are validated annually in the course of a defined update and maintenance process. Validation includes back-testing on the basis of actual incidents of non-payment as well as benchmarking.

S-Rating and RSU are the lead entities in the pool methods; validation for internal methods is carried out internally by Helaba. RSU and S-Rating are tasked with validating and refining the methods using actual data and with issuing central guidelines for the uniform application of the pool rating methods. The S-Rating/RSU methodological validation process is supplemented by Helaba's internal validation of the rating method and verification that the results are sufficiently representative for the pooling method to be used.

The Risk Controlling unit is responsible for the development and quality of the rating methods, for their regular – at least annual – review and any necessary amendments, for the specification of the tasks, authority and jurisdictions involved in the rating and for all general policy matters associated with the rating procedure. If modifications to the rating methods are required, input from the senior management of the institution and representatives of the divisions is sought prior to implementation through presentation of the measures before the Risk Committee of the Board of Managing Directors.

The following rating methods are used in the business areas served by FSP.

Overview of the IRBA rating methods approved at FSP

Borrower/exposure	Rating system	Method	Origin of the method
Small and mid-sized domestic companies	DSGV Standard Rating	Scorecard	Pool method
Commercial domestic real estate business	DSGV Real Estate Business Rating	Simulation	Pool method
Private customers, retail business	Sparkassen – Customer Scoring	Scorecard	Pool method
Banks, financial services institutions, finance companies	LBR Bank Rating	Scorecard	Pool method
Large/multinational corporations, public-sector enterprises (municipal corporations) in Germany and abroad	LBR Corporates Rating	Scorecard	Pool method
Leasing companies, special purpose vehicles (SPV)	LBR Leasing Rating	Scorecard	Pool method

	IRBA exposure classes						
Borrower/exposure	Central governments or central banks	Institutions	Corporates – SME	Corporates – Specialised lending exposures	Corporates – Other	Equity exposures	Securitisation exposures
Small and mid-sized domestic companies		x	x		x		
Commercial domestic real estate business		x	x		x		
Private customers, retail business			x		x		
Banks, financial services institutions, finance companies	x	x			x		
Large/multinational corporations, public-sector enterprises (municipal corporations) in Germany and abroad		x	x		x		
Leasing companies, special purpose vehicles (SPV)					x		

	AIRB exposure classes				
	Retail				
Borrower/exposure	Secured by real estate	thereof: SME	Qualifying revolving	Other retail	thereof: SME
Small and mid-sized domestic companies	x	x	x	x	x
Commercial domestic real estate business					
Private customers, retail business	x	x	x	x	x
Banks, financial services institutions, finance companies					
Large/multinational corporations, public-sector enterprises (municipal corporations) in Germany and abroad					
Leasing companies, special purpose vehicles (SPV)					

The rating methods pay particular attention to the threshold for assignment of lending business to the retail exposures class. The CRR stipulates a threshold of up to € 1 m total commitment for natural persons and small companies. FSP limits this threshold to € 0.75 m based on its own risk and process considerations. This figure is in addition compatible with the disclosure requirements laid down in Section 18 KWG. The CRR requires that the transactions reported in the retail segment also be managed as low-risk business, which means that the retail portfolio must contain a high proportion of similar transactions that can be controlled in a standardised fashion. This demands a high level of automation that also incorporates customer characteristics in those management variables determined by statistical methods. Creditworthiness is accordingly assessed using scoring methods that evaluate customer features such as length of employment, sector and the like directly. The procedure away from retail is different: in the corporates portfolio, for instance, the lending commitment is evaluated individually and in much greater detail, for example using indicators from the statement of financial position and income statement, by means of the credit rating.

The following rating method is applied at LBS.

Overview of the IRBA rating methods approved at LBS

	AIRB exposure classes		
	Retail		
Borrower/exposure	Rating system	Method	Origin of the method
Retail	LBS-Kunden-Scoring	Scorecard	Pool method

Borrower/exposure	Secured by real estate	thereof: SME	Qualifying revolving	Other retail	thereof: SME
Retail	x			x	

LBS makes use of the “LBS-Kunden-Scoring” (LBS Customer Scoring) method devised by S-Rating to evaluate the home finance loans assigned to retail exposures. The assessment of creditworthiness applied here takes account of patterns of behaviour typical for home loan and savings products as well as the customer features considered in the Sparkasse methods, such as length of employment, sector and the like. As at 31 December 2016, LBS had achieved coverage of 99.0 % (RWAs) and 99.7 % (exposure value).

The input parameters and results of the regulatory capital calculation are integrated into internal management activities at the divisions. Management in the divisions proceeds using a multi-level contribution margin accounting system in which standard risk costs for expected losses and imputed capital costs for the capital requirement are considered.

The following table shows, for FIRB exposures, the exposure value in accordance with the CRR, the average probability of default (mean PD), the average risk weight taking into account credit risk mitigation effects and the exposure value of outstanding loans and unutilised and partially utilised loan commitments. The average risk weight does not include the deduction factor for credit risk on exposures to SMEs to be applied in accordance with Article 501 CRR.

Exposure values by PD band, FIRB

Exposure class	PD band (mean PD) 0.00 – 0.17 %	0.26 – 1.25 %	1.32 – 45.00 %	Default
Central governments or central banks				
Exposure value in € m	26,732	0	362	1
Average PD in %	0.00	0.00	19.97	100.00
Average RW in %	1.73	0.00	252.31	0.00
thereof: Exposure value of outstanding loans, in € m	22,185	0	362	1
thereof: Exposure value for undrawn loan commitments, in € m	721	0	0	0
Institutions				
Exposure value in € m	16,905	212	60	1
Average PD in %	0.06	0.52	4.27	100.00
Average RW in %	21.61	47.59	145.76	0.00
thereof: Exposure value of outstanding loans, in € m	13,939	152	48	1
thereof: Exposure value for undrawn loan commitments, in € m	1,757	23	13	0
Corporates – SME				
Exposure value in € m	874	1,595	576	53
Average PD in %	0.11	0.56	3.91	100.00
Average RW in %	26.76	60.97	113.06	0.00
thereof: Exposure value of outstanding loans, in € m	775	1,356	484	43
thereof: Exposure value for undrawn loan commitments, in € m	97	237	91	10
Corporates – Specialised lending exposures				
Exposure value in € m	21,634	10,976	1,664	880
Average PD in %	0.10	0.49	4.43	100.00
Average RW in %	29.77	65.23	131.83	0.00
thereof: Exposure value of outstanding loans, in € m	18,258	9,500	1,431	866
thereof: Exposure value for undrawn loan commitments, in € m	2,601	1,257	150	13
Corporates – Other				
Exposure value in € m	22,343	7,285	1,451	512
Average PD in %	0.09	0.42	8.93	100.00
Average RW in %	27.95	63.14	126.19	0.00
thereof: Exposure value of outstanding loans, in € m	14,990	4,279	1,147	468
thereof: Exposure value for undrawn loan commitments, in € m	6,142	2,831	290	43
Equity exposures				
Exposure value in € m	23	33	0	0
Average PD in %	0.09	0.37	0.00	100.00
Average RW in %	69.66	93.53	0.00	437.50
thereof: Exposure value of outstanding loans, in € m	23	33	0	0
thereof: Exposure value for undrawn loan commitments, in € m	0	0	0	0

The exposure-weighted average PD by region, broken down into the institutions, corporates, central governments and equity holdings exposure classes, is also shown.

Average PD by country, FIRB

Exposure class	Average PD in %
Central governments or central banks	
Africa	100.00
Asia	–
Australia and New Zealand	–
Europe	0.28
North America	0.01
Central and South America	100.00
Institutions	
Africa	9.15
Asia	0.91
Australia and New Zealand	0.03
Europe	0.09
North America	0.04
Central and South America	69.47
Corporates – SME	
Africa	100.00
Asia	0.48
Australia and New Zealand	0.46
Europe	2.73
North America	0.33
Central and South America	0.59
Corporates – Specialised lending exposures	
Africa	61.83
Asia	0.12
Australia and New Zealand	6.24
Europe	3.69
North America	1.02
Central and South America	0.75
Corporates – Other	
Africa	10.00
Asia	0.41
Australia and New Zealand	1.06
Europe	2.25
North America	1.09
Central and South America	13.98
Equity exposures	
Africa	–
Asia	–
Australia and New Zealand	–
Europe	0.26
North America	–
Central and South America	–

The AIRB exposures of LBS and FSP are presented below.

Retail portfolio exposure values by PD band, AIRB

Exposure class	PD band (mean PD)			
	0.00 – 0.17 %	0.26 – 0.88 %	1.32 – 45.00 %	Default
Retail				
Exposure value in € m	2,643	1,647	660	50
Average PD in %	0.09	0.45	4.98	100.00
Average RW in %	7.55	24.95	74.52	38.88
Average LGD in %	41.02	36.84	34.87	53.92
thereof: Exposure value of outstanding loans, in € m	2,095	1,490	596	49
thereof: Exposure value for undrawn commitments, in € m	548	156	65	1
Average CCF in %	66.95	59.71	53.58	97.88
Secured by real estate				
Exposure value in € m	1,760	1,170	467	29
Average PD in %	0.09	0.44	4.67	100.00
Average RW in %	6.95	21.09	73.62	41.30
Average LGD in %	31.06	29.12	26.89	39.63
thereof: Exposure value of outstanding loans, in € m	1,739	1,152	460	29
thereof: Exposure value for undrawn commitments, in € m	21	18	7	0
Average CCF in %	58.85	42.09	38.73	0.00
thereof: SME				
Exposure value in € m	129	236	160	0
Average PD in %	0.11	0.52	5.05	100.00
Average RW in %	8.72	28.98	97.52	0.00
Average LGD in %	33.45	34.78	34.81	26.92
thereof: Exposure value of outstanding loans, in € m	124	227	156	0
thereof: Exposure value for undrawn commitments, in € m	5	9	4	0
Average CCF in %	63.20	71.45	71.61	0.00
Qualifying revolving				
Exposure value in € m	425	70	47	2
Average PD in %	0.05	0.52	6.08	100.00
Average RW in %	2.08	14.55	69.30	28.60
Average LGD in %	61.65	61.23	61.62	73.57
thereof: Exposure value of outstanding loans, in € m	12	20	23	1
thereof: Exposure value for undrawn commitments, in € m	413	50	24	0
Average CCF in %	66.81	67.31	67.42	98.76
Other retail				
Exposure value in € m	458	407	147	19
Average PD in %	0.10	0.46	5.60	100.00
Average RW in %	14.94	37.82	79.05	35.99
Average LGD in %	60.19	54.83	51.73	74.22
thereof: Exposure value of outstanding loans, in € m	344	319	113	18
thereof: Exposure value for undrawn commitments, in € m	114	88	34	1
Average CCF in %	68.91	58.99	46.60	97.71
thereof: SME				
Exposure value in € m	39	74	53	0
Average PD in %	0.10	0.50	6.43	0.00
Average RW in %	15.47	45.07	91.46	0.00
Average LGD in %	59.81	61.43	58.41	0.00
thereof: Exposure value of outstanding loans, in € m	17	44	36	0
thereof: Exposure value for undrawn commitments, in € m	22	29	17	0
Average CCF in %	60.67	67.08	62.43	0.00

The exposure-weighted average LGD is shown for the retail portfolio in addition to the exposure-weighted average PD by region.

Retail portfolio average PD/LGD by country, AIRB

Exposure class	Average PD in %	Average LGD in %
Retail		
Africa	1.96	46.95
Asia	1.21	44.74
Australia and New Zealand	0.38	53.08
Europe	1.85	38.93
North America	0.87	48.44
Central and South America	8.09	52.76
Secured by real estate		
Africa	0.99	26.86
Asia	1.52	31.84
Australia and New Zealand	0.32	46.60
Europe	1.69	29.89
North America	0.81	35.41
Central and South America	0.16	35.97
thereof: SME		
Africa	–	–
Asia	0.03	26.92
Australia and New Zealand	–	–
Europe	1.81	34.46
North America	–	–
Central and South America	–	–
Qualifying revolving		
Africa	0.56	60.46
Asia	0.16	60.32
Australia and New Zealand	0.12	62.27
Europe	0.91	61.63
North America	0.23	61.75
Central and South America	0.22	60.42
Other retail		
Africa	3.77	64.16
Asia	0.91	62.26
Australia and New Zealand	0.49	63.52
Europe	2.88	57.10
North America	1.53	64.37
Central and South America	28.28	69.46
thereof: SME		
Africa	–	–
Asia	4.45	66.57
Australia and New Zealand	–	–
Europe	2.31	60.08
North America	19.78	27.31
Central and South America	20.00	62.63

The table below compares actual losses and expected losses for portfolios handled under the IRBA as at 31 December 2016 and as at the same date in the previous year. Actual losses are defined as the sum of the utilisation of specific loan loss allowances and provisions, plus direct write-offs, less recoveries on loans and advances previously written off. The EL shown is the EL calculated in accordance with the stipulations of the IRBA for the portfolio of loans not in default (excluding securities and derivatives).

The increase in actual losses between 31 December 2014 and 31 December 2015 was attributable to the comparatively high utilisation of specific loan loss allowances in connection with real estate finance in the "Corporates – Other" exposure class. The actual losses and the expected loss fell again between 31 December 2015 and 31 December 2016, although the actual losses still remain relatively high compared with the level as at 31 December 2014. These changes resulted primarily from the utilisation of specific loan loss allowances in ship finance in the "Corporates – Specialised lending exposures" exposure class. The expected loss diminished simultaneously as a result of the derecognition of transactions.

Actual losses versus expected loss in lending business

in € m

	31.12.2014		31.12.2015		31.12.2016	
Exposure class	**Losses**	**Expected loss**	**Losses**	**Expected loss**	**Losses**	**Expected loss**
Central governments or central banks	0	1	0	1	0	0
Institutions	0	2	0	3	0	2
Corporates	189	149	314	150	245	130
thereof: Specialised lending exposures	128	94	134	80	182	61
thereof: SME	0	12	9	14	3	17
thereof: Other	61	43	171	56	60	52
Retail	6	17	6	17	2	16
thereof: Secured by real estate	0	9	1	9	1	8
thereof: SME	0	3	0	3	0	3
thereof: Qualifying revolving	1	2	1	2	0	2
thereof: Other	5	6	5	5	1	6
thereof: SME	0	2	0	2	0	2
IRBA equity exposures	0	1	0	0	0	0
Total	**195**	**170**	**321**	**171**	**247**	**149**

CRSA Exposures

Helaba calculates the capital requirements for default risk exposures under the CRSA using exclusively external ratings from Standard & Poor's and Moody's Investors Service (the latter only in FSP). The two rating agencies are nominated for the following asset classes: "Central governments or central banks", "Regional governments or local authorities", "Public-sector entities", "Multilateral development banks", "Institutions", "Corporates", "Exposures in the form of covered bonds" and "Exposures in the form of shares in CIUs". When calculating the capital in relation to securitisations, reference is made to other agencies as well, as explained in greater detail in the section "Securitisations".

When applying credit assessments of issues to exposures, an issue rating is assigned to each transaction if one is available. If no issue rating is available, the issuer rating is used. If no issuer rating is available, the country of domicile rating is applied in the case of churches and institutions. If no issuer or country of domicile rating is available, Helaba investigates the possibility of applying long-term ratings of other issues to short- and long-term exposures with the borrower. External ratings are mapped to the CRR rating grades using the standard classification published by the EBA. The table below shows the CRSA exposure value before and after collateral provided and IRBA exposure values with general risk weighting. The Comprehensive Method in accordance with Article 223 CRR is applied for financial collateral in the great majority of cases. Helaba also avails itself of Article 113 CRR to exempt default risk exposures to companies belonging to the same group or members of the same institutional protection system permanently from the IRBA and to treat them instead as CRSA exposures. Exposure values after collateral are higher than the exposure values before collateral because CRSA guarantors for IRBA exposures are taken into account.

CRSA default risk exposure values before and after collateral provided, and IRBA exposure values with general risk weighting

Risk weight in %	CRSA exposure value Before collateral in € m	CRSA exposure value After collateral in € m	IRBA exposure value in € m
0	23,846	26,184	96
2	0	0	0
4	0	0	0
10	32	32	0
20	2,784	2,891	0
35	1,324	1,424	0
50	595	595	0
70	0	0	0
75	643	76	0
100	3,760	2,729	284
150	113	102	0
190	0	0	52
250	48	48	0
290	0	0	0
370	0	0	42
1.250	0	0	0
Other risk weights	536	536	0
Total	**33,681**	**34,616**	**474**

The IRBA exposure values for exposures with general risk weighting, other non credit-obligation assets and securitisations are presented below.

The table below shows the equity exposures in the simple risk-weight approach as specified in article 155 (2) CRR.

Equity investments under the simple risk-weight approach in € m

Simple risk-weight approach	Exposure value
Private equity exposures in sufficiently diversified portfolios (190 %)	52
Exchange traded equity exposures (290 %)	–
Other equity exposures (370 %)	42

As at 31 December 2016, Helaba did not hold any specialised lending exposures based on the supervisory slotting criteria.

The exposure value for other non credit-obligation assets amounted to € 380 m, and for securitisations under the IRBA € 5,747 m.

Credit Risk Mitigation Techniques under the CRSA and IRB Approach

Like the creditworthiness of borrowers or counterparties, the collateral arrangements (or general risk mitigation techniques) available are of major importance when determining the capital backing requirement of default risks. Helaba takes the following collateral instruments into account for regulatory purposes in the context of credit risk mitigation techniques insofar as the instruments concerned comply with the requirements of the CRR:

- financial collateral (e.g. assigned or pledged securities, cash collateral)
- mortgage security (e.g. charges over real estate)
- assignment of receivables as collateral (e.g. assignment of trade receivables as collateral)
- ships, aircraft or rail vehicles as other physical collateral (e.g. registered ship or aircraft mortgages)
- unfunded credit protection (e.g. guarantees and sureties).

FSP, as an institution within the Helaba Group, takes the same collateral instruments into account – ships and aircraft excepted – when calculating its capital requirements.

The systems for measuring and managing collateral are set out in the Helaba Group's organisational guidelines. The Lending Principles lay down basic rules as to the types and scope of collateral instruments permitted and define measures against which the monetary value of these instruments can be assessed. The monetary value of collateral has to be reviewed accordingly prior to every loan decision and on a continuous and ad hoc basis during the term of the loan. External valuations are used in principle provided that they have demonstrably been performed by an expert third party and are subjected to an internal bank plausibility check.

The measurement approach, the review and the regular measurement of the collateral provided form a mandatory part of the opinion to be rendered by Credit Risk Management. The stated values of collateral arrangements are reviewed by Credit Risk Management, annually in ordinary cases and at shorter intervals in the case of critical exposures, in the course of the loan monitoring and review process and are adapted as necessary if factors of relevance for valuation have changed.

The market fluctuation concept for commercial and residential real estate markets, which is permitted as a statistical method in relation to regulatory charge relief for commercial and residential real estate loans, is also used in the context of the Bank's internal monitoring and review processes to monitor real estate collateral. As regards ships and aircraft, certain asset types are subject to internal market fluctuation monitoring.

The collateral provided is administered in an application system that meets all of the requirements under the CRR in order to use credit risk mitigation techniques to release regulatory capital.

Helaba currently has no involvement with nth-to-default credit derivatives. The necessary conditions for the recognition of guarantees, unfunded credit protection and credit derivatives are reviewed and, if they are met, the collateral is recognised as mitigating the credit risk under the CRR.

Guarantees provided by public-sector entities with investment-grade ratings represent the largest item (68.4 %) in the unfunded credit protection class in the context of regulatory credit risk mitigation in accordance with the CRR. Guarantors from the banking sector with investment-grade ratings constitute a further large block (23.9 %).

Concentration risks affecting collateral based on real estate and guarantees represent another risk parameter of particular interest to Helaba, which reviews these risks on the basis of regular analyses. The Collateral Management System provides dedicated analysis options for real estate and real estate portfolios. Financial collateral is generally of lesser importance for Helaba as far as concentration risk is concerned (with the exception of cash deposits at third-party banks).

Helaba employs close-out netting for OTC derivatives. Close-out netting is a bilateral netting arrangement under which all transactions falling under the arrangement are netted by close-out in the event of the counterparty defaulting (for example as a result of insolvency). This method, unlike novation netting, also enables transactions involving different maturities and currencies to be netted. The basic necessary condition for recognition in respect of risk mitigation is compliance with the requirements of Articles 295 et seq. CRR.

The deduction of collateral within the scope of collateral management is also used for OTC derivatives at Helaba. This involves concluding collateral agreements (standardised collateral arrangements recognised by the regulatory authorities) with counterparties, in the form of credit support annexes to netting master agreements, so that default risks from OTC derivatives can be protected by transferring title to liquid funds and securities. The transfer of the securities here does not constitute the provision of collateral in contractual terms (as in the case of the conventional contract of pledge), but rather a credit event payment to cover an outstanding balance after the netting of receivables and liabilities from OTC transactions. The basic necessary condition for recognition is compliance with the requirements of Articles 196, 206 and 220 CRR in conjunction with a related interpretation by the EBA (netting of negative market values and collateral provided). Helaba does not avail itself of on-balance sheet netting arrangements.

Total collateralised exposure values

in € m

Exposure class	Financial collateral	Other/physical collateral	Guarantees	Credit derivatives
CRSA	**2,235**	**1,513**	**1,918**	**0**
Central governments or central banks	0	0	0	0
Regional governments or local authorities	0	0	0	0
Public-sector entities	91	0	9	0
Multilateral development banks	0	0	0	0
International organisations	0	0	0	0
Institutions	532	0	7	0
Corporates	580	0	1,373	0
Retail	509	0	519	0
Exposures secured by real estate	0	1,406	0	0
Exposures in default	0	107	10	0
Higher risk categories	31	0	0	0
Covered bonds	0	0	0	0
Exposures to institutions and corporates with a short-term credit rating	–	–	–	–
Collective investment undertakings (CIU)	–	–	–	–
Equity exposures	490	0	0	0
Other exposures	0	0	0	0
Securitisation positions	0	0	0	0
IRBA	**1,735**	**19,621**	**4,338**	**0**
Central governments or central banks	940	0	84	0
Institutions	171	6	568	0
Corporates	427	16,822	3,667	0
thereof: Specialised lending exposures	70	9,235	811	0
thereof: SME	65	1,495	93	0
thereof: Other	292	5,677	2,762	0
Retail	127	2,793	18	0
Secured by real estate	87	2,793	2	0
thereof: SME	1	406	0	0
Qualifying revolving	0	0	0	0
Other retail	40	0	16	0
thereof: SME	6	0	8	0
Equity exposures	0	0	0	0
Other non credit-obligation assets	0	0	0	0
Securitisation positions	70	0	0	0
Total	**3,970**	**21,134**	**6,256**	**0**

Assigned endowment insurance policies are also taken into account as collateral. Under the CRR, endowment insurance policies assigned as collateral for IRB transactions are classified as other physical collateral. If they are used as collateral for CRSA exposures, they are treated in the same way as guarantees and therefore shown in the above table under guarantees and credit derivatives.

Derivative Exposures

The positive fair values of derivative transactions at Group level totalled € 18,862 m at 31 December 2016. The deduction of collateral provided (€ 1,619 m) and the utilisation of netting arrangements (€ 10,597 m) reduced the positive fair values by a total of € 12,217 m.

The counterparty credit risk exposure resulting from derivatives amounted to € 10,158 m at 31 December 2016. This exposure is calculated using the mark-to-market method. Helaba does use credit derivatives to protect counterparty credit risk exposures as part of its risk mitigation efforts, but such products account for only a small proportion of its overall collateral arrangements. There were no exposures collateralised with credit derivatives on the reporting date.

Capital is allocated internally to default risks from derivatives in accordance with the capital allocation process explained in the section "Own Funds and Own Funds Structure". Derivative exposures with each counterparty are limited as part of the counterparty-specific default risk containment and monitoring processes. Helaba does not avail itself of the possibility of taking into account interactions/correlation effects between the risk types as a way of mitigating risk.

Helaba has been clearing OTC interest rate derivatives business through London clearing house LCH.Clearnet since October 2012 and complies with the requirements of the European Market Infrastructure Regulation (EMIR). Negotiations in relation to non-centrally cleared OTC derivatives business are ongoing with the relevant counterparties with the intention of incorporating the legal requirements arising out of the EMIR technical standards (RTS) by 1 March 2017.

The net exposure is calculated daily for each individual counterparty and compared with the accepted value of the collateral provided. Collateral netting is conducted taking into account the exemptions and minimum transfer amounts that have been contractually defined subject to the creditworthiness of the counterparty. Exposures are protected with cash collateral. The relevant collateral amounts are calculated automatically in an application system that obtains the contract parameters from a contract database and the necessary market values directly from the trading system in which they are maintained.

Processes and procedures are detailed in full in a Collateral Policy. The Helaba Best Practice contains the standard clauses approved at Helaba for collateral agreements (eligible collateral, haircuts, etc.).

The additional amount of collateral to be provided by Helaba in the event of a possible rating downgrade is simulated at regular intervals on the basis of the contract parameters. If the amount concerned is found to be significant in terms of Helaba's liquidity management, it can then be included accordingly in bank-wide liquidity risk scenarios. Currently, however, the amounts involved, which are associated primarily with a reduction in the minimum transfer amounts (MTA) for Helaba, remain negligible.

Equity Investments in the Banking Book

Helaba's equity investments portfolio contains both strategic and operating equity investments. Strategic equity investments here are corporate relationships established first and foremost not in pursuit of profit through the particular relationship in and of itself but rather for reasons of business policy or business area positioning or similar (with immediate financing concerns never a key factor). The strategic equity investments are broken down into primary and other strategic equity investments. All equity investments associated with lending and/or credit substitutes, in contrast, are classified as operating equity investments. This also applies in respect of equity investments held indirectly through subsidiaries.

Companies to be fully consolidated or accounted for using the equity method in accordance with IFRS are included in the consolidated financial statements with their contributions in accordance with the accounting method shown in the separate Annex under "Table of Consolidated Companies". Holdings in companies that are not consolidated are generally accounted for under IFRS at fair value, but may be recognised at cost, minus prior write-downs where applicable, in exceptional cases.

The recoverability of the equity investments portfolio as held is monitored continuously by the relevant front office units and all of Helaba's direct equity investments are subjected to a standard impairment test for the purposes of the annual financial statements, taking into account the principle of materiality. Risk classification for equity investments using a traffic signal method is carried out as part of this testing. Selected equity investments are remeasured twice a year, on 30 June and 31 December.

For regulatory purposes an exposure value of € 1,547 m is reported in the "Equity investments" exposure class. Exposures reported under the exposure class "higher risk categories" are included in the details under "General Disclosures Concerning Default Risks".

Type of equity investment instrument

in € m

Type of equity investment instrument	Exposure value, on balance sheet	Exposure value, off balance sheet
Exchange-traded equity exposures	0	0
Private equity exposures in sufficiently diversified portfolios	268	15
Other equity exposures	1,260	4
Total	**1,528**	**19**

In line with the relevant grandfathering provision, equity investments acquired prior to 31 December 2007 are treated in accordance with the CRSA regulations. The PD/LGD approach is generally used at Helaba for new equity investments acquired from 2008 onwards. The IRBA simple risk-weight approach is used for these equity investments if no rating has been approved for IRBA purposes.

Total unrealised gains and losses amounted to € 54.0 m at 31 December 2016. There were no latent remeasurement gains or losses or other amounts included in the original or additional own funds on the reporting date. For more detailed information on equity investment exposures, please refer to note 30 et seq. and note 42 et seq. of the notes to the consolidated financial statements in the Annual Report.

Securitisations

Objectives and scale of securitisation exposures and functions performed

Helaba engages in securitisation business primarily in order to provide attractive finance options for its target customers. It does not purchase asset-backed securities outside of its target customer business. Helaba has yet to securitise any of its own assets, meaning that it has so far performed the functions of investor and sponsor (own special purpose vehicles OPUSALPHA, OPUSDELTA and OPUSLAMBDA) but not that of originator. In its securitisation business, Helaba invests primarily in credit products, provides liquidity facilities for its own special purpose vehicles and purchases assets from target customers. It assumes no risks in connection with securitisation activities outside of the risk types indicated in the "Risk Strategy and Risk Management" section. No implicit support as defined in Article 248 CRR has been provided.

Methods used to calculate the risk-weighted exposure amounts including types of securitisation exposure

The approaches employed by Helaba in order to ensure compliance with regulatory capital requirements in respect of securitisation transactions are set out below. Also shown are the asset types included in the securitisation portfolio under each of the approaches at 31 December 2016.

Approaches used for securitisation transactions

Approach	Securitisation approach	Asset type
CRSA	Ratings-based approach	Residential real estate
	Risk concentration rate with average risk weight	Trade receivables Consumer credit Other
	Qualifying liquidity facilities	Currently not applicable
	Second-loss or better ABCP positions	Currently not applicable
IRBA	Ratings-based approach	Commercial real estate Residential real estate Loans to corporates Other
	Internal Assessment Approach (IAA)	Trade receivables Lease receivables Loans to corporates
	Inferred rating	Currently not applicable
	Supervisory Formula Approach (SFA)	Commercial real estate Trade receivables Lease receivables Loans to corporates Other

Except for securitisation exposures at FSP, securitisations with underlying assets from the retail sector were handled using CRSA variants as at 31 December 2016. For all other securitisation transactions, the IRB Approach risk weight is determined using the applicable methods insofar as they fall within the scope of application. Helaba does not avail itself of the fallback solution for qualifying liquidity facilities that is permitted under the CRR.

Helaba uses the following rating agencies, which were recognised by BaFin for risk weighting in connection with bank regulation in June 2007:

- Standard & Poor’s
- Moody’s Investors Service
- Fitch Ratings

These rating agencies are used for all of the asset types referred to above.

Processes employed to monitor changes in securitisation exposures and their recoverability

A defined process documented in the internal procedural instruction system ensures that all relevant data and documents of significance – especially such data and documents relating to the monitoring of how changes in the securitised assets affect the recoverability of the securitisation exposures – are procured, analysed and evaluated promptly on a continuous basis both prior to any investment in a securitisation and for existing exposures.

The front office unit concerned is in principle responsible for procuring the necessary data and additional information, which is then assessed by the organisational unit responsible for credit processing. The office whose approval is required under the standard process verifies the adequacy of the analysis and evaluation in the course of deciding whether or not to approve the transaction.

Should data and additional information of significance for the analysis and evaluation of the securitisation be unavailable, new investments may not be made and existing exposures may not be maintained. The data and additional information procured, the assessment results and, where applicable, the decisions made and/or measures adopted in the context of the assessment are documented with a full audit trail in the credit file.

The same process applies analogously to resecuritisation exposures.

Quantitative disclosures concerning securitisation exposures

The tables below show the total volume of the Helaba Group’s securitisation exposures (in its role as investor and sponsor) in the banking book and in the trading book broken down by underlying asset type and risk weight band. As at 31 December 2016, there were no resecuritisation exposures in the portfolio.

Total volume of securitisation exposures by asset type in € m

			Securitisation							
			Commercial real estate	Residential real estate	Current trade receivables	Lease receivables	Loans to corporates	Consumer credit	Other	Total
Own special purpose vehicles	Banking book	On balance sheet	0	0	798	537	679	0	40	2,054
		Off balance sheet	0	0	175	192	156	0	368	891
	Trading book	Derivatives	0	0	0	0	6	0	0	7
Liquidity lines for ABCP programmes/EETC financing for third-party special purpose vehicles	Banking book	Off balance sheet	0	0	0	65	205	0	0	270
Other securitisation exposures in respect of third-party special purpose vehicles	Banking book	On balance sheet	582	0	1,931	14	336	264	201	3,328
		Off balance sheet	11	0	309	5	1	18	10	353
	Trading book	Derivatives	1	0	0	0	0	0	0	1
Securities	Banking book	On balance sheet	4	78	0	0	5	0	41	127
Total			**597**	**78**	**3,214**	**814**	**1,387**	**281**	**659**	**7,031**

Total volume of retained or purchased securitisation exposures by risk weight band in € m

		Securitisation		
Risk weight band		**Total volume**	**CRSA capital requirement**	**IRBA capital requirement**
≤ 10 %	Banking book	3,312	0	19
	Trading book	6	0	0
> 10 % to < 20 %	Banking book	807	0	10
	Trading book	0	0	0
≥ 20 % to < 50 %	Banking book	1,173	0	21
≥ 50 % to < 100 %	Banking book	1,394	70	13
	Trading book	1	0	0
≥ 100 % to 850 %	Banking book	318	13	95
1,250 %/Capital deduction	Banking book	19	0	3
Total		**7,031**	**84**	**162**

Material changes in the securitisation exposures as compared with the previous year are the result of new business with target customers and amortisation in respect of securities.

Helaba acts as sponsor for the securitisation special purpose vehicles OPUSALPHA, OPUSDELTA and OPUSLAMBDA. The portfolio of OPUSALPHA, a special purpose vehicle for a hybrid ABCP programme, consists partly of receivables that have been purchased by customers and partly of asset-backed securities. OPUSDELTA is a credit-financed special purpose vehicle through which receivables from goods and services are securitised. OPUSLAMBDA is a special purpose vehicle used for a financing arrangement within the Sparkassen-Finanzgruppe.

The table below shows the nature and extent of Helaba's securitisation exposures in respect of its own special purpose vehicles as investor or sponsor. All of the exposures apart from interest rate and currency swaps are banking book exposures.

Total volume of securitisation exposures in respect of own special purpose vehicles in € m

			Current trade receivables	Lease receivables	Loans to corporates	Other	Total
Sponsor	Banking book	On balance sheet	798	537	679	40	2,054
		Off balance sheet	175	192	156	368	891
	Trading book	Derivatives	0	0	6	0	7
Total			**974**	**729**	**841**	**408**	**2,952**

Internal assessment approaches (IAA)
Helaba has two internal assessment approaches, both of which are based on the related methodology of rating agency Standard & Poor's.

The scope of application encompasses securitisations and purchases of a company's receivables from the sale of products or the provision of services ("trade") and also other securitisations and purchases of loans and lease receivables (including transactions with a small proportion of outstanding receivables).

The approach used to assess trade receivables looks initially at the risks arising from the underlying portfolio and the transaction-specific payment guarantee structures. The portfolio default risks are calculated here by a method analogous to that used by Standard & Poor's. The risk associated with the payment guarantee structures and major individual borrowers and credit insurance arrangements is estimated, moreover, and the commingling risk and dilution risk are considered via expert appraisals.

The approach used for loans and lease receivables analyses the risks of the portfolio and transaction-specific payment guarantee structures and also the seller risk, which is essentially dominated by the servicer risk. The portfolio default risks are determined on the basis of monthly or annual default rates using the corresponding Standard & Poor's stress factors. The risk associated with the payment guarantee structures and major individual borrowers is also analysed. The seller risk is determined by means of a flat-rate estimate of the servicer risk in combination with the rating of the seller.

The regulatory capital charge is calculated with reference to the internal assessment approach if the transaction belongs to an ABCP programme and the underlying asset type is subject to the IRBA. The internal assessment approaches are also applied in the context of the internal lending process. This applies to transactions in ABCP programmes and non-ABCP programmes in which the underlying asset type is subject to the Standardised Approach at Helaba. In the case of transactions that do not belong to an ABCP programme and in which the underlying asset type is subject at Helaba to the IRBA, the one-year loss disregarding credit enhancements can be determined using the internal assessment approach for use in calculating KIRB. The regulatory capital backing requirement is then ascertained under the SFA.

Helaba has implemented the mechanisms detailed below in relation to the use of the internal assessment approaches and the verification of their suitability.

Helaba implements the rating method with the same IT environment used for its other internal rating systems, so here too compliance with all process-related requirements, such as the application of the double verification principle, is assured.

- Initial processing is handled by the front office unit in the case of new business involving complex financing arrangements and by Credit Risk Management (CRM) in the case of business with existing customers and more straightforward financing arrangements.
- Responsibility for follow-up processing in the case of new business rests with whichever of CRM and the front office unit did not perform initial processing. CRM always handles follow-up processing in the case of business with existing customers.
- The subsequent technical release of the rating in LB-Rating simultaneously determines the default rating grade and is always performed by CRM.

Credit Risk Controlling performs and documents a validation of the two internal assessment approaches using the proprietary validation concept annually in order to verify their suitability. This process includes a comparison of the current Helaba methodology with the related publications from Standard & Poor's as well as discussions with the Group's own analysts. The results are subject to review by Internal Audit.

The internal assessment approach for trade receivables assigns the portfolio risk for this asset type with reference to the relevant stress factors published by Standard & Poor's. Similarly, the internal assessment approach for loans and lease receivables makes use of the relevant set of stress factors published in respect of receivables from vehicle loans and vehicle leasing as well as equipment leasing.

Market Price Risk

All market price risks are quantified every day using a money-at-risk (MaR) method backed up by stress tests and sensitivity analyses. The MaR specifies what is deemed, with a certain confidence level, to be the upper threshold of the potential loss of a portfolio or position due to market fluctuations within a prescribed holding period.

Internal model in accordance with the CRR

Helaba calculates the regulatory capital required for the general interest rate risk (€ 161 m at 31 December 2016) using an internal model in accordance with the CRR for Helaba Bank. This model, which consists of the risk measurement systems MaRC² (linear interest rate risk) and ELLI (interest rate option risk), has been approved by the banking supervisor. The linear interest rate risk is measured on the basis of a variance-covariance approach, while the interest rate option risk is calculated using a Monte Carlo simulation. Rating-dependent government, financials and corporate yield curves are also used alongside swap and Pfandbrief curves for evaluation purposes in the context of linear risk measurement. Both risk measurement systems are based on the same statistical parameterisation laid down by the banking regulator (one-tailed confidence level of 99 %, holding period of ten trading days, historical observation period of one year). Helaba additionally calculates a stressed MaR figure (money-at-risk in a crisis scenario), which maps the risk represented by the current exposure applying the risk parameters (volatilities and correlations) of the largest historical one-year stress phase. The table below shows the trading book interest rate risks for Helaba Bank for financial year 2016.

Interest rate risks in the trading book for financial year 2016 in € m

	31.12.2016	Maximum	Minimum	Average
10 days MaR	26.0	30.0	17.2	23.4
10 days stressed MaR	26.2	33.7	16.1	21.8

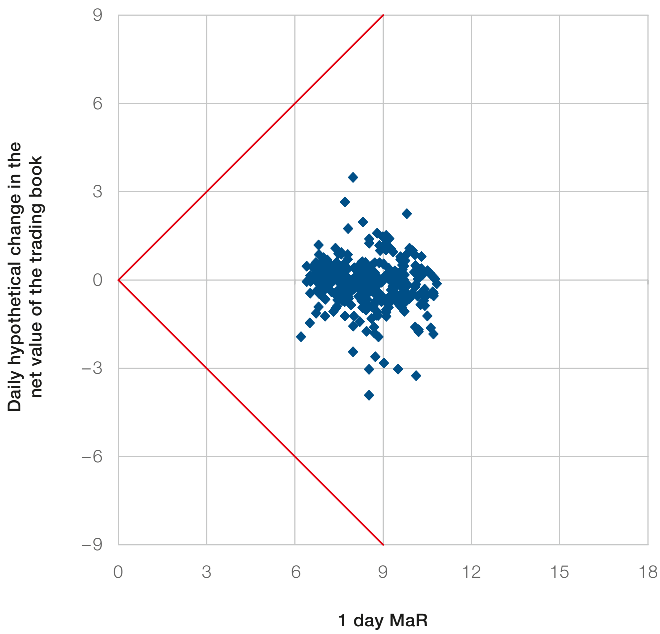
In 2016, the average 10-day stress MaR was below the normal 10-day MaR. The reason was the switch in period for the crisis period as a result of the persistent low level of interest rates and the associated regulatory reporting dates.

Back-testing and validation

Helaba carries out clean back-testing daily for all market price risk types to check the forecasting quality of the risk models. This involves determining the MaR figure for a holding period of one trading day with a one-tailed confidence level of 99 % and a historical observation period of one year. The forecast risk figure is then compared with the hypothetical change in the net value of the trading book, which represents the change in the value of the portfolio over one trading day for an unchanged position and on the basis of new market prices. Any case in which the decrease in the net value of the trading book exceeds the potential risk figure constitutes a back-testing outlier.

The regulatory back-testing of Helaba's internal model for general interest rate risk, which consists of the model components MaRC² and ELLI, produced no negative outliers in 2016. The chart below shows the results of clean back-testing (in € m).

Internal model clean back-testing for financial year 2016



Model validation with respect to Helaba's internal model is a continuous process. Models are validated as part of the New Products Committee's product introduction process in the case of new products and using a random sampling process commensurate with the significance of the product concerned in the case of existing products. Models also undergo a comprehensive validation once every year. Changes to models resulting from the model validation process are implemented in accordance with a model change policy that has been submitted to the banking regulator.

Stress tests

A proper analysis of the effects of extraordinary but not unrealistic market situations requires the use of stress tests in addition to the daily risk quantification routine. Various portfolios are remeasured regularly under the assumption of extreme market scenarios. Portfolios are selected for stress testing on the basis of the level of exposure (significance) and the presence or absence of risk concentrations unless specific banking regulatory provisions apply. Stress tests are carried out daily on Helaba's options book. The results of the stress tests are included in market price risk reporting to the Board of Managing Directors and are taken into consideration in the limit allocation process.

Methods available for use in stress testing include historical simulation, Monte Carlo simulation, a modified variance-covariance approach and a variety of scenario calculations – including those based on the main components of the correlation matrix. Helaba also performs stress tests to simulate extreme spread changes. The stress tests for market price risks are supplemented by inverse stress tests and stress tests across risk types conducted in the course of Helaba's calculation of risk-bearing capacity.

Measurement of trading book exposures

Clearly defined responsibilities and business processes that also encompass exposures in the trading book create the foundations for effectively limiting and managing the exposures in the trading book. The strategic focus of the trading book is on customer-driven business, which is supported by a demand-led product range. The own issues repurchase portfolio also forms part of the trading book.

When selecting the measurement method for financial instruments, the Helaba Group distinguishes between those financial instruments that can be measured directly using prices quoted in an active market and those measured using standard valuation techniques. In this process, of all the markets to which Helaba has access, the market with the highest level of activity is generally assumed to be the relevant market (primary market). If no primary market can be determined for individual financial instruments, the most favourable market is selected. The fair value of financial instruments listed in active markets is determined on the basis of quoted prices. A market is deemed to be active if the volume and frequency of trading in the relevant or similar financial instruments is sufficient to generate regular market prices. In the case of financial instruments for which there are no quoted prices in an active market on the reference date, the fair value is determined using generally accepted standard valuation techniques. The financial instruments are measured on the basis of the cash flow structure, taking into account estimated future cash flows, discount rates and volatility. These approaches use modelling techniques such as the discounted cash flow method or established option pricing models. Models with greater differentiation that use more detailed inputs such as correlations are used for more complex financial instruments. The inputs for the models are usually observable in the market. If no market information is available for the required model inputs, these are derived from other relevant information sources, such as prices for similar transactions or historical data. The process of prudent valuation may also sometimes require adjustments such as model adjustments, credit/debit value adjustments or funding value adjustments. The inclusion of adjustments takes into account the requirements for prudent valuation.

The valuation process is subject to continuous validation and control. In the trading business, part of the process of measuring exposures independently of the trading activity is to ensure that the methods, techniques and models used for the measurement are appropriate. New measurement models are generally subject to comprehensive initial validation before they are used for the first time. The models are then regularly reviewed depending on materiality, the extent to which they are established in the market and on the complexity of the model in question. Ad hoc reviews are also carried out if, for example, significant changes are made to the model. A process of independent price verification is also carried out to ensure that the inputs used for measuring the financial instruments are in line with the market.

Articles 104 and 105 CRR are taken into account in the measurement of trading book positions.

Standardised method for market price risks

Although Helaba and the subsidiary entities use the internal model to calculate the regulatory capital requirements for general interest rate risk, they rely on the standardised method to calculate the capital requirements for their other market price risks.

Capital requirements in accordance with the standardised method for market price risks in € m

Standardised method risk types	Capital requirement
Position risk (share price risk and specific interest rate risk)	100
thereof: Specific interest rate risk in respect of securitisation exposures	–
Foreign-exchange risk	28
Commodities risk	1
Settlement risk	0
Total	**129**

Limitation of market price risks

Helaba employs a uniform limit structure to limit market price risks. The process through which limits are allocated involves the Risk and Credit Committee of the Supervisory Board as well as the Bank's internal committees. The cumulative limit defined for market price risk, which is proposed by the Board of Managing Directors on the basis of the Bank's risk-bearing capacity, must be approved by the Supervisory Board's Risk Credit Committee.

Acting on the recommendation of the Asset/Liability Management Committee, the Risk Committee allocates limits to the risk-incurring business units and the various types of market price risk within the scope of the defined cumulative limit for market price risks. In addition separate limits are defined for the trading book and the banking book. Responsibility for the onward allocation of limits to Helaba's subordinate organisational units and its various sites rests with the divisions to which a limit has been assigned. Stop-loss limits and volume limits are also used independently in the trading units to limit market price risks.

Interest Rate Risk in the Banking Book

The interest rate risks in Helaba's banking book consist mainly of positions taken by Asset/Liability Management, which is responsible for funding and for the management of the interest rate and liquidity risks in the banking book, and the net balance of non-interest-bearing funds. Helaba employs the MaR approach used for the trading book for the daily mapping of the interest rate risks in the banking book. Contractual agreements and the interest rates fixed for positions or products are generally taken into account. However variable-rate products at FSP, such as savings and sight deposits, are not subject to a specified fixed interest rate or fixed capital commitment period, so fictional maturities determined with a moving averages model are used for containment activities in respect of the relevant interest rate risk.

The quantification of interest rate risks in the banking book is also subject to regulatory requirements, which stipulate a risk computation based on standardised interest shocks. The computation examines the effects of a rise and fall of 200 basis points in interest rates in line with the requirements of the banking regulator. Such an interest rate shock would have caused a negative change in the value of the banking book for the Helaba Group at year-end 2016 of € 261 m; € 249 m of this figure was attributable to local currency and € 12 m to foreign currencies, with the pound sterling accounting for € 7 m and the Swiss franc € 3 m. Helaba carries out an interest rate shock test at least once every quarter.

Operational Risk

Principles of risk containment
In accordance with regulatory requirements, Helaba has adopted an integrated approach for managing operational risk. This approach is used to identify, manage and monitor operational risk.

At Helaba, the containment of operational risk is segregated from the monitoring of this risk on both a solid-line and dotted-line basis. Risk management is accordingly a local responsibility discharged by Helaba's individual units, which are supported in this task by central containment units. Central responsibility for operational risk monitoring rests with the Risk Controlling unit.

Tools
Helaba uses the Standardised Approach (STA) to calculate the regulatory capital requirement.

Operational risks are contained and monitored using a risk management system that identifies, records and presents risks and losses in a structured manner. This makes it possible to compare and cross-check risks and loss data systematically and contain them with appropriate measures.

Operational risks are classified systematically with reference to Helaba's proprietary risk model, which is based on the Basel event categories. The view of risk used for internal risk assessment purposes is thus fully congruent with that of the regulator. The quantification methodology is based on a modelling approach that encompasses internal and external losses plus risk scenarios created by the business units and plausibility-checked by the Risk Controlling unit.

Technical assistance to help facilitate the management of operational risk is provided in the form of a web-based application that supports local data access and a central database along with a central application for risk reporting.

Operational risks are avoided or limited using insurance arrangements that cover specific losses up to agreed maximum limits and also by means of established measures in internal processes and other workflows.

Countercyclical Capital Buffer

The aim of the institution-specific countercyclical capital buffer is to limit excessive growth in lending by requiring the institution concerned to maintain an additional capital buffer comprising Common Equity Tier 1 capital.

In Germany, the value of the countercyclical capital buffer is specified by BaFin quarterly on the basis of analyses of macroeconomic data. The figure for Germany at 31 December 2016 was 0 %. A capital buffer higher than 0 % has been specified by the competent supervisory authorities in Hong Kong, Sweden and Norway for those countries. If, in accordance with the definition specified in Article 140 (4) CRD, an institution has relevant credit exposures in other countries, the institution-specific countercyclical capital buffer is calculated as a weighted average of the domestic and foreign countercyclical capital buffers.

Pursuant to Article 440 CRR in conjunction with Delegated Regulation (EU) No 1555/2015, banks must disclose the geographical distribution of the credit exposures relevant to the calculation of the countercyclical capital buffer and the amount of their institution-specific countercyclical capital buffer.

The following table shows the geographical distribution of the relevant credit exposures for which the geographical location has been determined in accordance with Delegated Regulation (EU) No 1152/2014. To keep the presentation clear and ensure only relevant information is shown, the data in the table is limited to countries that have specified a countercyclical capital buffer of greater than 0 % (column 120 in the table below) or whose weighted proportion of own funds requirements is 1 % or higher (column 110 in the table below). As at 31 December 2016, this resulted in a weighted proportion of the own funds requirements in respect of the relevant credit exposures of approximately 94 % for the countries shown. The limitation is in accordance with Article 432 CRR in conjunction with EBA guidelines EBA/GL/2014/14.

Geographical distribution of credit risk exposures relevant to the calculation of the countercyclical capital buffer in € m

		General credit exposures		Trading book exposures		Securitisation exposures	
		Exposure value for CRSA	Exposure value for IRBA	Sum of long and short positions of trading book exposures for SA	Value of trading book exposures (internal models)	Exposure value for CRSA	Exposure value for IRBA
Row		**010**	**020**	**030**	**040**	**050**	**060**
010	**Breakdown by country**						
	Federal Republic of Germany	4,602	43,424	3,165	0	525	3,137
	United States of America	281	11,494	419	0	484	998
	United Kingdom	72	5,686	180	0	0	595
	France	57	3,731	948	0	0	497
	Spain	24	511	724	0	64	75
	The Netherlands	106	1,654	327	0	79	0
	Luxembourg	36	1,477	5	0	0	0
	Poland	0	1,277	61	0	46	174
	Italy	36	182	705	0	0	53
	Austria	16	849	3	0	0	0
	Sweden	2	562	235	0	0	0
	Norway	0	282	258	0	0	0
	Hong Kong	0	190	0	0	0	0
	Other	320	3,956	1,171	0	0	218
020	**Total**	**5,553**	**75,275**	**8,201**	**0**	**1,198**	**5,747**

Geographical distribution of credit risk exposures relevant to the calculation of the countercyclical capital buffer — in € m

Zeile		Own funds requirements – thereof: General credit exposures	Own funds requirements – thereof: Trading book exposures	Own funds requirements – thereof: Securitisation exposures	Own funds requirements – Total	Own funds requirements weights	Counter-cyclical capital buffer rate
		070	080	090	100	110	120
010	**Breakdown by country**						
	Federal Republic of Germany	1,671	23	81	1,775	0.56	0.00 %
	United States of America	427	6	95	528	0.17	0.00 %
	United Kingdom	173	4	4	180	0.06	0.00 %
	France	141	11	6	159	0.05	0.00 %
	Spain	21	6	44	71	0.02	0.00 %
	The Netherlands	57	4	5	66	0.02	0.00 %
	Luxembourg	57	0	0	57	0.02	0.00 %
	Poland	45	1	8	54	0.02	0.00 %
	Italy	11	25	1	37	0.01	0.00 %
	Austria	33	0	0	33	0.01	0.00 %
	Sweden	17	3	0	20	0.01	1.50 %
	Norway	10	3	0	13	0.00	1.50 %
	Hong Kong	4	0	0	4	0.00	0.63 %
	Other	185	12	2	199	0.06	0.00 %
020	**Total**	**2,853**	**98**	**246**	**3,197**	**1.00**	

Amount of the institution-specific countercyclical capital buffer — in € m

Row		Column
		010
010	Total risk exposure amount	52,849
020	Institution-specific countercyclical capital buffer rate	0,02
030	Institution-specific countercyclical capital buffer requirement	9

Leverage Ratio

In January 2015, the requirements for calculating the leverage ratio were redefined and issued by the European Commission in Delegated Act EU 2015/62.

The leverage ratio is based on the relationship between Tier 1 capital and the unweighted total of all on-balance-sheet and off-balance-sheet asset items (including derivatives).

These disclosures are published in compliance with Commission Implementing Regulation (EU) 2016/200 laying down implementing technical standards with regard to disclosure of the leverage ratio for institutions. The table below presents the variables used to determine the leverage ratio taking account of the transitional provisions in accordance with Article 499 (1b) CRR.

Leverage ratio in accordance with Delegated Act in € m

CRR Leverage Ratio – Disclosure Template

Reference date	31.12.2016
Entity name	Landesbank Hessen-Thüringen
Level of application	Consolidated

Table LRSum: Summary reconciliation of accounting assets and leverage ratio exposures

		Applicable amount
1	Total assets as per published financial statements	165,164
2	Adjustment for entities which are consolidated for accounting purposes but are outside the scope of regulatory consolidation	– 1,369
3	(Adjustment for fiduciary assets recognised on the balance sheet pursuant to the applicable accounting framework but excluded from the leverage ratio total exposure measure in accordance with Article 429(13) of Regulation (EU) No 575/2013)	
4	Adjustments for derivative financial instruments	(4,837)
5	Adjustment for securities financing transactions (SFTs)	34
6	Adjustment for off-balance sheet items (i.e. conversion to credit equivalent amounts of off-balance sheet exposures)	15,058
EU-6a	(Adjustment for intragroup exposures excluded from the leverage ratio total exposure measure in accordance with Article 429(7) of Regulation (EU) No 575/2013)	
EU-6b	(Adjustment for exposures excluded from the leverage ratio total exposure measure in accordance with Article 429(14) of Regulation (EU) No 575/2013)	
7	Other adjustments	(2,795)
8	**Leverage ratio total exposure measure**	**171,255**

Table LRCom: Leverage ratio common disclosure

		CRR leverage ratio exposures
	On-balance sheet exposures (excluding derivatives and SFTs)	
1	On-balance sheet items (excluding derivatives, SFTs and fiduciary assets, but including collateral)	144,993
2	(Asset amounts deducted in determining Tier 1 capital)	(363)
3	**Total on-balance sheet exposures (excluding derivatives, SFTs and fiduciary assets) (sum of lines 1 and 2)**	**144,630**
	Derivative exposures	
4	Replacement cost associated with all derivatives transactions (i.e. net of eligible cash variation margin)	8,171
5	Add-on amounts for PFE associated with all derivatives transactions (mark-to-market method)	2,605
EU-5a	Exposure determined under Original Exposure Method	
6	Gross-up for derivatives collateral provided where deducted from the balance sheet assets pursuant to the applicable accounting framework	
7	(Deductions of receivables assets for cash variation margin provided in derivatives transactions)	
8	(Exempted CCP leg of client-cleared trade exposures)	
9	Adjusted effective notional amount of written credit derivatives	3,033
10	(Adjusted effective notional offsets and add-on deductions for written credit derivatives)	(2,279)
11	**Total derivatives exposures (sum of lines 4 to 10)**	**11,530**

		CRR leverage ratio exposures
	SFT exposures	
12	Gross SFT assets (with no recognition of netting), after adjusting for sales accounting transactions	15
13	(Netted amounts of cash payables and cash receivables of gross SFT assets)	
14	Counterparty credit risk exposure for SFT assets	23
EU-14a	Derogation for SFTs: Counterparty credit risk exposure in accordance with Articles 429b(4) and 222 of Regulation (EU) No 575/2013	
15	Agent transaction exposures	
EU-15a	(Exempted CCP leg of client-cleared SFT exposure)	
16	**Total securities financing transaction exposures (sum of lines 12 to 15a)**	**38**
	Other off-balance sheet exposures	
17	Off-balance sheet exposures at gross notional amount	34,647
18	(Adjustments for conversion to credit equivalent amounts)	(19,589)
19	**Other off-balance sheet exposures (sum of lines 17 and 18)**	**15,058**
	Exempted exposures in accordance with Article 429(7) and (14) of Regulation (EU) No 575/2013 (on and off balance sheet)	
EU-19a	(Intragroup exposures (solo basis) exempted in accordance with Article 429(7) of Regulation (EU) No 575/2013 (on and off balance sheet))	
EU-19b	(Exposures exempted in accordance with Article 429(14) of Regulation (EU) No 575/2013 (on and off balance sheet))	
	Capital and total exposure measure	
20	**Tier 1 capital**	**8,110**
21	**Leverage ratio total exposure measure (sum of lines 3, 11, 16, 19, EU-19a and EU-19b)**	**171,255**
	Leverage ratio	
22	**Leverage ratio**	**4.74 %**
	Choice on transitional arrangements and amount of derecognised fiduciary items	
EU-23	Choice on transitional arrangements for the definition of the capital measure	Transitional
EU-24	Amount of derecognised fiduciary items in accordance with Article 429(11) of Regulation (EU) No 575/2013	

Table LRSpl: Split-up of on-balance sheet exposures (excluding derivatives, SFTs and exempted exposures)

		CRR leverage ratio exposures
EU-1	Total on-balance sheet exposures (excluding derivatives, SFTs, and exempted exposures), of which:	144,993
EU-2	Trading book exposures	8,530
EU-3	Banking book exposures, of which:	136,463
EU-4	Covered bonds	4,408
EU-5	Exposures treated as sovereigns	29,270
EU-6	Exposures to regional governments, MDBs, international organisations and PSEs not treated as sovereigns	4,962
EU-7	Institutions	25,618
EU-8	Secured by mortgages of immovable properties	15,609
EU-9	Retail exposures	1,780
EU-10	Corporate	44,628
EU-11	Exposures in default	1,150
EU-12	Other exposures (e.g. equity, securitisations, and other non-credit obligation assets)	9,038

Description of the process for monitoring the risk of excessive leverage
Helaba takes the leverage ratio requirements into account in the optimisation of its business portfolio. The risk of excessive leverage is addressed by including the leverage ratio in the planning and control process. Based on the business and risk strategy, an internal target ratio is specified as an additional key performance indicator, supplementing the capital ratios. Helaba is managing its business using qualitative and quantitative guidelines, taking into account the limits it will have to comply with in the future. Changes in the leverage ratio are subject to regular monitoring. In addition to ex-post analyses of the leverage ratio in the internal reporting system, future changes in the ratio and in the basis of measurement form an integral part of the Bank's internal planning process.

Description of the factors that impacted the disclosed leverage ratio during the reporting period
As at 31 December 2016, the leverage ratio had risen to 4.7 % (31 December 2015: 4.5 %). The total risk exposure declined year on year to € 171.3 bn. The main contributing factors to this decline were the decreases in volume in the securities business of the Global Markets business division and in the ECB reserve available on a day-to-day basis. The changes were predominantly in on-balance-sheet items.

In addition to the decline in the total risk exposure, the increase in Tier 1 capital as at 31 December 2016 to € 8.1 bn also had a positive impact on the leverage ratio. Please refer to "Own Funds and Own Funds Structure" in this report for further information on the changes in Tier 1 capital.

Asset Encumbrance

Encumbered assets are broadly speaking all of those assets to which the institution would not have unrestricted access in the event of a possible insolvency. Assets that are pledged, for example, or that serve as collateral for other transactions are always considered to be encumbered assets.

There was still no implementing standard concerning disclosure requirements available at the time this report was prepared, so guideline EBA/GL/2014/03 was used as the basis instead.

Helaba's funding strategy aims for a diversified funding mix. Asset encumbrance is mainly a factor in connection with Pfandbrief issuance and development business. The excess cover in the cover funds above and beyond the applicable legal requirements ensures substantial room for manoeuvre with issues. Encumbrance is also relevant in the context of derivative and repo transactions. Helaba generally only enters into such transactions under standard market master agreements/collateral agreements. Such transactions within the Helaba Group are concentrated in Helaba Bank.

No use is made of "Other assets" for collateral purposes. The item consists principally of the positive fair values of derivatives, real estate assets and intangible assets.

Assets in € m

	Carrying amount of encumbered assets	Fair value of encumbered assets	Carrying amount of non-encumbered assets	Fair value of non-encumbered assets
Assets	**52,122**		**121,490**	
thereof: Equity instruments	0	0	3,055	3,074
thereof: Bonds	4,620	4,608	28,179	28,178
thereof: Other assets	0		22,574	

Collateral received in € m

	Fair value of encumbered collateral received or own debt securities issued	Fair value of collateral received or own debt securities issued available for encumbrance
Collateral received	**276**	**5,142**
thereof: Equity instruments	0	0
thereof: Bonds	232	5,142
thereof: Other collateral received	0	0
Own debt securities issued other than own covered bonds or ABSs	**0**	**401**

Sources of encumbrance in € m

	Matching liabilities, contingent liabilities or securities lent	Assets, collateral received and own debt securities issued other than covered bonds and encumbered ABSs
Carrying amount of selected financial liabilities	**56,711**	**51,605**

List of Abbreviations and Key Terms

Abbreviation	Definition
ABCP	Asset-backed commercial paper
ABS	Asset-backed securities
AEOI	Automatic exchange of financial account information
AfS	Available for sale (IFRS category)
AIRB	Advanced IRB
ANP	New Products Committee
AT1	Additional Tier 1 capital
BaFin	German Federal Financial Supervisory Authority (Bundesanstalt für Finanzdienstleistungsaufsicht)
BDSG	German Data Protection Act (Bundesdatenschutzgesetz)
CCF	Credit conversion factor
CCP	Central counterparty
CET1	Common Equity Tier 1 capital
CIU	Collective investment undertakings (CRSA exposure class)
CRD	Capital Requirements Directive (CRD IV)
CRM	Credit Risk Management
CRR	Capital Requirements Regulation
CRSA	Credit Risk Standardised Approach
CVA	Credit valuation adjustment
DSGV	German Savings Banks Association
EBA	European Banking Authority
ECB	European Central Bank
EETC	Enhanced equipment trust certificate
EL	Expected loss
ELLI	Risk measurement system (interest rate option risk)
EMIR	European Market Infrastructure Regulation
ESMA	European Securities and Markets Authority
FATCA	Foreign Account Tax Compliance Act
FIRB	Foundation IRB
FSP	Frankfurter Sparkasse
GaV	Rules of procedure for the Board of Managing Directors
GSLLA	Specific loan loss allowances evaluated on a group basis
HGB	German Commercial Code (Handelsgesetzbuch)
IAA	Internal Assessment Approach for Securitisations
IAS	International Accounting Standards

Abbreviation	Definition
ICAAP	Internal Capital Adequacy Assessment Process
ILAAP	Internal Liquidity Adequacy Assessment Process
IFRS	International Financial Reporting Standards
IM	Internal models for market price risk
IRBA	Internal Ratings-Based (Approach) (FIRB/AIRB)
IS risk	Information security risk
ISMS	Information security management system
IT	Information technology
ITS	Implementing technical standards (EBA)
KIRB	The capital charge for the underlying portfolio had it not been securitised, including the expected loss
KMA	Credit Management Committee
KWG	German Banking Act (Kreditwesengesetz)
LBR/LB Rating	Landesbanken Rating
LBS	Landesbausparkasse Hessen-Thüringen
LCR	Liquidity Coverage Ratio
LGD	Loss Given Default
MAC clause	Material adverse change clause
MaR	Money-at-risk
MaRC²	Risk measurement system (linear interest rate risk)
MaRisk	German Minimum Requirements for Risk Management
MaSan	German Minimum Requirements for the Design of Recovery Plans
MaSI	German Minimum Requirements for the Security of Internet Payments
MTA	Minimum transfer amounts
NSFR	Net Stable Funding Ratio
O-SIIs	Other systemically important institutions
OTC	Over-the-counter
PD	Probability of default
PLLA	Portfolio loan loss allowance
P&L	Profit and loss, income statement
RAF	Risk appetite framework
RSGV	Rheinischer Sparkassen- und Giroverband
RSU	Rating Service Unit GmbH & Co. KG
RTS	Regulatory Technical Standards
RW	Risk weight
RWA	Risk-weighted assets
SA	Standardised Approach (market price risk)
SFA	Supervisory Formula Approach
SFTs	Securities financing transactions
SLLA	Specific loan loss allowance
SME	Small and medium-sized enterprises
SolvV	German Solvency Regulation
SPV	Special purpose vehicle
S-Rating	Sparkassen Rating- und Risikosysteme GmbH
SREP	Supervisory Review and Evaluation Process
STA	Standardised Approach (operational risks)
SVWL	Sparkassenverband Westfalen-Lippe
T1	Tier 1 capital (T1 = CET1 + AT1)
T2	Tier 2 capital
TC	Total capital (TC = T1 + T2)
VS-KA	Credit Committee of the Board of Managing Directors
WpHG	German Securities Trading Act (Wertpapierhandelsgesetz)
WpDVerOV	German Investment Services Conduct of Business and Organisation Regulation
WpHGMaAnzV	WpHG Employee Notification Regulation

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