Deutsche Bank

Pillar 3 Report 2015

Passion to Perform

Content

Introduction

Disclosures according to Pillar 3 of the Basel 3 Capital Framework

The purpose of this Report is to provide Pillar 3 disclosures of the Group as required by the global regulatory framework for capital and liquidity, established by the Basel Committee on Banking Supervision, also known as Basel 3. On European level these are implemented in the disclosure requirements as laid down in Part Eight of the “Regulation (EU) No 575/2013 on prudential requirements for credit institutions and investment firms” (Capital Requirements Regulation, or “CRR”) and the “Directive 2013/36/EU on access to the activity of credit institutions and the prudential supervision of credit institutions and investment firms” (Capital Requirements Directive 4, or “CRD 4”). Germany implemented these CRD 4 requirements into national law in Section 26a of the German Banking Act (“Kreditwesengesetz” or “KWG”). Per regulation it is not required to have Pillar 3 disclosures audited. As such the information provided in this Pillar 3 Report is unaudited. In this report, we describe our risk quantification approaches in chapter “Risk Quantification and Measurement" and actual results are provided in the subsequent chapters thereafter.

Location of Pillar 3 disclosures

This report provides the Basel III Pillar 3 disclosures to the extent that these required Pillar 3 disclosures are not included in the Deutsche Bank Annual Report 2015. Where Pillar 3 disclosure elements are located in the Annual Report of Deutsche Bank, they are generally referenced from the Pillar 3 Report to the Annual Report accordingly. The following table provides an overview of the location of the required Pillar 3 disclosures in the Deutsche Bank Annual Report 2015.

Main Pillar 3 disclosures in our Annual Report and our Pillar 3 Report

Pillar 3 disclosure topic with reference to CRR-Article	Primary location in our Annual Report	Primary Location in our Pillar 3 Report
Scope of disclosure requirements (Article 431)	N/M	Disclosure Process and Governance
Risk management objectives and policies (Article 435)	Risk and Capital Framework, Risk and Capital Management	General Risk Management Framework and Governance, Risk Quantification and Measurement
Scope of application (Article 436)	Introduction	Scope of Application
Own Funds (Article. 437)	Regulatory Capital, Capital Instruments	Regulatory Capital, reference to our webpage
Capital requirements (Article 438)	Internal Capital Adequacy Assessment Process, Development of risk-weighted assets, Internal Capital Adequacy	Internal Capital Model, Regulatory Capital Requirements and Risk-weighted Assets, Development of risk-weighted assets
Exposure to counterparty credit risk (Article 439)	Managing and Mitigation of Credit Risk, Stress Testing and Scenario Analysis, Credit Risk Exposure	Counterparty Credit Risk, Credit Risk Economic Capital Model, Regulatory Application of Credit Risk Mitigation Techniques; Credit Risk Exposure, Counterparty Credit Risk
Capital buffers (Article 440)	Minimum capital requirements and additional capital buffers	Minimum capital requirements and additional capital buffers
Indicators of global systemic importance (Article 441)	Disclosed on our webpage	Disclosed on our webpage
Credit risk adjustments (Article 442)	Asset Quality, Notes “Significant Accounting Policies and Critical Accounting Estimates”, “Financial Instruments carried at Fair Value”, “Fair Value of Financial Instruments not carried at Fair Value”, “Allowance for Credit Losses”	Credit Risk: Regulatory Assessment
Unencumbered assets (Article 443)	Asset Encumbrance	Asset Encumbrance
Use of ECAIs (Article 444)	N/M	Standardized Approach
Exposure to market risk (Article 445)	Trading Market Risk Exposures	Regulatory Capital Requirements and Risk-weighted Assets, Development of Risk-weighted Assets for Market Risk, Market Risk Exposure
Operational risk (Article 446)	Operational Risk Framework	Operational Risk Measurement, Development of risk-weighted assets for Operational Risk
Exposures in equities not included in the trading book (Article 447)	Equity Exposure, Notes “Equity Method Investments”, “Shareholdings”	Equity Investments
Exposure to interest rate risk on positions not included in the trading book (Article 448)	Nontrading Market Risk	N/M
Exposure to securitisation positions (Article 449)	N/M	Securitization, Securitization Measurement, Securitization Details
Remuneration policy (Article 450)	Compensation Report	N/M
Leverage (Article. 451)	Leverage Ratio	Leverage Ratio
Use of the IRB Approach to credit risk (Article 452)	Measuring Credit Risk, Managing and Mitigation of Credit Risk	Credit Risk Measurement, Credit Risk Exposure
Use of credit risk mitigation techniques (Article 453)	Managing and Mitigation of Credit Risk	Regulatory Application of Credit Risk Mitigation Techniques
Use of the Advanced Measurement Approaches to operational Risk (Article 454)	Operational Risk Management	Operational Risk Measurement, Operational Risk Exposure
Use of Internal Market Risk Models (Article 455)	Market Risk Management, Trading Market Risk Exposures	Market Risk Measurement, Market Risk Economic Capital Model, Market Risk Exposure

Disclosure Process and Governance

We have applied the Basel 3 capital framework for the majority of our risk exposures on the basis of internal models for measuring credit risk, market risk and operational risk, as approved by the German Federal Financial Supervisory Authority (Bundesanstalt für Finanzdienstleistungsaufsicht or "BaFin" and the European Central Bank). For purposes of Article 431 CRR, we have adopted a formal risk disclosure policy aiming to support a conclusion that our risk disclosures are in compliance with applicable legal, regulatory and accounting risk disclosure standards and are compiled based upon a set of internally defined principles and related processes. Senior representatives and subject matter experts from Finance and Risk assume responsibility for our risk disclosures and govern our respective risk disclosure processes. Based upon our assessment and verification we believe that our risk disclosures presented throughout this Pillar 3 report appropriately and comprehensively convey our overall risk profile.

Disclosures according to principles and recommendations of the Enhanced Disclosure Task Force (EDTF)

In 2012 the Enhanced Disclosure Task Force ("EDTF") was established as a private sector initiative under the auspice of the Financial Stability Board, with the primary objective to develop fundamental principles for enhanced risk disclosures and to recommend improvements to existing risk disclosures. As a member of the EDTF we adhered to the disclosure recommendations in this Pillar 3 Report.

Basel 3 and CRR/CRD 4

In the European Union, the Basel 3 capital framework was implemented by the "Regulation (EU) No 575/2013 on prudential requirements for credit institutions and investment firms" (Capital Requirements Regulation, or "CRR") published on June 27, 2013, and the "Directive 2013/36/EU on access to the activity of credit institutions and the prudential supervision of credit institutions and investment firms" (Capital Requirements Directive 4, or "CRD 4") published on June 27, 2013. The CRR/CRD 4 framework replaced the laws implementing the international capital adequacy standards as recommended by the Basel Committee on Banking Supervision, commonly referred to as Basel 2 and Basel 2.5. As a single "rulebook", the CRR is directly applicable to credit institutions and investment firms in the European Union. Thus, the need for implementation of national regulatory legislation was eliminated in many instances. As a result, the German Banking Act (KWG) and the German Solvency Regulation (SolvV) were amended to remove all regulations that were supplanted by the CRR. The determination of regulatory own funds, regulatory capital requirements, leverage and liquidity as well as other relevant regulations are now primarily regulated through the CRR. In addition, the CRD 4 was implemented into German law by means of further amendments to the German Banking Act (KWG) and the German Solvency Regulation (SolvV) and accompanying regulations. Jointly, these laws and regulations represent the new regulatory framework applicable in Germany.

The new regulatory framework became effective on January 1, 2014, subject to transitional rules. When referring to Deutsche Bank results according to transitional rules we use the term "CRR/CRD 4". When referring to results according to full application of the final framework (without consideration of applicable transitional methodology) we use the term "CRR/CRD 4 fully loaded". In some cases, CRR/CRD 4 maintains transitional rules that had been adopted in earlier capital adequacy frameworks through Basel 2 or Basel 2.5. These relate e.g. to the risk weighting of certain categories of assets and include rules permitting the grandfathering of equity investments at a risk-weight of 100 %. In these cases, our CRR/CRD 4 fully loaded methodology assumes that the impact of the expiration of these transitional rules will be mitigated through sales of the underlying assets or other measures prior to the expiration of the grandfathering provisions.

The new minimum capital ratios were phased in through 2015. The minimum capital ratio has increased for Common Equity Tier 1 from 4 % in 2014 to 4.5 % in 2015. The development and maintenance of a high quality capital base which should primarily consist of Common Equity Tier 1 reflects one of the core elements of the CRR/CRD 4 framework. Specific regulatory adjustments are also subject to transitional rules. For instance, new deduction requirements such as deductions for deferred tax assets that rely on future profitability or deductions for indirect and synthetic holdings of own instruments and capital instruments issued by financial sector entities are phased in. The phase in percentage was in general 40 % in 2015 compared to 20 % in 2014. New capital buffer requirements are phased in from 2016 to 2019.

The CRR/CRD 4 framework further introduced revised capital requirements for counterparty credit risk. This included a new risk charge for potential mark-to-market losses due to a deterioration of the credit worthiness of a counterparty (credit valuation adjustment risk charge) and higher risk weights for exposures to all unregulated financial sector entities and to large regulated financial sector entities. In 2014 the transitional rule for the calculation of market risk capital requirements for trading book securitizations under the Market Risk Standardized Approach ended, i.e. in 2015 both the long and short positions are subject to a capital charge whilst previously only the higher of the capital requirements for long and short positions had to be considered.

Additionally, the leverage ratio has been introduced as a non-risk based capital requirement to complement the risk-based capital requirements. The CRR/CRD 4 requires banks to calculate and disclose a regulatory leverage ratio that is generally based on the accounting value as the relevant exposure measure for assets. Specific regulatory exposure measures apply to derivatives and securities financing transactions and off-balance sheet exposures must be added to determine the total leverage exposure.

The CRR/CRD 4 framework further introduced new liquidity standards. The Liquidity Coverage Ratio (LCR) aims to measure a bank's short-term resilience to a severe liquidity stress scenario during a stress period of 30 calendar days. Detailed rules for the calculation of the LCR are set out in the delegated act adopted in October 2014. The LCR became a binding minimum requirement as of 1 October 2015 and is phased in progressively: 60 % from 1 October 2015, 70 % from 2016, 80 % from 2017 and 100 % from 2018, respectively.

The Net Stable Funding Ratio (NSFR) requires banks to maintain a stable funding profile in relation to their on- and off-balance sheet exposures. It is expected that revised NSFR rules based on the final Basel framework will be published in 2016 and that a binding minimum ratio for the NSFR will apply from 2018.

There are still some interpretation uncertainties with regard to CRR/CRD 4 rules and some of the related binding Technical Standards are not yet available in their final version. Thus, we will continue to refine our assumptions and models in line with evolution of our as well as the industry's understanding and interpretation of the rules. Against this background, current CRR/CRD 4 measures may not be comparable to previous expectations. Also, our CRR/CRD 4 measures may not be comparable with similarly labeled measures used by our competitors as our competitors' assumptions and estimates regarding such implementation may differ from ours.

ICAAP, ILAAP and SREP

The Internal Capital Adequacy Assessment Process (“ICAAP”) as stipulated in Pillar 2 of Basel 3 requires banks to identify and assess risks, maintain sufficient capital to face these risks and apply appropriate risk-management techniques to maintain adequate capitalization.

Our ICAAP is a group-wide process that involves various functions, policies, procedures, and methodologies. We calculate, assess, and monitor the capital adequacy position at the Group and for ICAAP relevant legal entities to ensure adequate capitalization against our defined risk appetite on an ongoing and forward looking basis both for actual and also stressed conditions. Under Pillar 2, we have adopted a Gone Concern methodology as our primary measure of Internal Capital Adequacy (ICA) under ICAAP. To determine capital adequacy, we measure our EC demand against the capital supply with an aim of attaining a capital supply to Economic Capital demand ratio of above 140% as set out in our risk appetite framework. Our primary ”Gone Concern” approach is supplemented by our ”Going Concern” framework. Just like the “Gone Concern” approach, the “Going Concern” approach integrates key risk practices to ensure that the regulatory minimum is maintained even in a severe stress scenario and closely interplays with our processes related to risk appetite, capital planning, stress testing, and escalation and recovery measures.

The Internal Liquidity Adequacy Assessment Process (“ILAAP”) similar to ICAAP focuses on maintaining sufficient liquidity risk management. We calculate, assess and monitor the liquidity and funding position for both Group and all ILAAP relevant Legal Entities to foster an adequate liquidity and funding management on an ongoing and forward looking basis. The assessment process takes account of the liquidity and funding risks to which the Group is exposed; how these risks are identified, monitored and measured. Within the Group, liquidity and funding risks are managed within a cohesive liquidity risk management and governance framework and the ILAAP aims to demonstrate how this framework operates to effectively manage risks.

The Supervisory Review and Evaluation Process (“SREP”) refers to the common methodology and standards used by the European Central Bank (ECB) in its role under the Single Supervisory Mechanism (SSM). In accordance with Article 97 of the Capital Requirements Directive (CRD IV), supervisors regularly review the arrangement, strategies, process and mechanisms implemented by banks and evaluate: (a) the risks to which the institution might be exposed; (b) the risks the institution might pose to the financial system in general; and (c) the risks revealed by stress testing. The SREP process encompasses three main elements: a supervisory risk system (RAS); a comprehensive review of the bank’s ICAAP and ILAAP framework; and finally, the evaluation of the bank’s capital and liquidity needs. Under SREP, the ECB may impose minimum capital requirements which are more stringent than the statutory requirements set forth in the CRR, the German Banking Act or the related regulations.

Scope of Application

Scope of the Regulatory Consolidation

Deutsche Bank Aktiengesellschaft ("Deutsche Bank AG"), headquartered in Frankfurt am Main, Germany, is the parent institution of the Deutsche Bank Group of institutions (the "regulatory group"), which is subject to the supervisory provisions of the KWG and the SolvV, including the references to the CRR and CRD 4. Under Section 10a KWG in conjunction with Articles 11 and 18 CRR, a regulatory group of institutions consists of an institution (meaning a credit institution or an investment firm) as the parent company, and all other institutions and financial institutions (comprising inter alia financial holding companies, payment institutions, asset management companies) that are its subsidiaries within the meaning of Article 4 (16) CRR or are included voluntarily. Subsidiaries are fully consolidated, while companies which are not subsidiaries are included on a pro-rata basis.

Insurance companies and companies outside the banking and financial sector are not consolidated in the regulatory group of institutions. In case a regulatory group of institutions and its subsidiaries and participations in the insurance sector are classified as a 'financial conglomerate', the German Act on the Supervision of Financial Conglomerates (Finanzkonglomerate-Aufsichtsgesetz) is applicable according to which insurance companies have to be included in an additional capital adequacy calculation (also referred to as "solvency margin"). We were designated by the BaFin as a financial conglomerate in October 2007.

As of 31 December 2015, Deutsche Bank AG fully applied the exemptions pursuant to Section 2a (1) KWG in conjunction with Article 7 (3) CRR and Section 2a (2) KWG in conjunction with Section 25a (1) sent. 3 KWG (so-called "parent waiver") pursuant to which it may waive the application of provisions on own funds (Part II CRR), capital requirements (Part III CRR), large exposures (Part IV CRR), exposures to transferred credit risks (Part V CRR) and leverage (Part VII CRR) as well as certain risk management requirements (Section 25a (1) and Section 3 KWG) on a stand-alone basis.

Deutsche Bank AG's subsidiaries Deutsche Bank Privat- und Geschäftskunden AG, norisbank GmbH, Deutsche Bank Europe GmbH and Sal. Oppenheim jr. & Cie. AG & Co. KGaA, which all were consolidated within the Deutsche Bank regulatory group, fully applied the exemptions pursuant to Section 2a(1) KWG in conjunction with Article 7(1) CRR and Section 2a(2) KWG in conjunction with Section 25a(1) sent. 3 KWG (so-called "subsidiary waiver") pursuant to which they may waive certain regulatory requirements to the same extent as Deutsche Bank AG (see preceding paragraph) on a stand-alone basis. In addition, Deutsche Bank AG's subsidiaries Deutsche Immobilien Leasing GmbH and Leasing Verwaltungsgesellschaft Waltersdorf mbH, also consolidated within the Deutsche Bank regulatory group, applied the "subsidiary waiver" rules to the extent applicable to them, i.e. with regard to certain risk management requirements pursuant to Section 25a (1) and § 3 KWG.

These exemptions are available only for group companies in Germany and can only be applied if, amongst others, the risk strategies and risk management processes of Deutsche Bank AG or the Group also include the companies that apply the "waiver" rules and there is no material practical or legal impediment to the prompt transfer of own funds or repayment of liabilities from Deutsche Bank AG to the respective subsidiaries or from subsidiaries in the Group to Deutsche Bank AG.

The application of the aforementioned exemptions and the fulfilment of the respective requirements were notified to the BaFin and Deutsche Bundesbank on the basis of Section 2a (1) or (6) KWG in its version applicable until 31 December 2013. Pursuant to Section 2a (5) KWG the exemptions based on these notifications are grandfathered, i.e. the "waivers" are deemed to be granted under the current CRR and KWG rules.

The Group entities within the scope of prudential consolidation are subject to local regulatory requirements, tax implications and potentially exchange controls. We are not aware of any material impediments existing for capital distribution within the Group.

The principles of consolidation for our regulatory group are not identical to those applied for our financial statements. Nonetheless, the majority of our subsidiaries in the regulatory group are also fully consolidated in accordance with IFRS in our consolidated financial statements.

The main differences between regulatory and accounting consolidation are:

– Subsidiaries outside the banking and financial sector are not consolidated within the regulatory group of institutions, but are included in the consolidated financial statements according to IFRS.
– Most of our Special Purpose Entities ("SPEs") consolidated under IFRS do not meet the regulatory subsidiary definition pursuant to Article 4 (1) (16) CRR and were consequently not consolidated within our regulatory group. However, the risks resulting from our exposures to such entities are reflected in the regulatory capital requirements.
– Only a few entities included in the regulatory group are not consolidated as subsidiaries for accounting purposes but are treated differently: eleven, mostly immaterial subsidiaries which were not consolidated for accounting purposes were consolidated within the regulatory group; a further two entities are jointly controlled by their owners and were consolidated on a pro-rata basis within the regulatory group while they were accounted according to the equity method for financial accounting purposes; another three entities were voluntarily consolidated on a pro-rata basis for regulatory purposes, of which one entity was treated as an available-for-sale-asset, one entity was consolidated according to the SPE-rules and one entity was considered as other asset in our financial statements according to IFRS.

As of year-end 2015, our regulatory group comprised 677 entities (excluding the parent Deutsche Bank AG), of which five were consolidated on a pro-rata basis. The regulatory group comprised 122 credit institutions, two payment institutions, 58 financial services institutions, 334 financial enterprises, eight investment fund management companies and 153 ancillary services enterprises.

As of year-end 2014, our regulatory group comprised 769 entities (excluding the parent Deutsche Bank AG), of which six were consolidated on a pro-rata basis. Our regulatory group comprised 115 credit institutions, two payment institution, 60 financial services institutions, 396 financial enterprises, eight investment fund management companies and 188 ancillary services enterprises.

102 entities were exempted from regulatory consolidation pursuant to Section 31 (3) KWG in conjunction with Article 19 CRR as per year end 2015 (year end 2014: 106 entities). These regulations allow the exclusion of small entities in the regulatory scope of application from consolidated regulatory reporting if either their total assets (including off-balance sheet items) are below € 10 million or below 1 % of our Group's total assets. None of these entities needed to be consolidated in our financial statements in accordance with IFRS.

These regulatory unconsolidated entities have to be included in the deduction treatment for significant investments in financial sector entities pursuant to Article 36 (1) (i) CRR in conjunction with Article 43 (c) CRR. The book values of our participations in their equity included in the deduction treatment amounted to in total € 14 million as per year end 2015 (year end 2014: € 40 million). We further have applied the deduction treatment to 233 regulatory unconsolidated entities in the financial sector (including three insurance entities) where we have an investment of more than 10 % of the capital of these entities as per year end 2015 (year end 2014: 248 entities). Pursuant to Article 36 (1) (i) CRR and in conjunction with Article 48 CRR, investments in the capital of financial sector entities have to be deducted from CET 1 capital if they exceed in sum 10 % of the institution's own CET 1 capital or if they exceed in aggregate with deferred tax assets that rely on future profitability and arise from temporary differences 15 % of the relevant CET 1 capital. Since we are classified as a financial conglomerate, investments in insurance entities included in our solvency calculation at the financial conglomerate level were not deducted from our regulatory capital. The investments in insurance entities were included into our risk-weighted assets calculation. Our treatment of these investments in insurance entities, which is unchanged since the Deutsche Bank Group received the financial conglomerate-status in 2007 is in line with the former KWG regulation. The application for permission of this treatment by the regulating authority, prescribed by Art. 49 (1) c CRR, is pending.

Financial Conglomerate

Deutsche Bank Group was designated as a financial conglomerate by the BaFin in October 2007. Therefore, the German Act on the Supervision of Financial Conglomerates (Finanzkonglomerate-Aufsichtsgesetz or FKAG) in conjunction with the Financial Conglomerates Solvency Regulation (FkSolV) is applicable to us.

The financial conglomerate of Deutsche Bank consists predominantly of entities that belong to the regulatory group and a small number of individual insurance sector entities. Three of these insurance entities are deducted from our regulatory capital due to immateriality. The material insurance sector entities are:

– Abbey Life Assurance Company Limited
– DB Re S.A.
– DB Vita S.A.
– Legacy Reinsurance, LLC
– Primelux Insurances S.A.

These insurance entities are included in the additional capital adequacy calculation (also referred to as “solvency margin”) for the financial conglomerate. The insurance sector subsidiaries of Deutsche Bank in aggregate make up only about 1 % of the entire Deutsche Bank Group IFRS balances.

Legally all these insurance companies are not directly associated; i.e. none of these insurance companies holds a participation in another insurance company, so that technically these insurance companies do not form a group on their own.

From the overall governance perspective these insurance companies are integrated, in principle, into Deutsche Bank Group no differently from any other legal entity of Deutsche Bank Group. This is, among others, evidenced by the fact that Deutsche Bank issues its group policies to any subsidiary, regardless of whether such subsidiary forms part of the prudentially consolidated group (according to Article 18 CRR) or not. The applicability of relevant group policies, in turn, ensures that insurance sector subsidiaries maintain effectively the same governance and management structures as the rest of the regulatory group. For further details with regard to the organizational requirements in accordance with Section 25 (4) FKAG please refer to our Corporate Governance Report and the sections “Risk Management Framework” and “Risk Governance” within our Risk Report.

Additional Disclosure Requirements for Significant Subsidiaries

In line with Article 13 (1) CRR our significant subsidiaries and those subsidiaries which are of material significance for their local market are required to disclose information to the extent applicable in respect of own funds, capital requirements, capital buffers, credit risk adjustments, remuneration policy, leverage and use of credit risk mitigation techniques on an individual or sub-consolidated basis.

For some of our subsidiaries located in Germany it is not mandatory to calculate or report regulatory capital or leverage ratios on a stand-alone basis if they qualify for the exemptions codified in the waiver rule pursuant to Section 2a KWG in conjunction with Article 7 CRR. In these cases, the above-mentioned disclosure requirements are also not applicable for those subsidiaries.

In order to identify significant subsidiaries a catalogue of criteria has been developed, applied to all subsidiaries classified as “credit institution” or “investment firm” under the CRR and not qualifying for a waiver status pursuant to Section 2a KWG in conjunction with Article 7 CRR. A subsidiary is required to comply with the requirements in Article 13 CRR (as described above) if at least one criterion mentioned in the list below has been met. The criteria have been defined in relation to our business activities as well as the complexity and risk profile of the respective subsidiary. All figures referenced below are calculated on an IFRS basis as of December 31, 2015:

– Total Assets of € 30 billion or more (on individual or sub-consolidated basis)
– Five percent or more of our risk-weighted assets on group level
– 20 percent or more of the gross domestic product in its respective country, in which the subsidiary is located, but at least total assets of € five billion (on individual or sub-consolidated basis)
– Institutions directly supported by the European Stability Mechanism (ESM), European Financial Stability Facility (EFSF) or similar mechanisms
– Institutions belonging to the three largest institutions in their respective countries, in which the subsidiary is located (referring to the amount of total assets)
– Classification as “local systemically important institution” by the local competent authority

None of our subsidiaries have received support from any kind of stability mechanism.

As a result of the selection process described above, we identified four subsidiaries as “significant” for the Group and hence required to provide additional disclosure requirements as laid down in Article 13 CRR:

– Deutsche Postbank AG, Germany
– Deutsche Bank Luxembourg S.A., Luxembourg
– Deutsche Bank Securities Inc., United States of America
– Deutsche Bank Trust Company Americas, United States of America

The additional disclosures for our significant subsidiaries in relation to Article 13 CRR can be found either within the Pillar 3 Reports of the respective subsidiary as published on its website or on the Group’s website for our U.S. entities.

General Risk Management Framework and Governance

Risk Management Principles and Governance

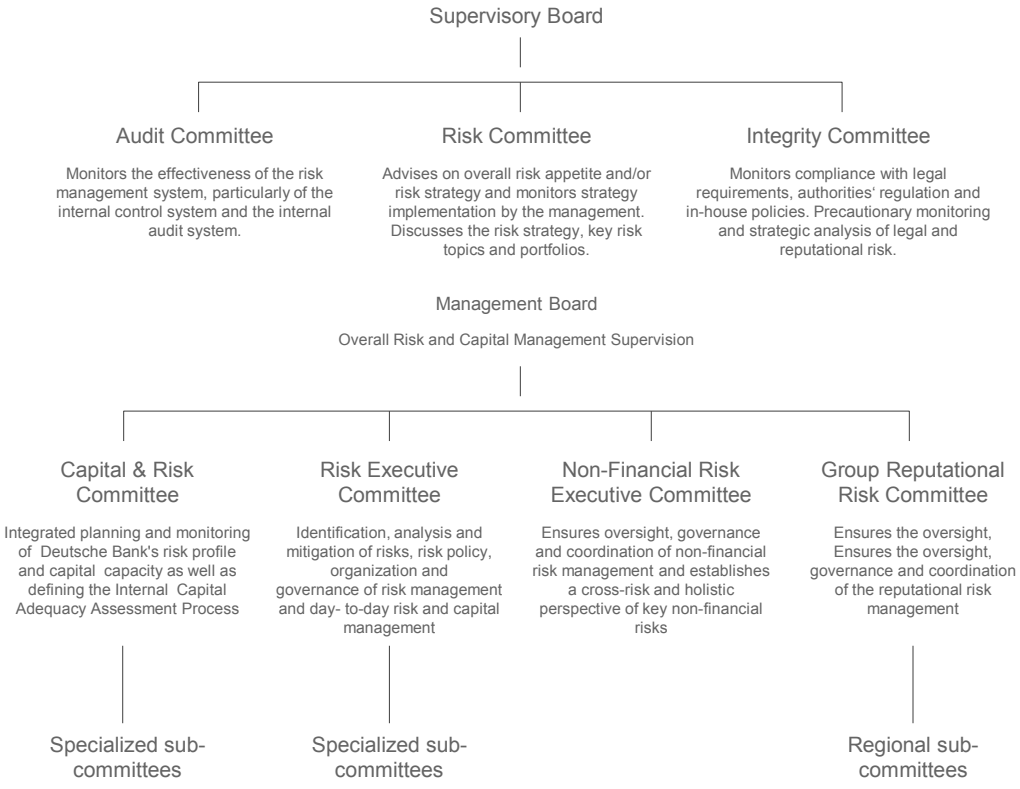
The diversity of our business model requires us to identify, assess, measure, aggregate and manage our risks, and to allocate our capital among our businesses. Risk and capital are managed via a framework of principles, organizational structures and measurement and monitoring processes that are closely aligned with the activities of the divisions and business units:

- Core risk management responsibilities are embedded in the Management Board and delegated to senior risk management committees responsible for execution and oversight. The Supervisory Board regularly monitors the risk and capital profile.
- We operate a Three Lines of Defense (“3LoD”) risk management model. The 1st Line of Defense (“1st LoD”) are all the business divisions and service providing infrastructure areas (Group Technology Operations and Corporate Services) who are the "owners" of the risks. The 2nd Line of Defense (“2nd LoD”) are all the independent risk and control infrastructure functions. The 3rd Line of Defense (“3rd LoD”) is Group Audit, which assures the effectiveness of our controls. The 3LoD model and the underlying design principles apply to all levels of the organization i.e. group-level, regions, countries, branches and legal entities. All 3LoD are independent of one another and accountable for maintaining structures that ensure adherence to the design principles at all levels.
- Risk strategy is approved by the Management Board on an annual basis and is defined based on the Group Risk Appetite and Strategic and Capital Plan in order to align risk, capital and performance targets.
- Cross-risk analysis reviews are conducted across the Group to validate that sound risk management practices and a holistic awareness of risk exist.
- All material risk types are managed via risk management processes, including: credit risk, market risk, operational risk, liquidity risk, business risk, reputational risk, model risk and compliance risk. Modeling and measurement approaches for quantifying risk and capital demand are implemented across the material risk types. Non-standard risks (reputational risk, model risk, compliance risk) are implicitly covered in our economic capital framework, primarily within operational and strategic risk. For more details, refer to section “Risk and Capital Management” for the management process of our material risks.
- Monitoring, stress testing tools and escalation processes are in place for key capital and liquidity thresh-olds and metrics.
- Systems, processes and policies are critical components of our risk management capability.
- Recovery planning provides the escalation path for crisis management governance and supplies senior management with a list of actions designed to improve the capital and liquidity positions in a stress event.
- Resolution planning is closely supervised by our resolution authority, the Single Resolution Board (“SRB”). It provides a strategy to manage Deutsche Bank in case of default. It is designed to prevent the need for tax payer bailout and strengthen financial stability by the continuation of critical services delivered to the wider economy.

Risk Governance

– Our operations throughout the world are regulated and supervised by relevant authorities in each of the jurisdictions in which we conduct business. Such regulation focuses on licensing, capital adequacy, liquidity, risk concentration, conduct of business as well as organizational and reporting requirements. The European Central Bank in connection with the competent authorities of EU countries which joined the Single Supervisory Mechanism via the Joint Supervisory Team act in cooperation as our primary supervisors to monitor our compliance with the German Banking Act and other applicable laws and regulations as well as the CRR/CRD 4 framework and respective implementations into German law.
– European banking regulators assess our capacity to assume risk in several ways, which are described in more detail in the section “Regulatory Capital” of this report.
– Several layers of management provide cohesive risk governance:
– The Supervisory Board is informed regularly and – as necessary – on special developments in our risk situation, risk management and risk controlling, as well as on our reputation and material litigation cases. It has formed various committees to handle specific tasks.
– At the meetings of the Risk Committee, the Management Board reports on credit, market, liquidity, busi-ness, compliance, model, operational as well as litigation and reputational risks. It also reports on credit risk strategy, credit portfolios, loans requiring a Supervisory Board resolution pursuant to law or the Articles of Association, questions of capital resources and matters of special importance due to the risks they entail. The Risk Committee deliberates with the Management Board on issues of the aggregate risk disposition and the risk strategy and supports the Supervisory Board in monitoring the implementation of this strategy.
– The Integrity Committee monitors the Management Board’s measures that promote the company’s compliance with legal requirements, authorities’ regulations and the company’s own in-house policies. It also reviews the Bank’s Code of Business Conduct and Ethics, monitors and analyzes the Bank’s legal and reputational risks and advocates their avoidance.
– The Audit Committee monitors, among other matters, the effectiveness of the risk management system, particularly the internal control system and the internal audit system.
– The Management Board is responsible for managing Deutsche Bank Group in accordance with the law, the Articles of Association and its Terms of Reference with the objective of creating sustainable value in the interest of the company, thus taking into consideration the interests of the shareholders, employees and other stakeholders.
– The Management Board is responsible for establishing a proper business organization, encompassing an appropriate and effective risk management. In agreement with the Supervisory Board and with the aim to ensure an effective governance of resources and risk, the Management Board has established the Capital and Risk Committee (“CaR”), the Risk Executive Committee (“Risk ExCo”),the Non-Financial Risk Executive Committee (“NFR ExCo”), and the Group Reputational Risk Committee (“GRRC”) whose roles are described in more detail below. In the fourth quarter of 2015, the Management Board streamlined the number of directly established committees. Hence, a revised committee governance structure is being prepared which will, going forward, combine risk management-relevant matters under one committee, starting April 1, 2016.

Risk Management Governance Structure of the Deutsche Bank Group



The following functional committees are central to the management of risk in Deutsche Bank:

—The CaR oversees and controls integrated planning and monitoring of our risk profile and capital capacity, providing an alignment of risk appetite, capital requirements and funding/liquidity needs with Group, divisional and sub-divisional business strategies. It provides a platform to discuss and agree strategic issues impacting capital, funding and liquidity among Risk, Government & Regulatory Affairs, Finance and the business divisions. The CaR initiates actions and/or makes recommendations to the Management Board. It is also responsible for monitoring our risk profile against our risk appetite on a regular basis and determining whether a matter should be escalated or other actions should be taken. The CaR monitors the performance of our risk profile against early warning indicators and recovery triggers, and provides recommendations to the Management Board to invoke defined processes and/or actions under the recovery governance framework if required.

—The Risk ExCo identifies, controls and manages all risks including risk concentrations at Group level. It is responsible for risk policy, the organization and governance of risk management and oversees the execution of risk and capital management including identification, assessment and risk mitigation, within the scope of the risk and capital strategy (Risk and Capital Demand Plan) approved by the Management Board.

—The Non-Financial Risk Executive Committee (“NFR ExCo”) oversees, governs and coordinates the management of non-financial risks in Deutsche Bank Group and establishes a cross-risk and holistic perspective of the key non-financial risks of the Group. It is tasked to define the non-financial risk appetite framework, to monitor and control the non-financial risk operating model, including the Three Lines of Defense principles and interdependencies between business divisions and control functions and within control functions.

—The Group Reputational Risk Committee (“GRRC”) is responsible for the oversight, governance and coordination of the reputational risk management and provides for an appropriate look-back and a lessons learnt process. It reviews and decides all Reputational Risk issues escalated by the Regional Reputational Risk Committees (“RRRCs”) and RRRC decisions which have been appealed by the Units. It provides guidance on Group-wide reputational risk matters, including communication of sensitive topics, to the appropriate levels of DB Group. The RRRCs which are sub-committees of the GRRC, are responsible for the oversight, governance and coordination of the management of reputational risk in the respective regions on behalf of the Management Board.

—The Portfolio Risk Committee (“PRC”) supports the Risk ExCo and the CaR with particular emphasis on the management of Group-wide risk patterns including the review and governance of key concentration risks.

—The Living Wills Committee (“LWC”) is the dedicated sub-committee of the CaR with focus on recovery and resolution planning. It oversees the implementation of our recovery and resolution plans and en-hancements to the Group’s operational readiness to respond to severe stress or the threat of a severe stress.

—The Regulatory Capital Committee (“RCC”) is a further sub-committee of our Capital and Risk Committee. It is tasked with oversight on our risk quantification models. The RCC has also responsibility for the oversight and control of our Internal Capital Adequacy Assessment Process (“ICAAP”). Together with the PRC, It oversees our Group-wide stress tests, reviews the results and proposes management action, if required. It monitors the effectiveness of the stress test process and aims to drive continuous improvement of our stress testing framework.

Multiple senior members are members of the CaR as well as the Risk ExCo, NFR ExCo and/or GRRC, which facilitates the information flow between these committees. We will continue to enhance the aforementioned committee structure going forward culminating into a single committee overseeing risk matters that are established by the Management Board namely the Group Risk Committee.

Our Chief Risk Officer (“CRO”), who is a member of the Management Board, has Group-wide, supra-divisional responsibility for the management of all credit, market and operational risks as well as for the comprehensive control of risk, i.e. including liquidity risk, and continuing development of methods for risk measurement. In addition, the Chief Risk Officer is responsible for monitoring, analyzing and reporting risk on a comprehensive basis, including asset and liability gap, capital, liquidity, legal, compliance and regulatory risks, as well as other non-financial risks.

Our Management Board confirms, for the purpose of Article 435 CRR, that our risk management systems are adequate with regard to our risk profile and strategy.

Management of Material Risks

The management of credit, market, operational, liquidity, business (strategic), reputational, model and compliance risks is narrated in the Annual Report under chapter “Risk and Capital Management”. Please refer to the chapter for more details. For our securitization business, the framework is narrated in section “Securitization” below, measurement approach in section “Risk Quantification and Measurement – Securitization Measurement” and section “Securitization Details” for the exposure figures.

Securitization

Overview of our Securitization Activities

We engage in various business activities that use securitization structures. The main purposes are to provide investor clients with access to risk and returns related to specific portfolios of assets, to provide borrowing clients with access to funding and to manage our own credit risk exposure. In order to achieve our business objectives, we act as originator, sponsor and investor on the securitization markets.

Article 4(1)(61) CRR defines which types of transactions and positions must be classified as securitization transactions and securitization positions for regulatory reporting.

Securitization transactions are basically defined as transactions in which the credit risk of a securitized portfolio is divided into at least two securitization tranches and where the payments to the holders of the tranches depend on the performance of the securitized portfolio. The different tranches are in a subordinate relationship that determines the order and the amount of payments or losses assigned to the holders of the tranches (waterfall). Loss allocations to a junior tranche will not already lead to a termination of the entire securitization transaction, i.e., senior tranches survive loss allocations to subordinate tranches.

Securitization positions can be acquired in various forms including investments in securitization tranches, derivative transactions for hedging interest rate and currency risks included in the waterfall, liquidity facilities, credit enhancements, unfunded credit protection or collateral for securitization tranches.

Assets originated or acquired with the intent to securitize follow the general approach for the assignment to the regulatory banking or trading book. Further details are described in chapter “Allocation of Positions to the Regulatory Trading book”.

The approach for the calculation of the regulatory capital requirements for banking book and trading book securitization positions is prescribed by the European Capital Requirements Regulation (“CRR”).

In the banking book positions, we act as originator, sponsor and investor. As an originator we use securitizations primarily as a strategy to reduce credit risk, mainly through the Credit Portfolio Strategies Group (“CPSG”). It uses, among other means, synthetic securitizations to manage the credit risk of loans and lending-related commitments of the international investment-grade portfolio, leveraged portfolio, and the medium-sized German companies’ portfolio within the corporate divisions of CB&S and GTB. The credit risk is predominantly transferred to counterparties through synthetic collateralized loan obligations mainly in the form of financial guarantees and, to a lesser extent, as credit derivatives providing first loss protection.

On a limited basis we have entered into securitization transactions as part of an active liquidity risk management strategy during 2008 and 2009, some of which we replaced in 2015 with a new securitization transaction. These transactions do not transfer credit risk and are therefore not included in the quantitative part of this section.

Within our existing role as sponsor, we continue to establish and manage securitization schemes in which special purpose entities purchase exposures from third-party entities on behalf of investors. In these transactions, we have substantial influence on the selection of the purchased exposures and ultimate composition of the securitized portfolios.

Furthermore, we act as an investor in third party securitizations through the purchase of tranches from third party-issued securitizations, or by providing liquidity, credit support or other form of financing. Additionally, we assist third party securitizations by providing derivatives related to securitization structures. These include currency, interest rate, equity and credit derivatives.

Overall, the securitization positions are exposed to the performance of diverse asset classes, including primarily corporate senior loans or unsecured debt, consumer debt such as auto loans or student loans, as well as residential or commercial first and second lien mortgages. We are active across the entire capital structure with an emphasis on the more senior tranches. The subset of re-securitization is predominantly backed by securitizations with corporate obligations in the underlying pools.

In the trading book, we act as originator, sponsor and investor. In the role of investor, our main objective is to serve as a market maker in the secondary market. The market making function consists of providing liquidity for our customers and providing two way markets (buy and sell) to generate flow trading revenues. In the role of originator, we predominately engage in short synthetic single tranche CDOs (SST-CDOs) backed by loans to corporates or SMEs. Also in our role as originator, we finance loans to be securitized, predominantly in the commercial real estate business. Trading book activities where we have the role of a sponsor (excluding activities derived from multi-seller originator transactions) as described above are minimal.

We hold a portfolio of asset backed securities (“ABS”) correlation trades within the NCOU portfolio that is in the process of being wound down. Other than facilitating the de-risking, no new activity is being generated. Our securitization desks trade assets across all capital structures, from senior bonds with large subordination to first loss subordinate tranches, across both securitizations and re-securitizations. Securitization positions consist mostly of residential mortgage backed securities (“RMBS”) and commercial mortgage backed securities (“CMBS”) backed by first and second lien loans, collateralized loan obligations (“CLOs”) backed by corporate senior loans and unsecured debt and consumer ABS backed by secured and unsecured credit.

Similar to other fixed income and credit assets, securitized trading volume is linked to global growth and geopolitical events which affect liquidity and can lead to lower trading volumes, as observed during the crisis. Current changes to regulation and uncertainty over final implementation may lead to increased volatility and decreased liquidity/trading volumes across securitized products. Other potential risks that exist in securitized assets are prepayment, default, loss severity and servicer performance. Note that trading book assets are marked to market and the previous mentioned risks are reflected in the position’s price.

Accounting and Measurement Policies for Securitizations

Our accounting policies are included in Note 1 “Significant Accounting Policies and Critical Accounting Estimates”. The most relevant accounting policies for the securitization programs originated by us, and where we hold assets purchased with the intent to securitize, are “Principles of Consolidation”, “Financial Assets and Financial Liabilities” and “Derecognition of Financial Assets and Financial Liabilities”, see also Note 14 “Financial Instruments carried at Fair Value”. All the above references are found in our Annual Report. For measurement and quantification of both our banking and trading book securitizations, please refer to section “Risk Quantification and Measurement” of this report.

Securitization Management

Management of Banking Book Securitizations

Primary recourse for securitization exposures lies with the underlying assets. The related risk is mitigated by credit enhancement typically in the form of overcollateralization, subordination, reserve accounts, excess interest, or other support arrangements. Additional protection features include performance triggers, financial covenants and events of default stipulated in the legal documentation which, when breached, provide for the acceleration of repayment, rights of foreclosure and/or other remediation.

The initial due diligence for new banking book exposures usually includes any or all of the following, depending on the specifics of the transaction: (a) the review of the relevant documents including term sheets, servicer reports or other historical performance data, third-party assessment reports such as rating agency analysis (if externally rated), etc., (b) modeling of base and downside scenarios through asset-class specific cash-flow models, (c) servicer reviews to assess the robustness of the servicer's processes and financial strength. The result of this due diligence is summarized in a credit and rating review which requires approval by an appropriate level of credit authority, depending on the size of exposure and internal rating assigned.

Compliance with the regulatory requirements for risk retention, due diligence and monitoring according to the applicable regulatory requirements is part of our credit review process and the relevant data is gathered for reporting purposes with the support of the IT systems used for the credit review process and the process for financial reporting

Ongoing regular performance reviews include checks of the periodic servicer reports against any performance triggers/covenants in the loan documentation, as well as the overall performance trend in the context of economic, geographic, sector and servicer developments. Monitoring of the re-securitization subset takes into consideration the performance of the securitized tranches' underlying assets, to the extent available.

For longer-term lending-related commitments an internal rating review is required at least annually. Significant negative or positive changes in asset performance can trigger an earlier review date. Full credit reviews are also required annually, or, for highly rated exposures, every other year. Furthermore, there is a separate, usually quarterly, watch list process for exposures identified to be at a higher risk of loss, which requires a separate assessment of asset and servicer performance. It includes a review of the exposure strategy and identifies next steps to be taken to mitigate loss potential. There is no difference in approach for re-securitization transactions.

Evaluation of structural integrity is another important component of risk management for securitization, focusing on the structural protection of a securitization as defined in the legal documentation (i.e., perfection of security interest, segregation of payment flows, and rights to audit). The evaluation for each securitization is performed by a dedicated team who engages third-party auditors, determines audit scopes, and reviews the results of such external audits. The results of these risk reviews and assessments complement the credit and rating review process performed by Credit Risk Management.

Securitization activities have an impact on our liquidity activity. On the one hand, we have entered into securitization transactions as part of an active liquidity risk management strategy during 2008 and 2009, some of which we replaced in 2015 with a new securitization transaction. On the other hand, we are exposed to potential drawdown under the revolving commitments provided under some of our securitization facilities. This liquidity risk is monitored by our Treasury department and is included in our liquidity planning and regular stress testing.

We have identified part of the existing book of securitization transactions as “legacy book” earmarked for de-risking, which forms part of our NCOU. De-risking generally means that existing positions on our books are either partially or completely sold into the market, as far as adequate prices can be achieved. These positions also benefit from reduction through amortization, where applicable. Credit hedging requirements for securitization exposures are mandated in the context of each individual credit approval, and are re-visited at each internal credit or rating review. However, management of credit risk is conducted mostly through avoidance of undue risk concentration on borrower, servicer and asset class levels. Any higher initial underwritings are de-risked to a final hold mandated in the credit approval mainly through syndication, or sales in the secondary market. Success of de-risking is monitored and reported regularly to senior management. There is only very limited credit hedging activity in the banking book.

Furthermore, in the context of structuring securitization transactions, hedging usually takes place to insulate the SPE from interest rate and cross-currency risk – as far as required depending on the assets being included. When this hedging is provided by us, the related counterparty risk to the securitization structure is included in the Credit Risk Management review process and reported as part of the banking book exposure. If this hedging is not provided by us, it is largely conducted with large international financial institutions with strong financials. Such indirect counterparty risk is reported to the hedging counterparty’s credit officer to become part of his/her credit evaluation. Please refer to section “Credit Risk Management” in our Annual Report for detailed information on the credit risk management framework.

Management of Trading Book Securitizations

Our Market Risk Management Governance Framework applies to all securitization positions held within the trading book. The Risk Governance Framework applied to securitization includes policies and procedures with respect to new product approvals, new transaction approvals, risk models and measurements, as well as inventory management systems and trade entry. All securitization positions held within the trading book are captured, reported and limited within the Risk Governance Framework at the global, regional and product levels. Any changes in credit and market risks are also reported.

The limit structure includes value-at-risk and product specific limits. Asset class market value limits are based on seniority/rating and liquidity, where lower rated positions or positions in less liquid asset class are given a lower trading limit. The limit monitoring system captures exposures and flags any threshold breaches. Market Risk Management approval is required for any trades over the limit.

The Market Risk Management Governance Framework also captures issuer (credit) risk for securitization positions in the trading book. MRM’s process manages concentration risks and sets limits at the position level. The limit structure is based on asset class and rating where less liquid positions and those with lower ratings are assigned lower trading limits. Limit management reports are produced to promote position level limit compliance and to detect any potential limit breaches. When positions exceed the respective market value limits on a global basis, MRM approval is required. Further due diligence is performed on positions that require trade approval; this includes analyzing the credit performance of the security and evaluating risks of the trade. In addition collateral level stress testing and performance monitoring is incorporated into the risk management process. The process covers both securitizations and re-securitizations.

The securitization desks incorporate hedges to mitigate credit and interest rate risks on the entire securitization portfolio. Duration and credit sensitivities (DV01s and CS01s) are the primary risk sensitivity measures used to calculate appropriate hedges. Some of the hedging products utilized include plain vanilla interest rate swaps, US Treasury bonds and product specific liquid indices. The market risks of the hedges (both funded and unfunded) are incorporated and managed within our Market Risk Management Governance Framework as described above; and, the counterparty risks of the hedges (both funded and unfunded), which are comprised primarily of major global financial institutions, are managed and approved through a formalized risk management process performed by Credit Risk Management.

Compliance with the CRR rules, as applicable requires that pre-trade due diligence is performed on all relevant positions. It is the responsibility of the respective trading desk to perform the pre-trade due diligence and then record the appropriate data records at trade execution to indicate whether relevant due diligence items have been performed. The pre-trade due diligence items include confirmations of deal structural features, performance monitoring of the underlying portfolio, and any related retention disclosures.

Product Control group within Finance then reviews trade inputs for errors or flag changes, distributes regulatory control reports and serves as the subject matter escalation contact. Upon validation of flag changes or trading desk errors, the Product Control group within Finance will then communicate and action the changes accordingly. Further pre-trade due diligence is performed by MRM for CRR, as applicable for relevant positions exceeding predefined limits (process as described above). Please refer to section “Market Risk Management” in our Annual Report for detailed information on the market risk management framework.

Risk Quantification and Measurement

In this chapter, we outline the quantification approaches we use to measure our risk weighted assets to determine regulatory capital and internal economic capital demand as part of the overall risk management process. First, we focus on the quantification of the risk weighted assets for credit risk (including the measurement of counterparty credit risk and securitizations), market risk and operational risk. Second, we narrate the internal economic capital model for risk types; credit risk, market risk, operational risk, and business risk. The economic capital for reputational, model, and compliance risks is covered partially under operational risk and business risk. Lastly, we elaborate on the quantification approaches used in our group wide stress testing.

Regulatory Capital Model

We measure our credit risk, market risk and operational risk to determine risk weighted assets for regulatory capital requirement purposes in line with CRR/CRD4 as elaborated in the respective sections below.

Credit Risk Measurement

As a general rule, we applied the advanced IRBA for the majority of our advanced IRBA eligible credit portfolios to calculate the regulatory capital requirements according to the CRR/CRD 4 framework, based on respective approvals received from BaFin and ECB. The regulatory approvals obtained as a result of the advanced IRBA audit processes for our regulatory credit exposures allow the usage of currently 68 internally developed rating systems for regulatory capital calculation purposes excluding for exposures in Postbank. Thereof, 37 rating systems were authorized in December 2007. Overall they cover all of our material exposures in the advanced IRBA eligible exposure classes “central governments and central banks”, “institutions”, “corporates”, and “retail”.

As an IRBA institution, we are required to treat specific equity positions and other non-credit obligation assets generally within the IRBA. For these exposure types typically regulatory defined IRBA risk weights are applied.

Our exposures reported under foundation IRBA include parts of Postbank’s corporate portfolios and our specialized lending exposures which receive regulatory risk weights using the so-called ‘supervisory slotting criteria’ approach. Further details of the Foundation Approach are provided in the section “Foundation Internal Ratings Based Approach”.

At Group level, we assign a few remaining advanced IRBA eligible portfolios of small size temporarily to the standardized approach. With regard to these, an implementation plan and approval schedule have been set up and agreed with the Bundesbank, the BaFin and the ECB. A portion of Postbank’s IRBA eligible portfolios is also still temporarily assigned to the standardized approach. Implementation plans for the Group excluding Postbank and for Postbank have been agreed with the BaFin, Bundesbank and the ECB. During 2015, the Integrated Roadmap with an overall Group Level implementation plan has been set on hold as a consequence of the Strategy 2020/Postbank deconsolidation.

Details of the standardized approach and the standardized approach exposures are discussed in the Section “Standardized Approach”.

Our advanced IRBA coverage ratio, excluding Postbank, exceeded, with 97,0 % by exposure value (“EAD”) as well as with 92,8 % by RWA as of December 31, 2015, the European regulatory requirement, remaining nearly unchanged from the levels at December 31, 2014 (96,5 % EAD and 93 % by RWA), using applicable measures according to Section 11 SolvV. These ratios excluded the exposures permanently assigned to the standardized approach (according to Article 150 CRR), other IRBA exposure as well as securitization positions. The regulatory minimum requirements with regard to the respective coverage ratio thresholds have been met at all times.

Credit Risk: Regulatory Assessment

Advanced Internal Ratings Based Approach

The advanced IRBA is the most sophisticated approach available under the regulatory framework for credit risk and allows us to make use of our internal rating methodologies as well as internal estimates of specific other risk parameters. These methods and parameters represent long-used key components of the internal risk measurement and management process supporting the credit approval process, the economic capital and expected loss calculation and the internal monitoring and reporting of credit risk. The relevant parameters include the probability of default ("PD"), the loss given default ("LGD") and the maturity ("M") driving the regulatory risk-weight and the credit conversion factor ("CCF") as part of the regulatory exposure at default ("EAD") estimation. For most of our internal rating systems more than seven years of historical information is available to assess these parameters. Our internal rating methodologies reflect a point-in-time rather than a through-the-cycle rating.

The probability of default for customers is derived from our internal rating systems. We assign a probability of default to each relevant counterparty credit exposure as a function of a transparent and consistent 21-grade master rating scale for all of our exposure (excluding parts of Postbank).

A prerequisite for the development of rating methodologies and the determination of risk determination of risk parameters is a proper definition, identification and recording of the default event of a customer. We apply a default definition in accordance with the requirements of Article 178 CRR as confirmed by the BaFin and ECB as part of the IRBA approval process.

The borrower ratings assigned are derived on the grounds of internally developed rating models which specify consistent and distinct customer-relevant criteria and assign a rating grade based on a specific set of criteria as given for a certain customer. The set of criteria is generated from information sets relevant for the respective customer segments like general customer behavior, financial and external data. The methods in use range from statistical scoring models to expert-based models taking into account the relevant available quantitative and qualitative information. Expert-based models are usually applied for counterparts in the exposure classes "Central governments and central banks", "Institutions" and "Corporates" with the exception of small- and medium-sized entities. For the latter as well as for the retail segment statistical scoring or hybrid models combining both approaches are commonly used. Quantitative rating methodologies are developed based on applicable statistical modelling techniques, such as logistic regression. In line with Article 174 CRR, these models are complemented by human judgment and oversight to review model-based assignments and are intended to ensure that the models are used appropriately. When we assign our internal risk ratings, it allows us to compare them with external risk ratings assigned to our counterparties by the major international rating agencies, where possible, as our internal rating scale has been designed to principally correspond to the external rating scales from rating agencies.

Ratings for central governments and central banks take into account economic, political and sociodemographic indicators, e.g. the political dynamics in a country. The model incorporates relevant aspects covered in the fields of empirical country risk analysis and early warning crisis models to arrive at an overall risk evaluation.

Ratings for corporates, institutions and SMEs combine quantitative analysis of financial information with qualitative assessments of i.a. industry trends, market position and management experience. Financial analysis has a specific focus on cash flow generation and the counterparty's capability to service its debts, also in comparison to peers. We supplement the analysis of financials by an internal forecast of the counterparty's financial profile where deemed to be necessary. For purchased corporate receivables the corporate rating approach is applied.

Ratings for SME clients are based on automated sub-ratings for e.g. financial aspects and conduct of bank account. Specialized lending is managed by specific credit risk management teams, e.g. for real estate, ship finance or leveraged transactions. Following the individual characteristic of the underlying credit transactions we have developed bespoke scorecards where appropriate to derive credit ratings.

In our retail business, creditworthiness checks and counterparty ratings are generally derived by utilizing an automated decision engine. The decision engine incorporates quantitative aspects (i.e., financial figures), behavioural aspects, credit bureau information (such as SCHUFA in Germany) and general customer data. These input factors are used by the decision engine to determine the creditworthiness of the borrower and, after consideration of collateral, the expected loss. The established rating procedures we have implemented in our retail business are based on multivariate statistical methods.

They are used to support our individual credit decisions for the retail portfolio as well as to continuously monitor it in an automated fashion. In case elevated risks are identified as part to this monitoring process or new regulatory requirements apply, credit ratings are reviewed on an individual basis for these affected counterparties

Although different rating methodologies are applied to the various customer segments in order to properly reflect customer-specific characteristics, they all adhere to the same risk management principles. Credit process policies provide guidance on the classification of customers into the various rating systems.

We apply internally estimated LGD factors as part of the advanced IRBA capital requirement calculation as approved by the BaFin. LGD is defined as the likely loss intensity in case of a counterparty default. It provides an estimation of the exposure that cannot be recovered in a default event and therefore captures the severity of a loss. Conceptually, LGD estimates are independent of a customer's probability of default. The LGD models ensure that the main drivers for losses (i.e., different levels and quality of collateralization and customer or product types or seniority of facility) are reflected in specific LGD factors. In our LGD models, except Postbank, we assign collateral type specific LGD parameters to the collateralized exposure (collateral value after application of haircuts). Moreover, the LGD for uncollateralized exposure cannot be below the LGD assigned to collateralized exposure and regulatory floors (10 % for residential mortgage loans) are applied.

As part of the application of the advanced IRBA we apply specific CCFs in order to calculate an EAD value. Conceptually the EAD is defined as the expected amount of the credit exposure to a counterparty at the time of its default. For advanced IRBA calculation purposes we apply the general principles as defined in Article 166 CRR to determine the EAD of a transaction. In instances, however, where a transaction involves an unused limit a percentage share of this unused limit is added to the outstanding amount in order to appropriately reflect the expected outstanding amount in case of a counterparty default. This reflects the assumption that for commitments the utilization at the time of default might be higher than the current utilization. When a transaction involves an additional contingent component (i.e., guarantees) a further percentage share (usage factor) is applied as part of the CCF model in order to estimate the amount of guarantees drawn in case of default. Where allowed under the advanced IRBA, the CCFs are internally estimated. The calibrations of such parameters are based on statistical experience as well as internal historical data and consider customer and product type specifics. As part of the approval process, the BaFin assessed our CCF models and stated their appropriateness for use in the process of regulatory capital requirement calculations.

The EAD for our derivatives and securities financing transactions ("SFT") portfolios are primarily calculated based on the IMM approach as described in the section "Counterparty Credit Risk" of this report.

Assignment to Regulatory Exposure Classes

The advanced IRBA requires differentiating a bank's credit portfolio into various regulatory defined exposure classes. We identify the relevant regulatory exposure class for each exposure by taking into account factors like customer-specific characteristics, the rating system used as well as certain materiality thresholds which are regulatory defined.

As an IRBA institution, we are required to treat equity investments, collective investment undertakings ("CIU") and other non-credit obligation assets generally within the IRBA. For these exposure types typically regulatory-defined IRBA risk weights are applied.

We use the simple risk-weight approach according to Article 155 (2) CRR for our investments in equity positions entered into since January 1, 2008. It distinguishes between exposure in equities which are non-exchange traded but sufficiently diversified, exchange-traded and other non-exchange-traded and then uses the regulatory-defined risk weights of 190 %, 290 % or 370 %, respectively. We also include exposures attracting a risk weight of 250 % according to Article 48 (4) for significant investments in the CET 1 instruments of financial sector entities which are subject to the threshold exemptions as outlined in Article 48 CRR.

Exposures which are assigned to the exposure class "other non-credit obligation assets" receive an IRBA risk weight of 0 % in case of cash positions, 250 % for deferred tax assets that rely on future profitability and arise from temporary differences subject to the threshold exemptions as outlined in Article 48 CRR, or 100 %.

Credit Risk Advanced IRBA – Model Validation

As an important element of our risk management framework we regularly validate our rating methodologies and credit risk parameters. Whereas the rating methodology validation focuses on the discriminatory power of the models, the risk parameter validation for PD, LGD and EAD analyzes the predictive power of those parameters when compared against historical default and loss experiences as well as drawing behavior.

According to our standards, and in line with the CRR-defined minimum requirements, the parameters PD, LGD and EAD are reviewed annually. The validation process for parameters as used by Deutsche Bank excluding Postbank is coordinated and supervised by a validation committee composed of members from Finance and Risk departments. Credit Risk parameter validations consist of quantitative analyses of internal historical data and are enriched by qualitative assessments in case data for validation is not statistically sufficient for reliable validation results. A recalibration of specific parameter settings is triggered based on validation results if required. In addition to annual validations, ad hoc reviews are performed where appropriate as a reaction to quality deterioration at an early stage due to systematic changes of input factors (e.g., changes in payment behaviour) or changes in the structure of the portfolio.

Analogously at Postbank the results of the estimations of the input parameters PD, CCF and LGD are reviewed annually. Postbank's model validation committee is responsible for supervising the annual validation process of all models. Via a cross committee membership Deutsche Bank senior managers join Postbank committees and vice versa, to promote joint governance.

Foundation Internal Ratings Based Approach

The foundation IRBA is an approach available under the regulatory framework for credit risk allowing institutions to make use of their internal rating methodologies while using pre-defined regulatory values for all other risk parameters. Parameters subject to internal estimates include the probability of default ("PD") while the loss given default ("LGD") and the credit conversion factor ("CCF") are defined in the regulatory framework.

The foundation IRBA is not available for retail exposures. For exposures in classes institutions and corporates respective foundation IRBA rating systems have been developed. A probability of default is assigned to each relevant counterparty credit exposure as a function of a transparent and consistent rating master scale. The borrower ratings assigned are derived on the grounds of internally developed rating models which specify consistent and distinct customer-relevant criteria and assign a rating grade based on a specific set of criteria as given for a certain customer following the approaches as outlined for our Advanced IRBA rating systems. In addition, our specialized lending exposure is reported under the foundation IRBA, but regulatory risk weights are applied using the so-called 'supervisory slotting criteria' approach as defined by Article 153 CRR.

For the foundation IRBA we apply the same default definition as for Advanced IRBA in accordance with the requirements of Article 178 CRR as confirmed by the BaFin as part of its IRBA approval process.

Standardized Approach

We treat a subset of our credit risk exposures within the standardized approach. The standardized approach measures credit risk either pursuant to fixed risk weights, which are predefined by the regulator, or through the application of external ratings.

We assign certain credit exposures permanently to the standardized approach in accordance with Article 150 CRR. These are predominantly exposures to the Federal Republic of Germany and other German public sector entities as well as exposures to central governments of other European Member States that meet the required conditions. These exposures make up more than half of the exposures carried in the standardized approach and receive predominantly a risk weight of zero percent. For internal purposes, however, these exposures are subject to an internal credit assessment and fully integrated in the risk management and economic capital processes.

For certain CIU exposures we apply the "look-through"-treatment which constitutes a decomposition of the CIU into its underlying investments. According to Article 152 CRR these exposures, primarily consisting of defined benefit pension fund assets, are assigned to the standardized approach.

In line with Article 150 CRR and Section 10 SolvV, we assign further – generally IRBA eligible – exposures permanently to the standardized approach. This population comprises several small-sized portfolios, which are considered to be immaterial on a stand-alone basis for inclusion in the IRBA.

Other credit exposures which are small in size are temporarily assigned to the standardized approach and we plan to transfer them to the IRBA over time. The prioritization and the corresponding transition plan is discussed and agreed with the competent authorities, the Bundesbank, the BaFin and the ECB.

Equity positions entered into before January 1, 2008 are subject to the transitional arrangement to exempt them from the IRBA and a risk weight of 100 % is applied according to the standardized approach treatment.

In order to calculate the regulatory capital requirements under the standardized approach, we use eligible external ratings from Standard & Poor's, Moody's, Fitch Ratings and in some cases from DBRS. DBRS ratings are applied in the standardized approach for a small number of exposures since 2009. Ratings are applied to all relevant exposure classes in the standardized approach. If more than one rating is available for a specific counterparty, the selection criteria as set out in Article 138 CRR are applied in order to determine the relevant risk weight for the capital calculation. Moreover, given the low volume of exposures covered under the standardized approach and the high percentage of (externally rated) central government exposures therein, we do not infer borrower ratings from issuer ratings.

Regulatory Application of Credit Risk Mitigation Techniques

Risk-weighted assets and regulatory capital requirements can be managed actively by credit risk mitigation techniques. As a prerequisite for recognition in regulatory calculations, we must adhere to certain minimum requirements as stipulated in the CRR regarding collateral management, monitoring processes and legal enforceability.

The range of collateral being eligible for regulatory recognition is dependent predominantly on the regulatory capital calculation method used for a specific risk position. The principle is that a higher degree of sophistication with regard to the underlying methodology generally leads to a wider range of admissible collateral and options to recognize protection via guarantees and credit derivatives. However, also the minimum requirements to be adhered to and the mechanism available to reflect the risk mitigation benefits are predominantly a function of the regulatory calculation method applied.

The advanced IRBA generally accepts all types of financial collateral, as well as real estate, collateral assignments and other physical collateral. In our application of the advanced IRBA, there is basically no limitation to the range of accepted collateral as long as we can demonstrate to the competent authorities that reliable estimates of the collateral values can be generated and that basic requirements are fulfilled.

The same principle holds true for taking benefits from guarantee and credit derivative arrangements. Within the advanced IRBA, again there are generally no limitations with regard to the range of eligible collateral providers as long as some basic minimum requirements are met. However, collateral providers' credit quality and other relevant factors are incorporated through our internal models.

In our advanced IRBA calculations financial and other collateral is generally considered through an adjustment to the applicable LGD as the input parameter for determining the risk weight. For recognizing protection from guarantees and credit derivatives, generally a PD substitution approach is applied, i.e., within the advanced IRBA risk-weight calculation the PD of the borrower is replaced by the protection seller's or guarantor's PD. However, for certain guaranteed exposures and certain protection providers the so-called double default treatment is applicable. The double default effect implies that for a guaranteed exposure a loss only occurs if the originator and the guarantor fail to meet their obligations at the same time.

The foundation IRBA sets stricter limitations with regard to the eligibility of credit risk mitigation compared to the advanced IRBA but allows for consideration of financial collateral, guarantees and credit derivatives as well as other foundation IRBA-eligible collateral like mortgages and security assignments.

The financial collateral recognized in the foundation IRBA essentially comprises cash, bonds and other securities related to repo lending.

In the standardized approach, collateral recognition is limited to eligible financial collateral, such as cash, gold bullion, certain debt securities, equities and CIUs, in many cases only with their volatility-adjusted collateral value. In its general structure, the standardized approach provides a preferred (lower) risk-weight for "claims secured by real estate property". Given this, preferred risk-weight real estate is not considered a collateral item under the standardized approach. Further limitations must be considered with regard to eligible guarantee and credit derivative providers.

In order to reflect risk mitigation techniques in the calculation of capital requirements we apply the financial collateral comprehensive method since the higher sophistication of that method allows a broader range of eligible collateral. Within this approach, financial collateral is reflected through a reduction in the exposure value of the respective risk position, while protection taken in the form of guarantees and credit derivatives is considered by means of a substitution, i.e., the borrower's risk weight is replaced by the risk weight of the protection provider.

Counterparty Credit Risk

Counterparty credit exposure ("CCR") arises from our direct trading activity in derivatives and securities financing transactions ("SFT"), it is calculated in both the trading and non-trading books and is the risk that the counterparty to a transaction may default before completing the satisfactory settlement of the transaction.

As the replacement values of derivatives portfolios fluctuate with movements in market rates and with changes in the transactions in the portfolios, we estimate the potential future replacement costs of the portfolios over their lifetimes or, in case of collateralized portfolios, over appropriate unwind periods. We measure the potential future exposure against separate limits. We supplement the potential future exposure analysis with stress tests to estimate the immediate impact of extreme market events on our exposures (such as event risk in our Emerging Markets portfolio).

In compliance with Article 291(2) and (4) CRR, we established a monthly process to monitor several layers of wrong-way risk (specific wrong-way risk, general explicit wrong-way risk at country/industry/region levels and general implicit wrong-way risk), whereby exposures arising from transactions subject to wrong-way risk are automatically selected and presented for comment to the responsible credit officer. A wrong-way risk report is then sent to Credit Risk senior management on a monthly basis. Postbank derivative counterparty risk is immaterial to the Group and collateral held is typically in the form of cash.

Measurement of Counterparty Credit Risk

For the majority of derivative counterparty exposures as well as securities financing transactions ("SFT"), we (without Postbank) make use of the internal model method ("IMM") in accordance with Article 283 et seq. CRR and Section 18 et. seq. SolvV. In this respect securities financing transactions encompass repurchase transactions, securities or commodities lending and borrowing as well as margin lending transactions (including prime brokerage). By applying this approach, we build our EAD calculations on a Monte Carlo simulation of the transactions' future market values. Within this simulation process, interest and foreign exchange rates, credit spreads, equity and commodity prices are modelled by stochastic processes and each derivative and securities financing transaction is revalued at each point of a predefined time grid. As a result of this process, a distribution of future market values for each transaction at each time grid point is generated. From these distributions, by considering the appropriate netting and collateral agreements, we derive the exposure measures potential future exposure ("PFE"), average expected exposure ("AEE") and expected positive exposure ("EPE")

Under IMM approach EAD is then finally calculated as the product of EPE and a multiplier 'Alpha' (α). The scaling factor alpha is applied in order to correct for amongst others correlations between parties, concentration risk and to account for the level of volatility/correlation that might coincide with a downturn. Deutsche Bank received regulatory approval to use our own calibrated alpha factor, floored at the regulatory minimum level of 1.2. For the small population of transactions for which a simulation cannot be computed or is subject to regulatory restrictions (such as for those with risk factors not approved by BaFin or for specific wrong-way risk), the EAD used is derived from the Mark-to-Market method according to Article 274 CRR.

The potential future exposure measure which we use is generally given by a time profile of simulated positive market values of each counterparty's derivatives portfolio, for which netting and collateralization are considered. For limit monitoring we employ the 95th quantile of the resulting distribution of market values, internally referred to as potential future exposure ("PFE"). The average exposure profiles generated by the same calculation process are used to derive the so-called average expected exposure ("AEE") measure, which we use to reflect expected future replacement costs within our credit risk economic capital, and the expected positive exposure ("EPE") measure driving our regulatory capital requirements. While AEE and EPE are generally calculated with respect to a time horizon of one year, the PFE is measured over the entire lifetime of a transaction or netting set for uncollateralized portfolios and over an appropriate unwind period for collateralized portfolios, respectively. We also employ the aforementioned calculation process to derive stressed exposure results for input into our credit portfolio stress testing.

The PFE profile of each counterparty is compared daily to a PFE limit profile set by the responsible credit officer. PFE limits are an integral part of the overall counterparty credit exposure management in line with other limit types. Breaches of PFE limits at any one profile time point are highlighted for action within our credit risk management process. The EPE is an input to the customer level calculation of the IRBA regulatory capital under the so-called internal model method ("IMM"), whereas AEE feeds as a loan equivalent into the Group's credit portfolio model where it is combined with all other exposure to a counterparty within the respective simulation and allocation process.

For our derivative counterparty credit risk resulting from Postbank we also apply the Mark-to-Market method according to Article 274 CRR, i.e., we calculate the EAD as the sum of the net positive fair value of the derivative transactions and the regulatory add-ons. As the EAD derivative position resulting from Postbank is less than 1 % in relation to our overall counterparty credit risk position from derivatives we consider Postbank's derivative position to be immaterial.

For further details on our counterparty credit risk, please refer to the Annual Report 2015 under sections: "Netting and Collateral Arrangements for Derivatives and Securities Financing Transactions", Derivatives-CVA, Treatment of Default Situations under Derivatives", Credit Exposure from Derivatives". Additional counterparty credit risk exposure figures are also found in this report under "Positive market values or replacement costs of trading derivative transactions" and "Nominal volumes of credit derivative exposure".

Market Risk Measurement

Market Risk Management aims to accurately measure all types of market risks by a comprehensive set of risk metrics reflecting economic and regulatory requirements.

In accordance with economic and regulatory requirements, we measure market and related risks using several key risk metrics:

Internally developed market risk models
– Value-at-risk (VaR) and stressed value-at-risk (SVaR), including CVA VaR and SVaR
– Incremental risk charge
– Comprehensive risk measure

Market Risk Standardized approaches
– Market risk standardized approach (MRSA), applied to investment funds with no lookthrough, MRSA-eligible securitizations and positions subject to longevity risk

Stress Testing Measures
– Portfolio stress testing
– Business-level stress testing
– Event risk scenarios

Economic Capital Measures
– Market Risk economic capital, including traded default risk

Other model derived and market observable metrics
– Sensitivities
– Market value/notional (concentration risk)
– Loss given default

These measures are viewed as complementary to each other and in aggregate define the market risk framework, by which all businesses can be measured and monitored.

Internally developed market risk models

Value-at-Risk (VaR) at Deutsche Bank Group (excluding Postbank)

VaR is a quantitative measure of the potential loss (in value) of Fair Value positions due to market movements that will not be exceeded in a defined period of time and with a defined confidence level.

Our value-at-risk for the trading businesses is based on our own internal model. In October 1998, the German Banking Supervisory Authority (now the BaFin) approved our internal model for calculating the regulatory market risk capital for our general and specific market risks. Since then the model has been continually refined and approval has been maintained.

We calculate VaR using a 99 % confidence level and a one day holding period. This means we estimate there is a 1 in 100 chance that a mark-to-market loss from our trading positions will be at least as large as the reported VaR. For regulatory purposes, which include the calculation of our capital requirements and risk-weighted assets, the holding period is ten days.

We use one year of historical market data as input to calculate VaR. The calculation employs a Monte Carlo Simulation technique, and we assume that changes in risk factors follow a well-defined distribution, e.g. normal or non-normal (t, skew-t, Skew-Normal). To determine our aggregated VaR, we use observed correlations between the risk factors during this one year period.

Our VaR model is designed to take into account a comprehensive set of risk factors across all asset classes. Key risk factors are swap/government curves, index and issuer-specific credit curves, funding spreads, single equity and index prices, foreign exchange rates, commodity prices as well as their implied volatilities. To help ensure completeness in the risk coverage, second order risk factors, e.g. CDS index vs. constituent basis, money market basis, implied dividends, option-adjusted spreads and precious metals lease rates are considered in the VaR calculation.

For each business unit a separate VaR is calculated for each risk type, e.g. interest rate risk, credit spread risk, equity risk, foreign exchange risk and commodity risk. For each risk type this is achieved by deriving the sensitivities to the relevant risk type and then simulating changes in the associated risk drivers. “Diversification effect” reflects the fact that the total VaR on a given day will be lower than the sum of the VaR relating to the individual risk types. Simply adding the VaR figures of the individual risk types to arrive at an aggregate VaR would imply the assumption that the losses in all risk types occur simultaneously.

The model incorporates both linear and, especially for derivatives, nonlinear effects through a combination of sensitivity-based and revaluation approaches on grids.

The VaR measure enables us to apply a consistent measure across all of our trading businesses and products. It allows a comparison of risk in different businesses, and also provides a means of aggregating and netting positions within a portfolio to reflect correlations and offsets between different asset classes. Furthermore, it facilitates comparisons of our market risk both over time and against our daily trading results.

When using VaR estimates a number of considerations should be taken into account. These include:

– The use of historical market data may not be a good indicator of potential future events, particularly those that are extreme in nature. This “backward-looking” limitation can cause VaR to understate risk (as in 2008), but can also cause it to be overstated.
– Assumptions concerning the distribution of changes in risk factors, and the correlation between different risk factors, may not hold true, particularly during market events that are extreme in nature. The one day holding period does not fully capture the market risk arising during periods of illiquidity, when positions cannot be closed out or hedged within one day.
– VaR does not indicate the potential loss beyond the 99^{th} quantile.
– Intra-day risk is not captured.
– There may be risks in the trading book that are partially or not captured by the VaR model.

We are committed to the ongoing development of our proprietary risk models, and we allocate substantial resources to reviewing and improving them. Additionally, we have further developed and improved our process of systematically capturing and evaluating risks currently not captured in our value-at-risk model. An assessment is made to determine the level of materiality of these risks and material risks are prioritized for inclusion in our internal model. All risks not in value-at-risk are monitored and assessed on a regular basis.

During 2015 the value-at-risk calculation was further refined. In particular, the focus has been on putting the foundation to further improve the modeling of risk factor distributions and to include the risk associated with the volatility skew of equity derivatives. The risk calculation framework was also enhanced to allow for the use of more granular market data to better capture the risk in the equity and securitization space.

Stressed Value-at-Risk (SvaR)

We calculate a stressed value-at-risk measure using a 99 % confidence level and a holding period of one day. For regulatory purposes, the holding period is ten days.

Our stressed value-at-risk calculation utilizes the same systems, trade information and processes as those used for the calculation of value-at-risk. The only difference is that historical market data from a period of significant financial stress (i.e., characterized by high volatilities) is used as an input for the Monte Carlo Simulation. The time window selection process for the stressed value-at-risk calculation is based on the identification of a time window characterized by high levels of volatility and extreme movements in the top value-at-risk contributors. The results from these two indicators (volatility and number of outliers) are combined using chosen weights intended to ensure qualitative aspects are also taken into account (i.e., inclusion of key crisis periods).

CVA Value-at-Risk/ Stressed Value-at-Risk

The advanced approach CVA risk capital charge is determined by applying the VaR model. First, the exposure profiles are determined based on the internal model method (IMM) or the Mark-to-Market method. The next step consists in determining the synthetic CVA position based on the exposure profile and other risk parameters such as credit spreads. Based on this information the credit spread sensitivity is then calculated. Eligible CVA hedges are also incorporated and the CVA risk capital charge is determined based on the internal market risk models VaR and Stressed VaR using a 99% confidence level and a 10-day holding period.

Incremental Risk Charge

The incremental risk charge is based on our own internal model and is intended to complement the value-at-risk modelling framework. It represents an estimate of the default and migration risks of unsecuritized credit products over a one-year capital horizon at a 99.9 % confidence level, taking into account the liquidity horizons of individual positions. We use a Monte Carlo Simulation for calculating incremental risk charge as the 99.9 % quantile of the portfolio loss distribution and for allocating contributory incremental risk charge to individual positions. The model captures the default and migration risk in an accurate and consistent quantitative approach for all portfolios. Important parameters for the incremental risk charge calculation are exposures, recovery rates and default probabilities, ratings migrations, maturity, and liquidity horizons of individual positions.

We calculate the incremental risk charge on a weekly basis. The charge is determined as the higher of the most recent 12 week average of incremental risk charge and the most recent incremental risk charge.

The contributory incremental risk charge of individual positions, which is calculated by expected shortfall allocation, provides the basis for identifying risk concentrations in the portfolio.

Since year-end 2014, for regulatory RWA calculation, the liquidity horizons for all positions have been conservatively set to the EBA maximum of 12 months. Default and rating migration probabilities are defined by rating migration matrices which are calibrated on historical external rating data. Taking into account the trade-off between granularity of matrices and their stability we apply a global corporate matrix and a sovereign matrix comprising the seven main rating bands. Accordingly, issue or issuer ratings from the rating agencies Moody's, S&P and Fitch are assigned to each position.

To quantify a loss due to rating migration, a revaluation of a position is performed under the new rating. The probability of joint rating downgrades and defaults is determined by the migration and rating correlations of the incremental risk charge model. These correlations are specified through systematic factors that represent geographical regions and industries and are calibrated on historical rating migration and equity time series. The simulation process incorporates a rollover strategy that is based on the assumption of a constant level of risk. This assumption implies that positions that have experienced default or rating migration over their liquidity horizon are re-balanced at the end of their liquidity horizon to attain the initial level of risk. Correlations between positions with different liquidity horizons are implicitly specified by the dependence structure of the underlying systematic and idiosyncratic risk factors, helping to ensure that portfolio concentrations are identified across liquidity horizons. In particular, differences between liquidity horizons and maturities of hedges and hedged positions are recognized.

Direct validation of the incremental risk charge through back-testing methods is not possible. The charge is subject to validation principles such as the evaluation of conceptual soundness, ongoing monitoring, process verification and benchmarking and outcome analysis. The validation of the incremental risk charge methodology is embedded in the validation process for our credit portfolio model, with particular focus on the incremental risk charge specific aspects. Model validation relies more on indirect methods including stress tests and sensitivity analyses. Relevant parameters are included in the annual validation cycle established in the current regulatory framework. The incremental risk charge is part of the quarterly group-wide stress test using the stress testing functionality within our credit engine. Stressed incremental risk charge figures are reported on group level and submitted to the Stress Test Working Group (STWG) and the Portfolio Risk Committee (PRC).

Comprehensive Risk Measure

The comprehensive risk measure for the correlation trading portfolio is based on our own internal model. We calculate the comprehensive risk measure based on a Monte Carlo Simulation technique to a 99.9 % confidence level and a capital horizon of one year. Our model is applied to the eligible correlation trading positions where typical products include collateralized debt obligations, nth-to-default credit default swaps, and commonly traded index- and single-name credit default swaps. Re-securitizations or products which reference retail claims or real estate exposures are not eligible. Furthermore, trades subject to the comprehensive risk measure have to meet minimum liquidity standards to be eligible. The model incorporates concentrations of the portfolio and nonlinear effects via a full revaluation approach.

Comprehensive risk measure is designed to capture defaults as well as the following risk drivers: interest rates, credit spreads, recovery rates, foreign exchange rates and base correlations, index-to-constituent and base correlation basis risks.

Comprehensive risk measure is calculated on a weekly basis. Initially, the eligible trade population within the correlation trading portfolio is identified. Secondly, the risk drivers of the P&L are simulated over a one year time horizon. The trade population is then re-valued under the various Monte Carlo Simulation scenarios and the 99.9 % quantile of the loss distribution is extracted.

The market and position data are collected from front office systems and are subject to quality control. The comprehensive risk measure figures are closely monitored and play a significant role in the management of the correlation trading portfolio. We use three years of historical market data to estimate the risk drivers to the comprehensive risk measure.

In our comprehensive risk measure model the liquidity horizon is set to 12 months, which equals the capital horizon.

In order to maintain the quality of our comprehensive risk measure model we continually monitor the potential weaknesses of this model. Backtesting of the trade valuations and the propagation of single risk factors are carried out on a monthly basis and a quarterly recalibration of parameters is performed. In addition, a series of stress tests have been defined on the correlation trading portfolio where the shock sizes link into historical distressed market conditions.

Model validation is performed by an independent team and reviews, but is not limited to, the above mentioned back-testing, the models which generate risk factors, appropriateness and completeness of risk factors, the Monte Carlo Simulation stability, and performs sensitivity analyses.

For regulatory reporting purposes, the comprehensive risk measure represents the higher of the internal model spot value at the reporting dates, their preceding 12-week average calculation, and the floor, where the floor is equal to 8 % of the equivalent capital charge under the standardized approach securitization framework.

We have received approval for the use in the calculation of regulatory capital, of all internally-developped models described above; VaR, SvaR (including CVA VaR and SvaR), Incremental Risk Charge and Comprehensive Risk Measure.

Market Risk Standardized Approach

Market Risk Management monitors exposures and addresses risk issues and concentrations for certain exposures under the specific Market Risk Standardized Approach ("MRSA"). We use the MRSA to determine the regulatory capital charge for the specific market risk of trading book securitizations (see section Securitization Measurement - Calculation of Regulatory Capital Requirements for Trading Book Securitizations).

We also use the MRSA to determine the regulatory capital charge for longevity risk as set out in CRR/CRD 4 regulations. Longevity risk is the risk of adverse changes in life expectancies resulting in a loss in value on longevity linked policies and transactions. For risk management purposes, stress testing and economic capital allocations are also used to monitor and manage longevity risk.

Furthermore, certain types of investment funds require a capital charge under the MRSA. For risk management purposes, these positions are also included in our internal reporting framework.

Validation of internally developed market risk models

Regulatory Backtesting of Trading Market Risk

We continually analyze potential weaknesses of our value-at-risk model using statistical techniques, such as backtesting, and also rely on risk management experience.

Backtesting is a procedure used to assess the predictive accuracy of the value-at-risk calculations involving the comparison of hypothetical daily profits and losses under the buy-and-hold assumption ('daily buy-and hold income') to the daily value-at-risk. Under this assumption we estimate the P&L impact that would have resulted on a portfolio for a trading day valued with current market prices and parameters assuming it had been left untouched for that day and compare it with the estimates from the value-at-risk model from the preceding day. Our calculation of hypothetical daily profits and losses (buy & hold income) excludes gains and losses from intraday trading, fees and commissions, carry (including net interest margins), reserves and other miscellaneous revenues. An outlier is a hypothetical buy-and-hold trading loss that exceeds our value-at-risk from the preceding day. On average, we would expect a 99 % confidence level to give rise to two to three outliers representing 1 % of approximately 260 trading days in any one year. We analyze and document underlying reasons for outliers and classify them either as due to market movements, risks not included in our value-at-risk model, model or process shortcomings. We use the results for further enhancement of our value-at-risk methodology. Formal communications explaining the reasons behind any outlier on Group level are provided to the BaFin and the ECB.

In addition to the standard backtesting analysis at the value-at-risk quantile, the value-at-risk model performance is further verified by analyzing the distributional fit across the whole of the distribution (full distribution backtesting). Regular backtesting is also undertaken on hypothetical portfolios to test value-at-risk performance of particular products and their hedges.

The Global Backtesting Committee, with participation from Market Risk Management, Market Risk Analysis, Model Validation, and Finance, meets on a regular basis to review backtesting results as a whole and of individual businesses. The committee analyzes performance fluctuations and assesses the predictive power of our value-at-risk model, which allows us to improve and adjust the risk estimation process accordingly.

An independent model validation team reviews all quantitative aspects of our value-at-risk model on a regular basis. The review covers, but is not limited to, the appropriateness of distribution assumptions of risk factors, recalibration approaches for risk parameters, and model assumptions. Validation results and remediation measures are presented to senior management and are tracked to promote adherence to deadlines.

Holistic Validation process

The Holistic Validation (HV) process provides a comprehensive assessment of all market risk management models and frameworks across five control areas: Limits, Backtesting, Process, Model Validation, and Risksnotcaptured-by the model (e.g. Risks not in VaR). HV runs on a quarterly basis and provides a detailed report for each of the control areas (HV Control Packs) as well as an HV Dashboard indicating the health of each control area. In addition the Quarterly Business Line Review (QBLR) provides an overview of the business line trading strategy and the corresponding risk return profile. The associated formal quarterly HV governance framework is as follows:

- Level 1: A series of asset-class level HV Control Pack Review meetings (chaired by the respective Market Risk Management Asset Class Head), at which the HV Control Pack is reviewed and the HV Dashboard status is agreed
- Level 2: The HV Governance Committee (chaired by the Global Head of Market Risk Management), at which the overall HV Dashboard is agreed
- Level 3: Top-level HV governance is achieved via a series of senior management briefings including to the Capital and Risk Committee, the Management Board and the Supervisory Board. The briefings provide an executive summary of the quality and control of the risk management models and metrics across the business

At year end 2015, our value-at-risk and stressed value-at-risk multipliers was at 4.4 versus the regulatory floor of three.

Market Risk Stress Testing

Stress testing is a key risk management technique, which evaluates the potential effects of extreme market events and extreme movements in individual risk factors. It is one of the core quantitative tools used to assess the market risk of Deutsche Bank's positions and complements VaR and Economic Capital. Market Risk Management performs several types of stress testing to capture the variety of risks: Portfolio stress testing, individual specific stress tests, Event Risk Scenarios, and also contributes to Group-wide stress testing.

Portfolio Stress Testing measures the profit and loss impact of potential market events based on pre-defined scenarios of different severities, which are either historical or hypothetical and defined at a macro level. With Portfolio Stress Testing, Market Risk Management completes its perspective on risk provided by other metrics, given that the range of portfolio stress tests covers a broad set of scenarios.

For individual specific stress tests, market risk managers identify relevant risk factors and develop stress scenarios relating either to macro-economic or business-specific developments. Specific stress tests capture idiosyncratic and basis risks.

Event risk scenario measures the profit and loss impact of historically observable events or hypothetical situations on trading positions for specific emerging market countries and regions. The bank's trading book exposure to an individual country is stressed under a single scenario, which replicates market movements across that country in times of significant market crisis and reduced liquidity.

Besides these market-risk specific stress tests, Market Risk Management participates in the Group-wide stress test process, where macro-economic scenarios are defined by dbResearch and each risk department translates that same scenario to the relevant shocks required to apply to their portfolio. This includes credit, market and operational risks.

Tail risk or the potential for extreme loss events beyond reported value-at risk is captured via stressed value-at-risk, economic capital, incremental risk charge and comprehensive risk measure. It is also captured via stress testing.

Securitization Measurement

Calculation of Regulatory Capital Requirements for Banking Book Securitizations

The regulatory capital requirements for the credit risk of banking book securitizations are determined based on the securitization framework pursuant to Articles 242 to 270 CRR, which distinguishes between credit risk standardized approach ("CRSA")-securitization positions and internal ratings based approach ("IRBA")-securitization positions. The classification of securitization positions as either CRSA- or IRBA-securitization positions depends on the nature of the securitized portfolio. Basically, CRSA-securitization positions are those where the securitized portfolio predominantly includes credit risk exposures, which would qualify as CRSA-exposures under the credit risk framework if they would be held by us directly. Otherwise, if the majority of the securitized portfolio would qualify as IRBA-exposures, the securitization positions qualify as IRBA-securitization positions.

The risk weights of CRSA-securitization positions are derived from their relevant external ratings, when applicable. External ratings must satisfy certain eligibility criteria for being used in the risk weight calculation. Eligible external ratings are taken from Standard & Poor's, Moody's, Fitch Ratings and DBRS. If more than one eligible rating is available for a specific securitization position, the relevant external rating is determined as the second best eligible rating in accordance with the provisions set forth in Article 269 CRR.

CRSA-securitization positions with no eligible external rating receive a risk weight of 1,250 % unless they qualify for the application of:

– the Internal Assessment Approach according to Article 109 (1) CRR in conjunction with Article 259 (3) CRR. The Internal Assessment Approach applies to unrated IRBA-securitization positions related to ABCP pro-grams. As we discontinued the use of ABCP programs in 2015, there are no securitizations positions subject to the Internal Assessment Approach as of December 31, 2015.
– the risk concentration approach pursuant to Article 253 CRR which might lead to a risk weight below 1,250 %. The risk concentration approach is applied to a few CRSA-securitization exposures that are small compared with the total amount of our banking book securitization exposures.

The risk weight of IRBA-securitization positions is determined according to the following hierarchy:

– If one or more eligible external ratings exist for the IRBA-securitization position, or if an external rating can be inferred from an eligible external rating of a benchmark securitization position, the risk weight is derived from the relevant external rating (ratings based approach).
– Otherwise, if no eligible external rating exists or can be inferred, the risk weight of the IRBA-securitization position will generally be determined based on the supervisory formula approach pursuant to Section 262 CRR or the internal assessment approach pursuant to Article 259 (3) and (4) CRR.
– If neither of the aforementioned approaches can be applied, the position receives a risk weight of 1,250 %.

The ratings based approach applies to approximately 15 % of our IRBA- and CRSA-securitization exposure, largely in the lower (better) risk weight bands. We use the external ratings of Standard & Poor's, Moody's, Fitch Ratings and DBRS. The majority of securitization positions with an eligible external or inferred external credit assessment are securitization positions held as investor.

Approximately 84 % of the total banking book securitization exposure is subject to the supervisory formula approach ("SFA"). This approach is predominantly used to rate positions backed by corporate loans, auto-related receivables and commercial real estates. The risk weight of securitization positions subject to the SFA is determined based on a formula which takes as input the capital requirement of the securitized portfolio and the seniority of the securitization position in the waterfall, amongst others. When applying the SFA, we estimate the risk parameters PD and LGD for the assets included in the securitized portfolio, by using internally developed rating systems approved for such assets. We continue to develop new rating systems for homogenous pools of assets to be applied to assets that have not been originated by us. The rating systems are based on historical default and loss information from comparable assets. The risk parameters PD and LGD are derived on risk pool level.

There is no securitization position for which we have applied the special provisions for originators of securitization transactions which include an investor's interest to be recognized by the originator pursuant to Article 256 CRR respectively Article 265 CRR.

Calculation of Regulatory Capital Requirements for Trading Book Securitizations

The regulatory capital requirements for the market risk of trading book securitizations are determined based on a combination of internal models and regulatory standard approaches pursuant to Article 337 CRR.

The capital requirement for the general market risk of trading book securitization positions is determined as the sum of (i) the value-at-risk based capital requirement for general market risk and (ii) the stressed value-at-risk based capital requirement for general market risk.

The capital requirement for the specific market risk of trading book securitization positions depends on whether the positions are assigned to the regulatory correlation trading portfolio ("CTP") or not.

For securitization positions that are not assigned to the CTP, the capital requirement for specific market risk is calculated based on the market risk standardized approach ("MRSA"). The MRSA risk weight for trading book securitization positions is generally calculated by using the same methodologies which apply to banking book securitization positions. The only difference relates to the use of the SFA for trading book securitization positions, where the capital requirement of the securitized portfolio is determined by making use of risk parameters (probability of default and loss given default) that are based on the incremental risk charge model. The MRSA based capital requirement for specific risk is determined as the sum of the capital requirements for all net long and all net short securitization positions outside of the CTP. The previous rule that the MRSA based capital requirement for specific risk may be determined as the higher of the capital requirements for all net long and all net short securitization positions outside of the CTP ended on December 31, 2014. The securitization positions included in the MRSA calculations for specific risk are additionally included in the value-at-risk and stressed value-at-risk calculations for specific risk.

Trading book securitizations subject to MRSA treatment include various asset classes differentiated by the respective underlying collateral types:

- Residential mortgage backed securities ("RMBS");
- Commercial mortgage backed securities ("CMBS");
- Collateralized loan obligations ("CLO");
- Collateralized debt obligations ("CDO"); and
- Asset backed securities (incl. credit cards, auto loans and leases, student loans, equipment loans and leases, dealer floorplan loans, etc).

They also include synthetic credit derivatives and commonly-traded indices based on the above listed instruments.

Conversely, the capital requirement for the specific market risk of securitization positions which are assigned to the CTP is determined as the sum of (i) the value-at-risk based capital requirement for specific risk, (ii) the stressed value-at-risk based capital requirement for specific risk and (iii) the capital requirement for specific risk as derived from the comprehensive risk measurement ("CRM") model. The CRM based capital requirement is subject to a floor equal to 8 % of the higher of the specific risk capital requirements for all net long and all net short securitization positions under the MRSA.

The CTP includes securitization positions and nth-to-default credit derivatives principally held for the purpose of trading correlation that satisfy the following requirements:

– all reference instruments are either single-name instruments, including single-name credit derivatives for which a liquid two-way market exists, or commonly-traded indices based on those reference entities;
– the positions are neither re-securitization positions, nor options on a securitization tranche, nor any other derivatives of securitization exposures that do not provide a pro-rata share in the proceeds of a securitization tranche; and
– the positions do not reference a claim on a special purpose entity, claims or contingent claims on real estate property or retail.
– The CTP also comprises hedges to the securitization and nth-to-default positions in the portfolio, provided a liquid two-way market exists for the instrument or its underlying. Typical products assigned to the CTP are synthetic CDOs, nth-to-default credit default swaps ("CDS"), and index and single name CDS.

Please refer to section "Market Risk Measurement" for general information on our market risk quantification approaches.

Operational Risk Measurement

DB Group uses the Advanced Measurement Approach ("AMA") to quantify operational risk capital required to underpin unforeseen operational risk losses over the next 12 months. We use the AMA model to calculate the regulatory and economic capital requirements by applying different confidence levels (99.9% vs. 99.98%). As inputs into the AMA model we use internal loss data as well as external loss data provided by the industry consortium ORX (Operational Riskdata eXchange Association). In addition, we enhance our database with scenarios to cover potential future events that are considered underrepresented in historical data.

We structure our portfolio of loss data into a matrix of business line / event type cells ("BL/ET") and generate loss distributions that are calculated for each cell of this BL/ET matrix. The specification of these loss distributions follows a Loss Distribution Approach ("LDA"). Separate distributions for event frequency and severity are derived from loss data and then combined by Monte Carlo simulation. The risk-mitigating benefits of insurance are applied to each loss generated in the Monte Carlo simulation. An insurance model in the loss distribution approach consists of two main components – a quantitative model of the individual insurance policies and a mapping from the operational risk event types to the insurance policies.

The overall capital requirement for DB Group is calculated by aggregating the loss distributions considering dependencies between the risks in each of the BL/ET combinations. More precisely, the frequency distributions in the individual cells of the BL/ET matrix are correlated through a copula in order to replicate observed correlations in the loss data. In 2015, we introduced an enhanced divisional capital allocation methodology featuring division specific severity distributions for the Core Divisions and improved allocation to the Non-Core Operations Unit. As a forward-looking component, we incorporate changes in the business and control environment by applying qualitative adjustments into the model.

Continued Operational Risk Framework Development

The AMA model is subject to continuous validation and enhancement to reflect our risk profile. As part of this process we submitted several model change requests to the supervisory authorities since 2013. In the meantime our Germany supervisory authority BaFin has largely approved the implementation of an improved validation and recalibration methodology for insurance parameters, changes to the modeling of the loss frequency as well as an enhanced scoring mechanism for the self-assessment results in our AMA model.

Further, we have submitted an additional model change request to BaFin to replace the € 1 billion economic capital safety margin, which we have continuously applied since its implementation in 2011. This change will make our model more risk sensitive by including reasonably possible litigation losses in our "Relevant Loss Data" set. Reasonably possible litigation losses may result from ongoing and new legal matters which are reviewed quarterly and are based on the judgment provided by our Legal Department.

While our dialogue with the joint supervisory team on these model enhancements is ongoing, management had decided to recognize the impact of material model changes in the second quarter 2014 wherever they will lead to an increase in the capital requirement over the models that have previously been approved by BaFin.

Our AMA Model Validation and Quality Assurance Review Concept

We independently validate all our AMA model components including but not limited to scenarios, Key Risk Indicators ("KRIs") and self assessments, Expected Loss and relevant loss data individually. The results of the validation are summarized in validation reports and identified issues are followed up for resolution. The validation activities in the past years detected areas of improvement in our AMA model regarding the estimation of the loss frequency and the use of reasonably possible litigation losses. The results of this validation lead to model enhancements which increased the economic capital.

Quality Assurance Reviews are performed for the AMA components requiring data input provided by business divisions and result in capital impact. The AMA components and documentation are challenged and compared across business divisions to help us maintain consistency and adequacy for any capital calculation.

Our Operational Risk Management Stress Testing Concept

We conduct stress testing on a regular basis to complement our AMA methodology, to analyse the impact of extreme macro scenarios on our capital and the profit-and-loss account. It also contains reputational impacts. In 2015, ORM took part in all firm-wide stress test scenarios and assessed and contributed the impact of operational risk to the various stress levels of the scenarios. The impact of operational risk on macro stress test scenarios has been moderate and remained in the expected range in regards to capital, which is owed to the fact that our AMA model already applies a conservative multi-year view on loss sizes (including reasonably possible litigation losses) even in non-stress mode.

Internal Capital Model

Besides the regulatory risk types listed in the above sections, we identify measure and monitor a comprehensive variety of risks that come as a result of our business activities. We calculate Pillar II capital demand using Economic Capital (EC) on a Gone Concern methodology based on an internal estimate of capital requirements based on our risk profile. EC calculation was first introduced in 1996 and has been continuously enhanced since then. We measure our internal capital demand by applying a substantially more conservative 99.98% quantile in comparison to the regulatory calibration which is based on 99.90%.

The following sections therefore describe the quantitative and qualitative measurement of risk, which eventually results in an economic capital value. A comprehensive overview of risk types is provided describing which risk types are explicitly quantified in the economic capital model (credit, market, operational, and business risk including concentration risk and diversification effects), which are implicitly or otherwise quantitatively considered (e.g. reputational risk and model risk), and which are not quantified in economic capital (liquidity risk).

Economic Capital risk matrix

Risk type	Covered in EC Model				Coverage in EC model (✓ Covered, (✓) Partly covered)
	CR	MR	OR	BR	
Credit Risk	✓				▪ Covers counterparty (default) risk, transfer risk, and settlement risk.
Market Risk		✓			▪ Covers traded market risk, non-traded market risk and traded default risk.
Operational Risk			✓		▪ Covers risk of loss resulting from inadequate or failed internal processes, people and systems, or from external events. ▪ AMA model uses internal and external loss data. ▪ OR EC partly covers model, reputational and compliance risks.
Business Risk				✓	▪ Includes strategic and tax risks, each covered with separate model. ▪ Strategic risk covers the risk of negative earnings downside due to revenues and/or costs underperforming targets. ▪ EC partly covers model, reputational and compliance risks.
Reputational Risk			(✓)	(✓)	▪ Implicitly covered in operational and business risk EC.
Compliance Risk			(✓)	(✓)	▪ Implicitly covered in operational and business risk EC.
Model Risk			(✓)	(✓)	▪ Implicitly covered in operational and business risk EC.
Risk concentrations	✓	✓	✓	✓	▪ Covered in all portfolio models used (e.g., via multi-factor model or hectic correlation).
Liquidity Risk					▪ No EC determined, since capital reserves (often invested in medium- to long-term) are not appropriate to mitigate short-term liquidity bottlenecks. A dedicated liquidity risk management aims to mitigate and govern this risk.

We calculate EC for four risk modules – credit risk, market risk, operational risk and business risk. The EC model and the underlying methodologies used for these four risk modules are described in this section. Most of the risk types mentioned in the list above are taken into account within these four risk modules and therefore in the EC model, e.g., strategic risk (see the mappings in the above figure). The exceptions not completely covered in the economic capital model are liquidity, model risk and reputational risks. Reputational and model risks are partly covered in strategic risk (and therefore business risk in the EC model) and operational risk. We do not determine EC for liquidity risk, since capital is not appropriate to mitigate liquidity risk. Other more appropriate risk metrics are used to measure and manage these risks instead.

Credit Risk Economic Capital Model

We calculate economic capital for counterparty risk, transfer risk and settlement risk as elements of credit risk. In line with our economic capital framework, economic capital for credit risk is set at a level to absorb with a probability of 99.98 % very severe aggregate unexpected losses within one year.

Our economic capital for credit risk is derived from the loss distribution of a portfolio via Monte Carlo Simulation of correlated rating migrations. The portfolio loss distribution is calculated as follows: in a first step, potential credit losses are quantified on transactional level based on available exposure and loss-given-default information. In a second step, the probability of joint defaults is modelled stochastically in terms of risk factors representing the relevant countries and industries that the counterparties are linked to. The simulation of portfolio losses is then performed by an internally developed model, which takes rating migration and maturity effects into account. Effects due to wrong-way derivatives risk (i.e., the credit exposure of a derivative in the default case is higher than in nondefault scenarios) are modelled by applying our own alpha factor when deriving the exposure at default for derivatives and securities financing transactions under the Basel 3 Internal Models Method (“IMM”). The alpha factor calibration is identical with the one used for the risk-weighted assets calculation, yet subject to a lower floor of 1.0. For December 31, 2015 the alpha factor was calibrated to 1.13 We allocate expected losses and economic capital derived from loss distributions down to transaction level to enable management on transaction, customer and business level.

We implement an asset value credit portfolio model based on the assumption that an obligor firm defaults when its value is no longer high enough to cover its liabilities. The obligor’s asset value or "ability to pay" is modelled as a random process, the Ability to Pay Process (APP). An obligor is taken to default when its asset value or ability to pay falls below a given default point. Changes in the value of systematic and specific factors are simulated in terms of multivariate distributions. The weight assigned to systematic and specific components and the covariance of systematic factors are estimated using equity and rating time series or are based on standards settings for particular portfolio segments. The current standard in credit portfolio modelling is to define the risk capital in terms of a percentile of the portfolio loss distribution, i.e., value-at-risk (VaR) of the loss of the portfolio at a specified confidence level α. VaR has an intuitive economic interpretation, i.e., it specifies the capital needed to absorb losses with probability α and has even achieved the high status of being written into industry regulations.

The concept of a coherent risk measure provides a useful characterization of risk measures under fairly general conditions. The most prominent class of coherent risk measures is expected shortfall, which can be interpreted as the average of all losses above a given percentile of the loss distribution. An important advantage of expected shortfall is the simple allocation of risk capital to subportfolios or individual transactions: the expected shortfall contribution of a subportfolio is its average contribution to portfolio losses above the percentile.

Economic capital is derived from VaR with confidence level α = 99.98%. The high percentile is motivated by the target rating of AA+, which is associated with a default rate of 0.02%. The economic capital is allocated to individual transactions using expected shortfall allocation. Portfolio information includes exposure, loss given default, one-year default probability and maturity. The parameters are consistent with the parameters used for the regulatory reporting, with the exception of those from the exposure for derivatives.

Modelling correlations via a factor model: A factor model describes the dynamics of a large number of random variables by making use of a reduced and fixed number of other random variables, called factors. The approach has the advantage of reducing computing time: fewer correlations need to be evaluated, and the factor correlation matrix does not change when new obligors are introduced. The parameters that specify the factor model are:

– The factor model characteristics for the different borrowers, i.e., the weights for the systemic country and industry factors (our model uses 45 systemic factors) and the weight for the specific factors, called R^2
– The covariance matrix between the country and industry factors

Modelling rating migration: The rating migration methodology requires additional information, which is internal to the model rather than input by the user: the transition matrix, describing the probabilities of migrating between different credit ratings, and a yield curve.

– Migration matrix: For K non-default credit rating grades and 1 default credit rating, a migration matrix is a (K + 1) × (K + 1) matrix with entries π_{ij}. It expresses in percentage terms the probability π_{ij} that any borrower with the credit rating i moves to the credit rating j in the next time step. Different migration matrices are used according to the length of the time step.
– Risk-free curve: The risk-free curve required as an input for different points in time is used to derive the corresponding risk-free discount factors.

Market Risk Economic Capital Model

Economic capital for market risk measures the amount of capital needed to absorb very severe, unexpected losses arising from our exposures over the period of one year. “Very severe” in this context means that the underlying economic capital is set at a level which covers, with a probability of 99.98 %, all unexpected losses over a one year time horizon. Market Risk Economic Capital consists of the following three components:

– Traded Market Risk, capturing the risk due to valuation changes from market price movements
– Traded Default Risk, capturing the risk due to valuation changes caused by issuer default and migration risk
– Non-traded Market Risk, market risk arising outside of the core trading activities

Traded Market Risk Economic Capital (TMR EC)

Our traded market risk economic capital model - scaled Stressed VaR based EC (SVaR based EC) - comprises two core components, the “common risk” component covering risk drivers across all businesses and the “business-specific risk” component, which enriches the Common Risk via a suite of Business Specific Stress Tests (BSSTs). Both components are calibrated to historically-observed severe market shocks.

Common risk is calculated using a scaled version of the Regulatory SVaR framework. The SVaR measure itself replicates the Value-at-Risk calculation that would be generated on the bank’s current portfolio if the relevant market factors were experiencing a period of stress. In particular, the model inputs are calibrated to historical data from a continuous 12-month period of significant financial stress relevant to the bank’s portfolio. The Regulatory SVaR model is then scaled-up to cover a different liquidity horizon (up to 1 year) and confidence level (99.98%). The liquidity horizon framework that is utilized in the SVaR based EC model accounts for different levels of market liquidity as well as risk concentrations in the bank’s portfolios. In terms of coverage, the “common risk” captures outright linear and some non-linear risks (e.g. Gamma, Vega etc) to systematic and idiosyncratic risk drivers. The model incorporates the following risk factors: interest rates, credit spreads, equity prices, foreign exchange rates, commodity prices, volatilities and correlations.

The “business-specific risk” captures more product/business-related bespoke risks (e.g. complex basis risks) as well as higher order risks (e.g. for equity options) not captured in the common risk component. The concept of business-specific risk is in particular important in areas where the lack of meaningful market data prevents direct use of the common risk model. BSSTs are in general calibrated to available historical data to obtain a stress scenario. Where appropriate, risk managers use their expert judgment to define severe market shocks, based upon the knowledge of past extreme market conditions. In addition to the BSSTs the business specific risk component of the SVaR based EC model also contains placeholders which carry an estimated EC component on a temporary basis, while efforts are being made to cover those risks with a proper business-specific stress test or integrate it in the common risk framework.

We also continuously assess and refine our market risk EC model to ensure the capture of new material risks as well as the appropriateness of the shocks applied. The calculation of the Traded Market Risk EC is performed weekly.

Traded Default Risk Economic Capital (TDR EC)

TDR refers to changes in the value of instruments caused by default or rating changes of the issuer. For credit derivatives as credit default swaps (CDS), the rating of the issuer of the reference asset is modelled. TDR covers the following positions:

– Fair value assets in the banking book;
– Unsecuritized credit products in the trading book excluding the correlation trading portfolio;
– Securitized products in the trading book excluding the correlation trading portfolio;
– Correlation trading portfolio.

The traded default risk EC for the correlation trading portfolio is calculated using the comprehensive risk measure model. For all other positions the TDR methodology risk is similar to the credit risk methodology, an important difference between the EC calculation for traded default risk and credit risk is the capital horizon 6 months for most TDR positions compared to 12 months used for credit risk. Recognizing traded default risk EC for unsecuritized credit products corresponds to the calculation of the incremental risk charge for the trading book for regulatory purposes. EC for TDR represents an estimate of the default and migration risks of credit products at a 99.98 % confidence level, taking into account the liquidity horizons of the respective sub-portfolios.

TDR captures the credit exposures across our trading books and it is monitored via single name concentration and portfolio limits which are set based upon rating, size and liquidity. Single name concentration risk limits are set for two key metrics: Default Exposure, i.e., the P&L impact of an instantaneous default at the current recovery rate (RR), and bond equivalent Market Value (MV), i.e. default exposure at 0 % recovery. In addition, a traded default risk economic capital limit is set within the Market Risk economic capital framework while the incremental risk charge monitors the regulatory capital requirements associated with these positions. In order to capture diversification and concentration effects we perform a joint calculation for traded default risk economic capital and credit risk economic capital. Important parameters for the calculation of traded default risk are exposures, recovery rates and default probabilities as well as maturities. Exposures, recovery rates and default probabilities are derived from market information and external ratings for the trading book and internal assessments for the banking book as for credit risk economic capital. Rating migrations are governed by migration matrices, which are obtained from historical rating time series from rating agencies and internal observations. The probability of joint rating downgrades and defaults is determined by the default and rating correlations of the portfolio model. These correlations are specified through systematic factors that represent countries, geographical regions and industries.

Validation of the market risk economic capital model is performed by an independent team. The regular review covers, but is not limited to, the appropriateness of risk factors, the calibration techniques, the parameter settings, and model assumptions.

Non-traded market risk Economic Capital (NTMR EC)

Non-traded market risk arises from market movements, primarily outside the activities of our trading units, in our banking book and from off-balance sheet items. Significant market risk factors which the bank is exposed to and are overseen by risk management groups in that area are:

– Interest rate risk (including model risk from embedded optionality and from modeling behavioral assumptions for relevant product types), credit spread risk, foreign exchange risk, equity risk (including investments in public and private equity as well as real estate, infrastructure and fund assets); and
– Market risks from off-balance sheet items such as pension schemes and guarantees as well as structural foreign exchange risk and equity compensation risk.

Non-traded market risk economic capital is being calculated either by applying the standard traded market risk EC methodology (SVaR based EC model) or through the use of non-traded market risk models that are specific to each risk class and which consider, among other factors, large historically observed market moves, the liquidity of each asset class, and changes in client behavior in relation to deposit products. The calculation of EC for non-traded market risk is performed monthly.

Operational Risk Economic Capital Model

For the quantification of economic capital requirements DB Group uses the Advanced Measurement Approach (AMA). The economic capital is set at a 99.98 % percentile to absorb very severe unexpected losses within one year. Apart from different confidence levels, we use the same data input and methodology for the calculation of regulatory and economic capital requirements.

For detailed information on our operational risk measurement approaches refer to our Pillar 3 report section “Operational Risk Capital Measurement”.

Business Risk Economic Capital Model

We measure economic capital for business risk, which includes strategic risk and tax risk.

The economic capital for strategic risk is based on a model calculating an earnings distribution on Deutsche Bank group level. Important input parameters of the EC model are planned revenues and costs from the Group strategic plan and monthly management review process. This ensures that the model includes strategic decisions or changes to the business environment in a timely manner as it uses a business unit structure and revenue drivers for each business unit. These forecasts determine the mean values of the revenue and cost distributions. The volatilities of the revenue distributions are derived from historical revenue time series of our business units. Risk concentrations within and across businesses are specified by revenue drivers for individual business units. The correlations of revenue drivers, e.g. market or macroeconomic factors, are calibrated with historical time series. Revenues are then simulated together with costs to allow for a partial offset of revenue decreases by cost reductions, e.g. by reduced bonus payments. Revenues and costs are combined to an earnings distribution for the Group, which is used for deriving the economic capital for strategic risk. It covers a twelve months time-horizon and is calculated with a confidence of 99.98%, in line with our general economic capital definition.

Tax risk is determined by reference to tax re-determination risk with respect to transactions of a structured capital markets nature undertaken by the Bank. The portfolio of these transactions is now almost entirely of a legacy nature. Tax re-determination risk is the risk that the eventual actual tax treatment of relevant transactions differs from that determined by the Bank because of a judicial determination or challenge by a tax authority. Examples of tax re-determination risk include a tax ceasing to be creditable, a tax deduction not being granted, a tax consolidated group not being respected, or an anti avoidance rule being determined to apply. Tax related inputs of the process are under the direction and control of tax professionals of the Bank who are independent of business units. The calculation of tax risk EC is performed in a portfolio model that specifies correlations between individual transactions. The notional exposure for each “tax issue” is determined based on adjustments reflecting the technical robustness of the Bank’s position, the one-year risk horizon of the Bank, and reserves. A probability is assigned to each “tax issue”. Tax risk EC is compute at the 99.98% confidence level of the portfolio loss distribution, which is obtained through Monte Carlo simulation.

Risk Type Diversification

The risk type diversification benefit quantifies diversification effects between credit, market, operational and strategic risk in the economic capital calculation. To the extent correlations between these risk types fall below 1.0, a risk type diversification benefit results. The calculation of the risk type diversification benefit is intended to ensure that the standalone economic capital figures for the individual risk types are aggregated in an economically meaningful way. Please refer to Risk Profile in our Risk Report for the diversification amount across credit risk, market risk, operational risk and business risk.

Stress Testing

We have a strong commitment to stress testing performed on a regular basis in order to assess the impact of a severe economic downturn on our risk profile and financial position. These exercises complement traditional risk measures and represent an integral part of our strategic and capital planning process. Our stress testing framework comprises regular Group-wide stress tests based on internally defined benchmark and more severe macroeconomic global downturn scenarios. We include all material risk types into our stress testing exercises. The time-horizon of internal stress tests is generally one year and can be extended to multi-year, if required by the scenario assumptions. Our methodologies undergo regular scrutiny from internal experts as well as regulators to review whether they correctly capture the impact of a given stress scenario. These analyses are complemented by portfolio- and country-specific stress tests as well as regulatory requirements, such as annual reverse stress tests and additional stress tests requested by our regulators on group or legal entity level. Moreover, capital plan stress testing is performed to assess the viability of our capital plan in adverse circumstances and to demonstrate a clear link between risk appetite, business strategy, capital plan and stress testing. An integrated procedure allows us to assess the impact of ad-hoc scenarios that simulate potential imminent financial or geopolitical shocks.

The initial phase of our internal stress tests consists of defining a macroeconomic downturn scenario by dbResearch in cooperation with business specialists. dbResearch monitors the political and economic development around the world and maintains a macro-economic heat map that identifies potentially harmful scenarios. Based on quantitative models and expert judgments, economic parameters such as foreign exchange rates, interest rates, GDP growth or unemployment rates are set accordingly to reflect the impact on our business. The scenario parameters are translated into specific risk drivers by subject matter experts in the risk units. Based on our internal models framework for stress testing, the following major metrics are calculated under stress: risk weighted assets, impacts on profit and loss and economic capital by risk type.These results are aggregated at the Group level, and key metrics such as the SNLP, the CET 1 ratio and ICA ratio under stress are derived. Stress testing results and the underlying scenarios are reviewed across risk types on various levels by senior managers within Risk, Finance and the business units. After comparing these results against our defined risk appetite, senior management decides on specific mitigation actions to remediate the stress impact in alignment with the overall strategic and capital plan if certain limits are breached. The results also feed into the annual recovery planning which is crucial for the recoverability of the bank in times of crisis. The outcome is presented to senior management up to the Management Board to raise awareness on the highest level as it provides key insights into specific business vulnerabilities and contributes to the overall risk profile assessment of the bank. A reverse stress test is performed annually in order to challenge our business model to determine the severity of scenarios that would cause us to become unviable. Such a reverse stress test is based on a hypothetical macroeconomic scenario or idiosyncratic event and takes into account severe impacts of major risks on our results. Comparing the hypothetical macroeconomic scenario that would be necessary to result in our non-viability according to the reverse stress, to the current economic environment, we consider that the probability of occurrence of such a hypothetical macroeconomic scenario is extremely low.

Regulatory Capital

Overview

Capital Adequacy

The calculation of our regulatory capital incorporates the capital requirements following the “Regulation (EU) No 575/2013 on prudential requirements for credit institutions and investment firms” (Capital Requirements Regulation or “CRR”) and the “Directive 2013/36/EU on access to the activity of credit institutions and the prudential supervision of credit institutions and investment firms” (Capital Requirements Directive 4 or “CRD 4”) as implemented into German law. The information in this section as well as in the section “Development of risk-weighted Assets” is based on the regulatory principles of consolidation.

This section refers to the capital adequacy of the group of institutions consolidated for banking regulatory purposes pursuant to the CRR and the German Banking Act (“Kreditwesengesetz” or “KWG”). Therein not included are insurance companies or companies outside the finance sector. Our insurance companies are included in an additional capital adequacy (also “solvency margin”) calculation under the German Solvency Regulation for Financial Conglomerates. Our solvency margin as a financial conglomerate remains dominated by our banking activities. In light of the regulations mentioned above, the following information is based on the banking regulatory principles of consolidation.

The total regulatory capital pursuant to the effective regulations as of year-end 2015 comprises Tier 1 and Tier 2 (T2) capital. Tier 1 capital is subdivided into Common Equity Tier 1 (CET 1) capital and Additional Tier 1 (AT1) capital.

Common Equity Tier 1 (CET 1) capital consists primarily of common share capital (reduced by own holdings) including related share premium accounts, retained earnings (including losses for the financial year, if any) and accumulated other comprehensive income, subject to regulatory adjustments (i.e. prudential filters and deductions). Prudential filters for CET 1, according to Articles 32 to 35 CRR, include (i) securitization gain on sale, (ii) cash flow hedges and changes in the value of own liabilities, and (iii) additional value adjustments. CET 1 capital deductions comprise (i) intangible assets, (ii) deferred tax assets that rely on future profitability, (iii) negative amounts resulting from the calculation of expected loss amounts, and (iv) net defined benefit pension fund assets, (v) reciprocal cross holdings in the capital of financial sector entities, (vi) significant and non-significant investments in the capital (CET 1, AT1, T2) of financial sector entities above certain thresholds. All items not deducted (i.e. amounts below the threshold) are subject to risk-weighting.

Additional Tier 1 (AT1) capital consists of AT1 capital instruments and related share premium accounts as well as noncontrolling interests qualifying for inclusion in consolidated AT1, and during the transitional period grandfathered instruments eligible under earlier frameworks. To qualify as AT1 under CRR/CRD 4 instruments must have principal loss absorption through a conversion to common shares or a write-down mechanism allocating losses at a trigger point and must also meet further requirements (perpetual with no incentive to redeem; institution must have full dividend/coupon discretion at all times, etc.).

Tier 2 (T2) capital comprises eligible capital instruments, the related share premium accounts and subordinated long-term debt, certain loan loss provisions and noncontrolling interests that qualify for inclusion in consolidated T2. To qualify as T2 capital instruments or subordinated debt must have an original maturity of at least five years. Moreover, eligible capital instruments may inter alia not contain an incentive to redeem, a right of investors to accelerate repayment, or a credit sensitive dividend feature.

Capital instruments that no longer qualify as AT1 or T2 capital under the CRR/CRD 4 fully loaded rules are subject to grandfathering rules during transitional period and are phased out from 2013 to 2022 with their recognition capped at 70 % in 2015 and the cap decreasing by 10 % every year.

Capital Instruments

A description of the main features of the Common Equity Tier 1, Additional Tier 1 and Tier 2 capital instruments issued by Deutsche Bank is published on Deutsche Bank's website (www.db.com/ir/capital-instruments). In addition, this website provides full terms and conditions of all Common Equity Tier 1, Additional Tier 1 and Tier 2 capital instruments.

Minimum capital requirements and additional capital buffers

The CET 1 minimum capital requirements applicable to the Group increased from 4 % of risk-weighted assets (RWA) in 2014 to 4.5 % of RWA from 2015 onwards. The total capital requirement of 8 % demands further resources that may be met with up to 1.5 % AT1 capital and up to 2 % Tier 2 capital from 2015 onwards.

Failure to meet minimum capital requirements can result in supervisory measures such as restrictions of profit distributions or limitations on certain businesses such as lending. We complied with the regulatory capital adequacy requirements in 2015. Our subsidiaries which were not included in our regulatory consolidation due to their immateriality did not have to comply with own minimum capital standards in 2015.

In addition to these minimum capital requirements, the following capital buffer requirements will be phased-in starting 2016 (other than the systemic risk buffer, if any, which is not subject to any phase-in) and will become fully effective from 2019 onwards. The buffer requirements must be met in addition to the minimum capital requirements, but can be drawn down in times of economic stress.

In March 2015, Deutsche Bank was designated as a global systemically important institution (G-SII) by the German Federal Financial Supervisory Authority (BaFin) in agreement with the Deutsche Bundesbank resulting in a G-SII buffer requirement of 2 % CET 1 capital of RWA in 2019. This is in line with the Financial Stability Board (FSB) assessment of systemic importance based on the indicators as published in 2014. The additional buffer requirement of 2 % for G-SIIs will be phased in starting 2016 with 0.5 %. We will continue to publish our indicators on our website.

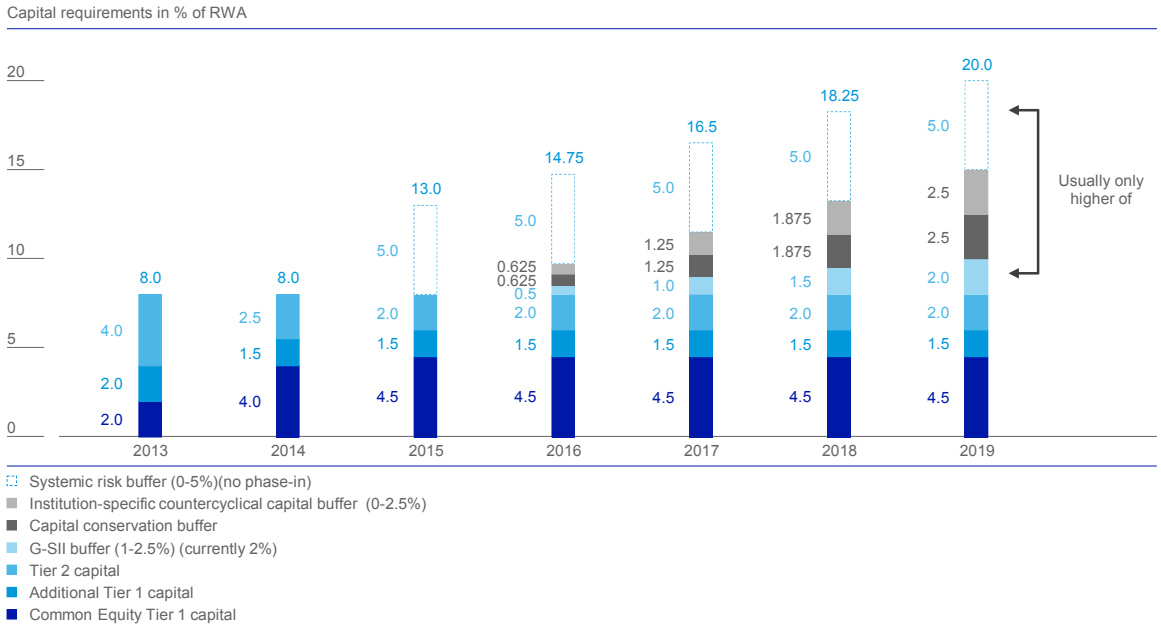
The capital conservation buffer is implemented in Section 10c German Banking Act, based on Article 129 CRD 4 and equals a requirement of 2.5 % CET 1 of RWA. The additional buffer requirement of 2.5 % will be phased in starting 2016 with 0.625 %.

The countercyclical capital buffer is deployed in a jurisdiction when excess credit growth is associated with an increase in system wide risk. It may vary between 0 % and 2.5 % CET 1 of RWA by 2019. In exceptional cases, it could also be higher than 2.5 %. The institution-specific countercyclical buffer that applies to Deutsche Bank is the weighted average of the countercyclical capital buffers that apply in the jurisdictions where our relevant credit exposures are located. No institution-specific countercyclical buffer applied to Deutsche Bank in 2015. The countercyclical capital buffer is expected to be insignificant in 2016.

In addition to the aforementioned buffers, national authorities, such as the BaFin, may require a systemic risk buffer to prevent and mitigate long-term non-cyclical systemic or macro-prudential risks that are not covered by the CRR. They can require an additional buffer of up to 5 % CET 1 of RWA. It is to be noted that unless certain exceptions apply only the higher of the systemic risk buffer and the G-SII buffer must be applied. As of year-end 2015, no systemic risk buffer applied to Deutsche Bank.

The following graph gives an overview of the different minimum capital requirements and capital buffer requirements:

Overview total capital requirements and capital buffers



In addition, pursuant to the Supervisory Review and Evaluation Process (SREP), the ECB may impose capital requirements on individual banks which are more stringent than statutory requirements. On February 20, 2015, the ECB notified us that we are required to maintain a CET 1 ratio of at least 10.00% (on a phase-in basis) going forward. On December 4, 2015, the ECB informed Deutsche Bank that the consolidated Group has to keep a CET 1 ratio of at least 10.25 % on a phase-in basis under applicable transitional rules under CRR/CRD 4 at all times. This requirement includes the capital conservation buffer, but does not include all other buffers (e.g. the G-SII buffer).

Consequently, in December 2015 our SREP CET 1 requirements amounted to 10.25 %. Considering the phasing of the G-SII buffer but not the countercyclical buffer, our 2016 SREP CET 1 requirements increase to 10.75 %.

Development of regulatory capital

Our CRR/CRD 4 Tier 1 capital as of December 31, 2015 amounted to € 58.2 billion, consisting of a Common Equity Tier 1 (CET 1) capital of € 52.4 billion and Additional Tier 1 (AT1) capital of € 5.8 billion. The CRR/CRD 4 Tier 1 capital was € 5.7 billion lower than at the end of 2014, primarily driven by a decrease in CET 1 capital of € 7.7 billion since year end 2014 while AT1 capital increased by € 2.0 billion in the same period.

The € 7.7 billion decrease of CRR/CRD 4 CET 1 capital was largely the result of the net loss attributable to Deutsche Bank shareholders and additional equity components of € 6.8 billion in 2015. The € 5.8 billion net loss attributable to the impairment of goodwill and other intangible assets in the third quarter of 2015 was to the extent neutral to which goodwill and other intangible assets were deducted from CET 1 and AT1 capital on a phase-in basis before the impairment. The Decision (EU) (2015/4) of the ECB enforces the recognition of the year end loss in CET 1 capital. Deutsche Bank's revised common share dividend policy refers to the ECB decision as long as the Management Board does not decide and officially announce a different dividend level for the respective year. Following the announcement in 2015 to pay no dividend to common shareholders, no common share dividend has been accrued for 2015. The decrease in CET 1 capital was furthermore driven by the first-time consideration of additional value adjustments (based on the Regulatory Technical Standard on prudent valuation issued by the EBA) in September 30, 2015. Additional value adjustments amounted to € 1.9 billion as per December 31, 2015. The effect on CRR/CRD 4 CET 1 capital was partly compensated by a benefit from the related reduction of the negative amounts resulting from the calculation of expected loss amounts. Deductions of deferred tax assets increased by € 1.0 billion in 2015 mainly as a result of higher deferred tax assets largely due to the net loss as well as threshold effects under the 10/15 % rule. Overall, regulatory adjustments increased due the higher phase-in rate of 40 % in 2015 compared to 20 % in 2014. CRR/CRD 4 CET 1 capital was positively impacted by Currency Translation Adjustments of € 2.0 billion and further positive foreign exchange effects in 2015.

The € 2.0 billion increase in CRR/CRD 4 AT1 capital was mainly the result of reduced regulatory adjustments (€ 5.5 billion lower than at year end 2014, also impacted by the impairments of goodwill and other intangible assets) that were phased out from AT1 capital. These deductions reflect the residual amount of certain CET 1 deductions that are subtracted from CET 1 capital under fully loaded rules, but are allowed to reduce AT1 capital during the transitional period. The phase-in rate for these deductions on the level of CET 1 capital increased to 40 % in 2015 (20 % in 2014) and decreased correspondingly on the level of AT1 capital to 60 % in 2015 (80 % in 2014). The reduction of regulatory adjustments on the level of AT1 capital over-compensated the decrease in our CRR/CRD 4 AT1 capital instruments of € 3.5 billion (compared to December 31, 2014) that resulted mainly from our redemptions of legacy Hybrid Tier 1 capital instruments.

Our fully loaded CRR/CRD 4 Tier 1 capital as of December 31, 2015 was € 48.7 billion, compared to € 50.7 billion at the end of 2014. Our fully loaded CRR/CRD 4 CET 1 capital amounted to € 44.1 billion as of December 31, 2015, compared to € 46.1 billion as of December 31, 2014. Our fully loaded CRR/CRD 4 Additional Tier 1 capital amounted to € 4.6 billion as per end of December 2015, nearly unchanged compared to year end 2014.

The decrease of our fully loaded CET 1 capital of € 2.0 billion compared to year end 2014 was due to the fact that the negative impacts (net loss of € 6.8 billion, first-time prudent valuation deduction of € 1.9 billion) were partially reduced by positive counter-effects. These constitute predominantly lower deductions of goodwill and other intangible assets mainly due to impairments (€ 4.5 billion lower deduction compared to year end 2014), a reduced deduction of negative amounts from the calculation of expected loss amounts (€ 0.6 billion lower deduction compared to year end 2014 as a consequence of the prudent valuation assessment) and a positive impact from the change of the foreign currency exchange rates since year end 2014.

Overview of Regulatory Capital, RWA and Capital Ratios according to CRR/CRD 4

	Dec 31, 2015		Dec 31, 2014	
in € m.	CRR/CRD 4 fully-loaded	CRR/CRD 4	CRR/CRD 4 fully-loaded	CRR/CRD 4
Common Equity Tier 1 capital before regulatory adjustments	61,766	62,042	65,750	66,175
Total regulatory adjustments to Common Equity Tier 1 (CET 1) capital	(17,665)	(9,613)	(19,674)	(6,072)
Common Equity Tier 1 (CET 1) capital	**44,101**	**52,429**	46,076	60,103
Additional Tier 1 (AT1) capital before regulatory adjustments	4,676	11,157	4,676	14,696
Total regulatory adjustments to Additional Tier 1 (AT1) capital	(125)	(5,365)	(57)	(10,902)
Additional Tier 1 (AT1) capital	**4,551**	**5,793**	4,619	3,794
Tier 1 capital (T1 = CET 1 + AT1)	**48,651**	**58,222**	50,695	63,898
Tier 2 (T2) capital before regulatory adjustments	12,395	6,622	12,412	4,891
Total regulatory adjustments to Tier 2 (T2) capital	(71)	(323)	(36)	(496)
Tier 2 (T2) capital	**12,325**	**6,299**	12,377	4,395
Total capital (TC = T1 + T2)	**60,976**	**64,522**	63,072	68,293
Total risk-weighted assets	**396,714**	**397,382**	393,969	396,648
Capital ratios				
Common Equity Tier 1 capital ratio (as a percentage of risk-weighted assets)	11.1	13.2	11.7	15.2
Tier 1 capital ratio (as a percentage of risk-weighted assets)	12.3	14.7	12.9	16.1
Total capital ratio (as a percentage of risk-weighted assets)	15.4	16.2	16.0	17.2

Details

Reconciliation of Consolidated Balance Sheet according to IFRS to regulatory Balance Sheet

	Dec. 31, 2015			Dec. 31, 2014			
in € m.	Financial Balance Sheet	Deconsolidation/Consolidation of entities	Regulatory Balance Sheet	Financial Balance Sheet	Deconsolidation/Consolidation of entities	Regulatory Balance Sheet	References[1]
Assets:							
Cash and central bank balances[2]	96,940	(87)	96,853	74,482	(1,407)	73,075	
Interbank balances (w/o central banks)[2]	12,842	(2,432)	10,410	9,090	(197)	8,893	
Central bank funds sold and securities purchased under resale agreements	22,456	0	22,456	17,796	0	17,796	
Securities borrowed	33,557	(5)	33,552	25,834	(11)	25,823	
Financial assets at fair value through profit or loss							
Trading assets	196,035	(3,331)	192,704	195,681	(7,846)	187,835	
Positive market values from derivative financial instruments	515,594	2,313	517,907	629,958	421	630,379	
Financial assets designated at fair value through profit or loss	109,253	(12,701)	96,552	117,285	(12,490)	104,795	
Total financial assets at fair value through profit or loss	820,883	(13,719)	807,163	942,924	(19,915)	923,009	
Financial assets available for sale	73,583	20,473	94,056	64,297	434	64,731	
Equity method investments	1,013	(76)	937	4,143	(218)	3,925	h
Thereof: Goodwill	28	0	28	430	0	430	e
Loans	427,749	1,061	428,810	405,612	(3,348)	402,264	
Property and equipment	2,846	(209)	2,638	2,909	(193)	2,716	
Goodwill and other intangible assets	10,078	(1,330)	8,748	14,951	(1,817)	13,134	e
Other assets	118,137	(404)	117,734	137,980	(1,027)	136,953	
Thereof: Defined benefit pension fund assets	1,173	(0)	1,173	961	0	961	g
Assets for current tax	1,285	(129)	1,155	1,819	(115)	1,704	
Deferred tax assets	7,762	(7)	7,755	6,865	(16)	6,849	f
Total assets	**1,629,130**	**3,136**	**1,632,266**	1,708,703	(27,832)	1,680,872	
Liabilities and equity:							
Deposits	566,974	5,725	572,699	532,931	4,823	537,754	
Central bank funds purchased and securities sold under repurchase agreements	9,803	0	9,803	10,887	0	10,887	
Securities loaned	3,270	(5)	3,266	2,339	(10)	2,329	
Financial liabilities at fair value through profit or loss							
Trading liabilities	52,304	(190)	52,115	41,843	(200)	41,643	
Negative market values from derivative financial instruments	494,076	301	494,377	610,202	603	610,805	
Financial liabilities designated at fair value through profit or loss	44,852	(1,196)	43,655	37,131	(2,315)	34,816	
Investment contract liabilities	8,522	(8,522)	0	8,523	(8,523)	0	
Total financial liabilities at fair value through profit or loss	599,754	(9,607)	590,148	697,699	(10,435)	687,264	
Other short-term borrowings	28,010	(1,519)	26,491	42,931	(8,780)	34,151	
Other liabilities	175,005	(12,156)	162,849	183,823	(12,628)	171,195	
Provisions	9,207	(70)	9,137	6,677	(81)	6,596	
Liabilities for current tax	1,699	(149)	1,550	1,608	(40)	1,568	
Deferred tax liabilities	746	(295)	451	1,175	(443)	732	
Long-term debt	160,016	21,505	181,521	144,837	772	145,609	
Thereof: Subordinated long-term debt[3]	7,826	0	7,826	6,392	0	6,392	j, k
Trust preferred securities[3]	7,020	388	7,409	10,573	516	11,089	j, k
Obligation to purchase common shares	0	0	0	0	0	0	
Total liabilities	**1,561,506**	**3,817**	**1,565,323**	1,635,481	(26,308)	1,609,173	
Common shares, no par value, nominal value of € 2.56	3,531	0	3,531	3,531	0	3,531	a
Additional paid-in capital	33,572	(5)	33,568	33,626	(5)	33,621	a
Retained earnings	21,182	(251)	20,931	29,279	(1,107)	28,171	b
Common shares in treasury, at cost	(10)	0	(10)	(8)	0	(8)	a
Equity classified as obligation to purchase common shares	0	0	0	0	0	0	
Accumulated other comprehensive income, net of tax	4,404	(307)	4,096	1,923	(306)	1,617	c
Total shareholders' equity	**62,678**	**(563)**	**62,115**	68,351	(1,419)	66,932	
Additional equity components	4,675	0	4,675	4,619	0	4,619	i
Noncontrolling interests	270	(118)	153	253	(105)	148	d
Total equity	**67,624**	**(681)**	**66,943**	73,223	(1,523)	71,699	
Total liabilities and equity	**1,629,130**	**3,136**	**1,632,266**	1,708,703	(27,832)	1,680,872	

[1] References provide the mapping of regulatory balance sheet items used to calculate regulatory capital as reflected in the column "References" in "Transitional template for Regulatory Capital, RWA and Capital Ratios". Where applicable, more detailed information are provided in the respective reference footnote section.
[2] In 2015, comparatives have been restated. See Note 1 "Significant Accounting Policies and Critical Accounting Estimates – Significant Changes in Estimates and Changes in Presentation" for detailed information.
[3] Eligible Additional Tier 1 and Tier 2 instruments are reflected in these balance sheet positions with their values according to IFRS.

Transitional template for regulatory capital, RWA and capital ratios

in € m.	Dec 31, 2015 CRR/CRD 4 fully-loaded	Dec 31, 2015 CRR/CRD 4	Dec 31, 2014 CRR/CRD 4 fully loaded	Dec 31, 2014 CRR/CRD 4	References[1]
Common Equity Tier 1 (CET 1) capital: instruments and reserves					
Capital instruments and the related share premium accounts	37,088	37,088	37,144	37,144	a
Thereof: Ordinary shares[2]	37,088	37,088	37,144	37,144	a
Retained earnings	27,607	27,607	26,509	26,509	b
Accumulated other comprehensive income (loss), net of tax	4,096	4,281	1,617	1,923	c
Funds for general banking risk	0	0	0	0	
Amount of qualifying items referred to in Art. 484 (3) CRR and the related share premium accounts subject to phase-out from CET 1	N/M	0	N/M	0	
Public sector capital injections grandfathered until January 1, 2018	N/M	N/M	N/M	N/M	
Noncontrolling Interests (amount allowed in consolidated CET 1)	0	92	0	118	d
Independently reviewed interim profits net of any foreseeable charge or dividend[3]	(7,025)	(7,025)	481	481	b
Common Equity Tier 1 (CET 1) capital before regulatory adjustments	**61,766**	**62,042**	65,750	66,175	
Common Equity Tier 1 (CET 1) capital: regulatory adjustments					
Additional value adjustments (negative amount)[4]	(1,877)	(1,877)	0	0	
Goodwill and other intangible assets (net of related tax liabilities) (negative amount)	(8,439)	(3,376)	(12,979)	(2,596)	e
Deferred tax assets that rely on future profitability excluding those arising from temporary differences (net of related tax liabilities where the conditions in Art. 38 (3) CRR are met) (negative amount)	(3,310)	(1,324)	(2,620)	(524)	f
Fair value reserves related to gains or losses on cash flow hedges	(196)	(196)	(181)	(181)	
Negative amounts resulting from the calculation of expected loss amounts	(106)	(58)	(712)	(147)	
Any increase in equity that results from securitized assets (negative amount)	(20)	(20)	0	0	
Gains or losses on liabilities designated at fair value resulting from changes in own credit standing[5]	(407)	(114)	(544)	(210)	
Defined benefit pension fund assets (negative amount)	(1,173)	(469)	(961)	(192)	g
Direct, indirect and synthetic holdings by an institution of own CET 1 instruments (negative amount)[6]	(76)	(39)	(54)	(11)	
Direct, indirect and synthetic holdings of the CET 1 instruments of financial sector entities where those entities have reciprocal cross holdings with the institution designed to inflate artificially the own funds of the institution (negative amount)	0	0	0	0	
Direct, indirect and synthetic holdings by the institution of the CET 1 instruments of financial sector entities where the institution does not have a significant investment in those entities (amount above the 10 % threshold and net of eligible short positions) (negative amount)[7]	0	0	0	0	
Direct, indirect and synthetic holdings by the institution of the CET 1 instruments of financial sector entities where the institution has a significant investment in those entities (amount above 10 % threshold and net of eligible short positions) (negative amount)	0	0	0	0	
Exposure amount of the following items which qualify for a Risk Weight of 1250 %, where the institution opts for the deduction alternative	0	0	0	0	
Thereof:					
Qualifying holdings outside the financial sector (negative amount)	0	0	0	0	
Securitization positions (negative amount)	0	0	0	0	
Free deliveries (negative amount)	0	0	0	0	
Deferred tax assets arising from temporary differences (amount above 10 % threshold, net of related tax liabilities where the conditions in Art. 38 (3) CRR are met) (negative amount)	0	0	(78)	(16)	f
Amount exceeding the 15 % threshold (negative amount)	(1,770)	(602)	(1,199)	(202)	
Thereof:					
Direct, indirect and synthetic holdings by the institution of the CET 1 instruments of financial sector entities where the institution has a significant investment in those entities	(818)	(278)	(499)	(84)	h
Deferred tax assets arising from temporary differences	(953)	(324)	(700)	(118)	f
Losses for the current financial year (negative amount)	0	0	0	0	
Regulatory adjustments applied to CET 1 capital in respect of amounts subject to pre-CRR treatment:	N/M	0	N/M	0	
Regulatory adjustments relating to unrealized gains and losses pursuant to Art. 467 and 468 CRR	N/M	(1,246)	N/M	(1,648)	
Amount to be deducted from or added to CET 1 capital with regard to additional filters and deductions required pre CRR[8]	(291)	(291)	(345)	(345)	
Qualifying AT1 deductions that exceed the AT1 capital of the institution (negative amount)	0	0	0	0	
Other regulatory adjustments	0	0	0	0	
Total regulatory adjustments to Common Equity Tier 1 (CET 1) capital	**(17,665)**	**(9,613)**	(19,674)	(6,072)	
Common Equity Tier 1 (CET 1) capital	**44,101**	**52,429**	46,076	60,103	

	Dec 31, 2015		Dec 31, 2014		
in € m.	CRR/CRD 4 fully-loaded	CRR/CRD 4	CRR/CRD 4 fully loaded	CRR/CRD 4	References[1]
Additional Tier 1 (AT1) capital: instruments					
Capital instruments and the related share premium accounts	4,676	4,676	4,676	4,676	i
Thereof:					
Classified as equity under applicable accounting standards	4,676	4,676	4,676	4,676	i
Classified as liabilities under applicable accounting standards	0	0	0	0	
Amount of qualifying items referred to in Art. 484 (4) CRR and the related share premium accounts subject to phase out from AT1	N/M	6,482	N/M	10,021	j
Public sector capital injections grandfathered until January 1, 2018	N/M	N/M	N/M	N/M	
Tier 1 capital included in consolidated AT1 capital issued by subsidiaries and held by third parties	0	0	0	0	
Thereof: instruments issued by subsidiaries subject to phase out	N/M	0	N/M	0	
Additional Tier 1 (AT1) capital before regulatory adjustments	**4,676**	**11,157**	4,676	14,696	
Additional Tier 1 (AT1) capital: regulatory adjustments					
Direct, indirect and synthetic holdings by an institution of own AT1 instruments (negative amount)	(125)	(48)	(57)	(57)	i
Direct, indirect and synthetic holdings of the AT1 instruments of financial sector entities where those entities have reciprocal cross holdings with the institution designed to inflate artificially the own funds of the institution (negative amount)	0	0	0	0	
Direct, indirect and synthetic holdings of the AT1 instruments of financial sector entities where the institution does not have a significant investment in those entities (amount above the 10 % threshold and net of eligible short positions) (negative amount)[7]	0	0	0	0	
Direct, indirect and synthetic holdings by the institution of the AT1 instruments of financial sector entities where the institution has a significant investment in those entities (amount above the 10 % threshold net of eligible short positions) (negative amount)	0	0	0	0	
Regulatory adjustments applied to AT1 capital in respect of amounts subject to pre-CRR treatment and transitional treatments subject to phase out as prescribed in CRR (i.e., residual amounts)	N/M	0	N/M	0	
Residual amounts deducted from AT1 capital with regard to deduction from CET 1 capital during the transitional period pursuant to Art. 472 CRR	N/M	(5,316)	N/M	(10,845)	
Thereof:					
Goodwill and other intangible assets (net of related tax liabilities)	N/M	(5,064)	N/M	(10,383)	e
Negative amounts resulting from the calculation of expected loss amounts	N/M	(44)	N/M	(294)	
Direct, indirect and synthetic holdings by the institution of the CET 1 instruments of financial sector entities where the institution has a significant investment in those entities	N/M	(209)	N/M	(168)	h
Residual amounts deducted from AT1 capital with regard to deduction from Tier 2 (T2) capital during the transitional period pursuant to Art. 475 CRR	N/M	0	N/M	0	
Amount to be deducted from or added to AT1 capital with regard to additional filters and deductions required pre CRR	N/M	0	N/M	0	
Qualifying T2 deductions that exceed the T2 capital of the institution (negative amount)	0	0	0	0	
Total regulatory adjustments to Additional Tier 1 (AT1) capital	**(125)**	**(5,365)**	(57)	(10,902)	
Additional Tier 1 (AT1) capital	**4,551**	**5,793**	4,619	3,794	
Tier 1 capital (T1 = CET 1 + AT1)	**48,651**	**58,222**	50,695	63,898	
Tier 2 (T2) capital: instruments and provisions					
Capital instruments and the related share premium accounts[9]	11,672	5,757	11,505	2,942	k
Amount of qualifying items referred to in Art. 484 (5) CRR and the related share premium accounts subject to phase out from T2	N/M	0	N/M	721	k
Public sector capital injections grandfathered until January 1, 2018	N/M	N/M	N/M	N/M	
Qualifying own funds instruments included in consolidated T2 capital issued by subsidiaries and held by third parties	723	865	908	1,228	k
Thereof: instruments issued by subsidiaries subject to phase out	N/M	0	N/M	0	
Credit risk adjustments	0	0	0	0	
Tier 2 (T2) capital before regulatory adjustments	**12,395**	**6,622**	12,412	4,891	

in € m.	Dec 31, 2015 CRR/CRD 4 fully-loaded	Dec 31, 2015 CRR/CRD 4	Dec 31, 2014 CRR/CRD 4 fully loaded	Dec 31, 2014 CRR/CRD 4	References[1]
Tier 2 (T2) capital: regulatory adjustments					
Direct, indirect and synthetic holdings by an institution of own T2 instruments and subordinated loans (negative amount)	(71)	(71)	(36)	(34)	k
Direct, indirect and synthetic holdings of the T2 instruments and subordinated loans of financial sector entities where those entities have reciprocal cross holdings with the institution designed to inflate artificially the own funds of the institution (negative amount)	0	0	0	0	
Direct, indirect and synthetic holdings of the T2 instruments and subordinated loans of financial sector entities where the institution does not have a significant investment in those entities (amount above 10 % threshold and net of eligible short positions) (negative amount)[7]	0	0	0	0	
Thereof:					
New holdings not subject to transitional arrangements	N/M	N/M	N/M	N/M	
Holdings existing before January 1, 2013 and subject to transitional arrangements	N/M	N/M	N/M	N/M	
Direct, indirect and synthetic holdings by the institution of the T2 instruments and subordinated loans of financial sector entities where the institution has a significant investment in those entities (net of eligible short positions) (negative amount)	0	0	0	0	
Regulatory adjustments applied to Tier 2 in respect of amounts subject to pre-CRR treatment and transitional treatments subject to phase-out as prescribed in CRR (i.e., residual amounts)	N/M	0	N/M	0	
Residual amounts deducted from Tier 2 capital with regard to deduction from Common Equity Tier 1 capital during the transitional period pursuant to Art. 472 CRR	N/M	(252)	N/M	(462)	
Thereof:					
Negative amounts resulting from the calculation of expected loss amounts	N/M	(44)	N/M	(294)	
Direct, indirect and synthetic holdings by the institution of the CET 1 instruments of financial sector entities where the institution has a significant investment in those entities	N/M	(209)	N/M	(168)	h
Residual amounts deducted from Tier 2 capital with regard to deduction from Additional Tier 1 capital during the transitional period pursuant to Art. 475 CRR	N/M	0	N/M	0	
Thereof:					
Reciprocal cross holdings in AT1 instruments	N/M	0	N/M	0	
Direct holdings of nonsignificant investments in the capital of other financial sector entities	N/M	0	N/M	0	
Amount to be deducted from or added to Tier 2 capital with regard to additional filters and deductions required pre-CRR	0	0	0	0	
Total regulatory adjustments to Tier 2 (T2) capital	(71)	(323)	(36)	(496)	
Tier 2 (T2) capital	12,325	6,299	12,376	4,395	
Total capital (TC = T1 + T2)	60,976	64,522	63,072	68,293	
Risk-weighted assets in respect of amounts subject to pre-CRR treatment and transitional treatments subject to phase-out as prescribed in CRR (i.e., residual amounts)[10]	N/M	0	N/M	0	
Thereof:					
Items not deducted from CET 1 (CRR residual amounts)	N/M	0	N/M	0	
Items not deducted from AT1 items (CRR residual amounts)	N/M	0	N/M	0	
Items not deducted from T2 items (CRR residual amounts)	N/M	0	N/M	0	
Thereof:					
Indirect and synthetic holdings of own T2 instruments	N/M	0	N/M	0	
Indirect and synthetic holdings of nonsignificant investments in the capital of other financial sector entities	N/M	0	N/M	0	
Indirect and synthetic holdings of significant investments in the capital of other financial sector entities	N/M	0	N/M	0	
Total risk-weighted assets	396,714	397,382	393,969	396,648	
Thereof:					
Credit Risk (including Settlement Risk)	241,360	242,028	241,475	244,155	
Credit Valuation Adjustment (CVA)	15,877	15,877	21,203	21,203	
Market Risk	49,553	49,553	64,209	64,209	
Operational Risk	89,923	89,923	67,082	67,082	
Capital ratios and buffers					
Common Equity Tier 1 capital ratio (as a percentage of risk-weighted assets)	11.1	13.2	11.7	15.2	
Tier 1 capital ratio (as a percentage of risk-weighted assets)	12.3	14.7	12.9	16.1	
Total capital ratio (as a percentage of risk-weighted assets)	15.4	16.2	16.0	17.2	
Institution specific buffer requirement (CET 1 requirement in accordance with Art. 92 (1) (a) CRR plus capital conservation and countercyclical buffer requirements, plus systemic risk buffer, plus the systemically important institution buffer (G-SII or O-SII buffer), expressed as a percentage of risk-weighted assets)	9.0	4.5	9.0	4.0	
Thereof:					
Capital conservation buffer requirement	2.5	0.0	2.5	0.0	
Countercyclical buffer requirement[11]	N/M	N/M	N/M	N/M	
Systemic risk buffer requirement	0.0	0.0	0.0	0.0	
Global Systemically Important Institution (G-SII) or Other Systemically Important Institution (O-SII) buffer[12]	2.0	0.0	2.0	0.0	
Common Equity Tier 1 capital available to meet buffers (as a percentage of risk-weighted assets)[13]	6.3	8.2	6.9	9.2	

	Dec 31, 2015		Dec 31, 2014		
in € m.	CRR/CRD 4 fully-loaded	CRR/CRD 4	CRR/CRD 4 fully loaded	CRR/CRD 4	References[1]
Amounts below the thresholds for deduction (before risk weighting)					
Direct, indirect and synthetic holdings of the capital of financial sector entities where the institution does not have a significant investment in those entities (amount below 10 % threshold and net of eligible short positions)[7]	2,030	2,030	3,148	3,148	
Direct, indirect and synthetic holdings by the institution of the CET 1 instruments of financial sector entities where the institution has a significant investment in those entities (amount below 10 % threshold and net of eligible short positions)	3,056	3,178	2,877	2,956	
Deferred tax assets arising from temporary differences (amount below 10 % threshold, net of related tax liability where the conditions in Art. 38 (3) CRR are met)	3,560	3,703	4,035	4,146	
Applicable caps on the inclusion of provisions in Tier 2 capital					
Credit risk adjustments included in T2 in respect of exposures subject to standardized approach (prior to the application of the cap)	0	0	0	0	
Cap on inclusion of credit risk adjustments in T2 under standardized approach	301	301	454	454	
Credit risk adjustments included in T2 in respect of exposures subject to internal ratings-based approach (prior to the application of the cap)	0	0	0	0	
Cap for inclusion of credit risk adjustments in T2 under internal ratings-based approach	1,022	1,022	991	991	
Capital instruments subject to phase-out arrangements					
Current cap on CET 1 instruments subject to phase out arrangements	N/M	0	N/M	0	
Amount excluded from CET 1 due to cap (excess over cap after redemptions and maturities)	N/M	0	N/M	0	
Current cap on AT1 instruments subject to phase out arrangements	N/M	8,768	N/M	10,021	
Amount excluded from AT1 due to cap (excess over cap after redemptions and maturities)	N/M	0	N/M	446	
Current cap on T2 instruments subject to phase out arrangements	N/M	2,363	N/M	2,701	
Amount excluded from T2 due to cap (excess over cap after redemptions and maturities)	N/M	0	N/M	0	

N/M – Not meaningful

[1] References provide the mapping of regulatory balance sheet items used to calculate regulatory capital as reflected in the column “References" in “Reconciliation of Consolidated Balance Sheet according to IFRS to regulatory Balance Sheet”. Where applicable, more detailed information are provided in the respective reference footnote section.

[2] Based on EBA list as referred to in Article 26 (3) CRR.

[3] Reflects the ECB decision (EU) (2015/4) from February 4, 2015 on recognition of interim or year-end profits in CET 1 capital. Our revised common share dividend policy refers to the ECB decision as long as the Management Board does not decide and officially announce a different dividend level for the respective year. Following the announcement in 2015 to pay no dividend to common shareholders, no common share dividend has been accrued for 2015.

[4] The € 1.9 billion additional value adjustments were derived from the Regulatory Technical Standard on prudent valuation issued by the EBA and before consideration of a benefit from the related reduction of the shortfall of provisions to expected losses of € 0.6 billion. Deutsche Bank has agreed with the ECB to apply this standard in our regulatory capital calculation from 30 September 2015 ahead of its adoption and publication by the European Commission.

[5] Gains and losses on liabilities of the institution that are valued at fair value that result from changes in the own credit standing of the institution according to Article 33 (1) (b) CRR as well as all fair value gains and losses arising from the institution's own credit risk related to derivative liabilities according to Article 33 (1) (c) CRR.

[6] Excludes holdings that are already considered in the accounting base of Common Equity.

[7] Based on our current interpretation no deduction amount expected.

[8] Prudential filter for fund for home loans and savings protection (“Fonds zur bauspartechnischen Absicherung”).

[9] Amortization is taken into account.

[10] Excludes risk-weighted assets for positions in the trading book which are subject to phase out as prescribed in CRR (i.e. CRR residual amounts) as attributed risk-weighted assets are calculated on a portfolio basis.

[11] Countercyclical buffer rates not yet applicable.

[12] G-SII buffer required by BaFin since March 2015 and phased-in starting 2016.

[13] Calculated as the CET 1 capital less any CET 1 items used to meet Tier 1 and Total capital requirements.

[a] Common shares, additional paid-in capital and common shares in treasury reflect regulatory eligible CET 1 capital instruments.

[b] The position retained earnings in the regulatory balance sheet includes net income (loss) attributable to Deutsche Bank shareholders and additional equity components of € (6,794) million (2014: € 1,663 million). This item is excluded from the position retained earnings in the transitional template for regulatory capital and shown separately along with accrual for dividend and AT1 coupons of € 231 million (2014: € 1,182 million) in the position independently reviewed interim profits net of any foreseeable charge or dividend.

[c] Difference to regulatory balance sheet position driven by prudential filters for unrealized gains and losses.

[d] Phase-out of noncontrolling interests at a rate of 60 % in 2015 (80 % in 2014).

[e] Regulatory applicable amount is goodwill and other intangible assets of € 8,748 million (2014: € 13,134 million) plus goodwill from equity method investments of € 28 million (2014: € 430 million) as per regulatory balance sheet reduced by deferred tax liabilities on other intangibles of € 336 million (2014: € 585 million). Total CET1 deduction amount is phased-in at a rate of 40 %. Residual amount is deducted from AT1 capital.

[f] Differences to balance sheet position mainly driven by adjustments as set out in Article 38 (2) to (5) CRR (e.g. regulatory offsetting requirements).

[g] Phase-in at a rate of 40 % in 2015 (2014: 20%).

[h] Hua Xia Bank Company Limited as major part of the position equity method investments and the major part of significant holdings of the CET 1 instruments of financial sector entities, subject to threshold deductions. CET 1 deduction amount is phased-in at a rate of 40 %. Residual amount is deducted from AT1 and T2 capital.

[i] Additional equity components reflects regulatory eligible AT1 capital instruments.

[j] Difference to regulatory balance sheet driven by regulatory adjustments as set out in Articles 51 to 61 CRR (e.g. current cap on AT1 instruments subject to phase-out arrangements).

[k] Difference to regulatory balance sheet driven by regulatory adjustments as set out in Articles 62 to 71 CRR (e.g. maturity deduction, noncontrolling interests).

The following table details the main changes in our Common Equity Tier 1 capital, Additional Tier 1 and Tier 2 capital, based on the regulatory eligible amounts, from the beginning to the end of the years 2015 and 2014.

Development of regulatory capital

in € m.	Dec 31, 2015	Dec 31, 2014
	CRR/CRD 4	CRR/CRD 4
Common Equity Tier 1 (CET 1) capital - opening amount[1]	**60,103**	38,534
Common shares, net effect	0	921
Thereof:		
New shares issued (+)	0	921
Shares retired (–)	0	0
Additional paid-in capital	(53)	7,429
Retained earnings	(6,097)	1,077
Thereof:		
Actuarial gains (losses) rel. to defined benefit plans, net of tax/CTA	(10)	5
Net income attributable to Deutsche Bank Shareholders	(6,794)	1,663
Common shares in treasury, net effect/(+) sales (–) purchase	(3)	6
Movements in accumulated other comprehensive income	2,759	2,947
Thereof:		
Foreign currency translation, net of tax	2,044	2,865
Unrealized gains and losses	831	0
Other	(116)	82
Accrual for dividend and AT1 coupons	(231)	(1,182)
Thereof:		
Gross dividends (deduction)	0	(1,034)
Shares issued in lieu of dividends (add back)	0	0
Gross AT1 coupons (deduction)	(231)	(148)
Additional value adjustments	(1,877)	0
Goodwill and other intangible assets (net of related tax liabilities)	(780)	8,870
Deferred tax assets that rely on future profitability (excluding those arising from temporary differences)	(800)	(524)
Negative amounts resulting from the calculation of expected loss amounts	89	283
Removal of gains/losses resulting from changes in own credit standing in liabilities designated at fair value (net of tax)	96	(209)
Defined benefit pension fund assets	(277)	(192)
Direct, indirect and synthetic holdings by the institution of the CET1 instruments of financial sector entities where the institution has a significant investment in those entities	(194)	1,505
Securitization positions not included in risk-weighted assets	0	945
Deferred tax assets arising from temporary differences (amount above 10 % and 15 % threshold, net of related tax liabilities where the conditions in Art. 38 (3) CRR are met)	(191)	(133)
Other, including regulatory adjustments	(115)	(174)
Common Equity Tier 1 (CET 1) capital - closing amount	**52,429**	60,103
Additional Tier 1 (AT1) capital - opening amount[1]	**3,794**	12,182
New Additional Tier 1 eligible capital issues	0	4,619
Matured and called instruments	(4,289)	(2,512)
Transitional arrangements	5,529	(11,292)
Thereof:		
Amount excluded from Additional Tier 1 due to cap	0	(446)
Goodwill and other intangible assets (net of related tax liabilities)	5,320	(10,383)
Negative amounts resulting from the calculation of expected loss amounts	250	(294)
Direct, indirect and synthetic holdings by the institution of the CET 1 instruments of financial sector entities where the institution has a significant investment in those entities	(41)	(168)
Other, including regulatory adjustments	759	797
Additional Tier 1 (AT1) capital - closing amount	**5,793**	3,794
Tier 1 capital (T1 = CET 1 + AT1)	**58,222**	63,898
Tier 2 (T2) capital - opening amount[1]	**4,395**	4,747
New Tier 2 eligible capital issues	2,818	83
Matured and called instruments	(315)	(1,615)
Amortization adjustments	(482)	(1,502)
Transitional arrangements	209	2,949
Thereof:		
Inclusion of amount excluded from Additional Tier 1 due to cap	0	446
Amount to be deducted from or added to Additional Tier 2 capital with regard to additional filters and deductions required pre-CRR	0	2,965
Negative amounts resulting from the calculation of expected loss amounts	250	(294)
Direct, indirect and synthetic holdings by the institution of the CET 1 instruments of financial sector entities where the institution has a significant investment in those entities	(41)	(168)
Other, including regulatory adjustments	(327)	(268)
Tier 2 (T2) capital - closing amount	**6,299**	4,395
Total capital (TC = T1 + T2)	**64,522**	68,293

N/M – Not meaningful

[1] The opening amount for 2014 reflects Basel 2.5 values, the opening amount for 2015 reflects CRR/CRD 4 values.

Reconciliation of shareholders' equity to regulatory capital

in € m.	Dec 31, 2015 CRR/CRD 4	Dec 31, 2014 CRR/CRD 4
Total shareholders' equity per accounting balance sheet	**62,678**	68,351
Deconsolidation/Consolidation of entities	(681)	(1,419)
Thereof:	0	0
Additional paid-in capital	(5)	(5)
Retained earnings	(369)	(1,107)
Accumulated other comprehensive income (loss), net of tax	(307)	(306)
Total shareholders' equity per regulatory balance sheet	**61,997**	66,932
Noncontrolling interest based on transitional rules	92	118
Accrual for dividend and AT1 coupons	(231)	(1,182)
Reversal of deconsolidation/consolidation of the position Accumulated other comprehensive income (loss), net of tax, during transitional period	184	306
Common Equity Tier 1 (CET 1) capital before regulatory adjustments	**62,042**	66,175
Prudential filters	(3,453)	(2,039)
Thereof:		
Additional value adjustments	(1,877)	0
Any increase in equity that results from securitized assets	(20)	0
Fair value reserves related to gains or losses on cash flow hedges and gains or losses on liabilities designated at fair value resulting from changes in own credit standing	(310)	(391)
Regulatory adjustments relating to unrealized gains and losses pursuant to Art. 467 and 468 CRR	(1,246)	(1,648)
Regulatory adjustments	(6,159)	(4,032)
Thereof:		
Goodwill and other intangible assets (net of related tax liabilities)	(3,376)	(2,596)
Deferred tax assets that rely on future profitability	(1,648)	(657)
Negative amounts resulting of the calculation of expected loss amounts	(58)	(147)
Defined benefit pension fund assets	(469)	(192)
Direct, indirect and synthetic holdings by the institution of the CET 1 instruments of financial sector entities where the institution has a significant investment in those entities	(278)	(84)
Securitization positions not included in risk-weighted assets	0	0
Other[1]	(330)	(356)
Common Equity Tier 1 capital	**52,429**	60,103
Additional Tier 1 capital	**5,793**	3,794
Additional Tier 1 Notes (AT1 Notes)	4,627	4,619
Per balance sheet	4,675	4,619
Deconsolidation/Consolidation of entities	0	0
Regulatory adjustments to balance sheet position	(48)	0
Hybrid capital securities	6,464	10,002
Per balance sheet	7,020	10,573
Deconsolidation/Consolidation of entities	388	516
Regulatory adjustments to balance sheet position	(944)	(1,087)
Thereof:		
Amount excluded from Additional Tier 1 due to cap	0	(446)
Other	(944)	(640)
Other regulatory adjustments	18	19
Deductions from Additional Tier 1 capital	(5,316)	(10,845)
Tier 1 capital	**58,222**	63,898
Tier 2 capital	**6,299**	4,395
Subordinated debt	6,263	4,120
Per balance sheet	7,826	6,392
Deconsolidation/Consolidation of entities	0	0
Regulatory adjustments to balance sheet position	(1,563)	(2,272)
Thereof:		
Amortization according to Art. 64 CRR	(1,321)	(2,101)
Other	(242)	(171)
Other regulatory adjustments	289	737
Thereof:		
Inclusion of amount excluded from Additional Tier 1 due to cap	0	446
Other	289	291
Deductions from Tier 2 capital	(252)	(462)
Total capital	**64,522**	68,293

N/M – Not meaningful

[1] Mainly relates to prudential filter for fund for home loans and savings protection ("Fonds zur bauspartechnischen Absicherung").

Development of risk-weighted assets

The tables below provide an overview of risk-weighted assets broken down by model approach and business division. They include the aggregated effects of the segmental reallocation of infrastructure related positions if applicable as well as reallocations between the segments.

Within credit risk, the line item “Other” in advanced IRBA reflects RWA from securitization positions in the banking book, specific equity positions and other non-credit obligation assets. Within the Standardized Approach, the line item “Other” includes RWA from banking book securitizations as well as exposures assigned to the further exposure classes apart from central governments or central banks, institutions, corporates and retail.

Risk-weighted assets by model approach and business division according to transitional rules

							Dec 31, 2015
in € m.	Corporate Banking & Securities	Private & Business Clients	Global Transaction Banking	Deutsche Asset & Wealth Management	Non-Core Operations Unit	Consolidation & Adjustments and Other	Total
Credit Risk	89,811	72,171	42,435	12,942	13,028	11,633	242,019
Segment reallocation	(3,515)	536	4,854	376	76	(2,328)	0
Advanced IRBA	85,249	61,655	32,253	10,346	7,858	12,862	210,223
Central Governments and Central Banks	3,990	45	1,077	1	6	9,500	14,619
Institutions	8,497	1,303	3,472	140	382	355	14,149
Corporates	59,482	11,369	26,837	3,945	2,944	882	105,459
Retail	192	38,910	23	130	725	0	39,980
Other	13,088	10,028	844	6,131	3,801	2,125	36,016
Foundation IRBA	2,083	3,076	174	0	0	0	5,333
Central Governments and Central Banks	0	0	0	0	0	0	0
Institutions	0	5	0	0	0	0	5
Corporates	2,083	3,072	174	0	0	0	5,329
Standardized Approach	5,172	6,792	5,154	2,219	5,093	1,099	25,530
Central Governments or Central Banks	24	146	30	2	0	0	202
Institutions	539	86	33	11	2	0	671
Corporates	2,473	1,441	3,511	1,147	739	573	9,884
Retail	6	4,172	239	34	567	0	5,018
Other	2,129	948	1,342	1,027	3,785	525	9,755
Risk exposure amount for default funds contributions	821	111	0	0	0	0	933
Settlement Risk	9	0	0	0	0	0	9
Credit Valuation Adjustment (CVA)	12,012	434	2	347	3,083	0	15,877
Internal Model Approach	11,957	396	2	343	3,082	0	15,780
Standardized Approach	55	38	0	4	1	0	97
Market Risk	33,795	32	173	1,268	14,286	0	49,553
Internal Model Approach	28,776	0	173	373	8,741	0	38,063
Standardized Approach	5,019	32	0	895	5,545	0	11,491
Operational Risk[1]	59,503	7,644	9,456	9,252	4,069	0	89,923
Advanced measurement approach	59,503	7,644	9,456	9,252	4,069	0	89,923
Total	195,130	80,280	52,066	23,808	34,465	11,633	397,382

[1] The movements for the business divisions are due to a change in the allocation methodology performed in the first quarter 2015.

Dec 31, 2014

in € m.	Corporate Banking & Securities	Private & Business Clients	Global Transaction Banking	Deutsche Asset & Wealth Management	Non-Core Operations Unit	Consolidation & Adjustments and Other	Total
Credit Risk	83,548	69,584	41,740	7,310	19,280	22,666	244,128
Segment reallocation	(2,200)	520	3,327	330	94	(2,071)	0
Advanced IRBA	77,263	58,786	31,763	3,910	13,062	14,638	199,422
Central Governments and Central Banks	3,948	124	1,020	0	74	218	5,385
Institutions	8,359	1,538	3,103	73	623	171	13,869
Corporates	55,678	9,938	26,916	2,740	5,062	1,199	101,533
Retail	121	37,852	30	91	773	0	38,867
Other	9,157	9,334	694	1,006	6,529	13,049	39,769
Foundation IRBA	2,079	3,303	107	0	1	0	5,491
Central Governments and Central Banks	0	0	0	0	0	0	0
Institutions	0	0	0	0	0	0	0
Corporates	2,079	3,303	107	0	1	0	5,490
Standardized Approach	4,804	6,884	6,542	3,070	6,122	10,099	37,522
Central Governments or Central Banks	21	63	27	3	0	0	114
Institutions	593	124	51	4	3	35	810
Corporates	2,841	1,401	4,747	1,111	1,075	584	11,759
Retail	7	4,064	422	45	1,141	18	5,697
Other	1,341	1,232	1,296	1,908	3,903	9,462	19,142
Risk exposure amount for default funds contributions	1,601	90	1	0	1	0	1,693
Settlement Risk	25	0	0	0	0	1	27
Credit Valuation Adjustment (CVA)	16,024	445	7	445	4,019	262	21,203
Internal Model Approach	15,953	417	7	443	3,953	1	20,774
Standardized Approach	71	28	0	2	66	261	428
Market Risk	44,469	92	199	2,483	16,967	0	64,209
Internal Model Approach	31,439	0	199	1,339	8,625	0	41,602
Standardized Approach	13,029	92	0	1,144	8,342	0	22,607
Operational Risk	31,512	9,605	1,321	6,368	18,275	0	67,082
Advanced measurement approach	31,512	9,605	1,321	6,368	18,275	0	67,082
Total	175,578	79,725	43,268	16,607	58,541	22,929	396,648

The RWA according to CRR/CRD 4 were € 397.4 billion as of December 31, 2015, compared with € 396.6 billion at the end of 2014. The overall increase of € 0.8 billion largely reflects an increase in operational risk RWA assets of € 22.8 billion that is offset by reductions in the other risk categories. Operational Risk RWA are up primarily due to legal operational risk losses including legal provisions as well as an increased operational risk loss profile of the banking industry. Credit Risk RWA are € 2.1 billion lower mainly as a result of a revised treatment of pension fund exposure calculation as well as de-risking activities partly offset by increases from foreign exchange movements. The lower RWA for market risk are largely attributable to lower risk levels coming from the market risk standardized approach for securitisation positions. The € 5.3 billion reduction in RWA for CVA is mainly driven by de-risking and hedging activities.

RWA according to CRR/CRD 4 fully loaded were € 396.7 billion as of December 31, 2015 compared with € 394.0 billion at the end of 2014. The increase was driven by the same movements as outlined for transitional rules. The RWA according to CRR/CRD 4 fully loaded were € 668 million lower than under the transitional rules due to lower RWA coming from our deferred tax assets that arise from temporary differences and from our significant holdings of CET 1 instruments of financial sector entities, which are both subject to the threshold exemptions as outlined in Article 48 CRR.

The movements of RWA for the specific risk types are discussed in detail in the following sections starting with “Development of Risk-weighted Assets for Credit Risk”.

The table below shows RWA and regulatory capital requirements broken down by credit exposure classes and model approaches.

Regulatory Capital Requirements and Risk-weighted Assets

	Dec 31, 2015		Dec 31, 2014	
in € m.	Capital requirements	RWA	Capital requirements	RWA
Credit risk				
Advanced IRBA				
Central governments and central banks	1,170	14,619	431	5,385
Institutions	1,132	14,149	1,109	13,869
Corporates	8,437	105,459	8,122	101,533
thereof:				
SMEs	298	3,720	483	6,040
Spezialized Lending	129	1,609	131	1,640
Other	8,010	100,129	7,508	93,853
Retail	3,198	39,980	3,109	38,867
thereof:				
Secured by real estate SME	146	1,825	0	0
Secured by real estate non-SME	1,907	23,842	1,988	24,863
Qualifying revolving	35	437	43	532
Other SME	123	1,537	78	973
Other non-SME	987	12,340	974	12,172
Equity	1,471	18,388	977	12,216
thereof:				
Private equity exposures sufficiently diversified (190%)	21	261	0	0
Exchange-traded exposures (290%)	24	302	62	771
All other equity exposures (370%)	790	9,869	324	4,054
Significant financial sector investments subject to threshold exemptions (250%)	637	7,957	591	7,391
Securitization positions	1,136	14,201	1,064	13,296
Other non-credit obligation assets	274	3,427	1,141	14,258
Total advanced IRBA	**16,818**	**210,223**	15,954	199,422
Foundation approach				
Central governments and central banks	0	0	0	0
Institutions	0	5	0	0
Corporates	426	5,329	439	5,490
thereof:				
SMEs	4	56	7	83
Spezialized Lending	264	3,299	266	3,329
Other	158	1,974	166	2,078
Total foundation approach	**427**	**5,333**	439	5,491
Standardized approach				
Central governments or central banks	0	0	0	0
Regional governments and local authorities	0	6	1	7
Public sector entities	16	196	9	107
Multilateral development banks	0	0	0	0
International organizations	0	0	0	0
Institutions	54	671	65	810
Corporates	791	9,884	941	11,759
thereof: SMEs	52	650	90	1,125
Retail	401	5,018	456	5,697
thereof: SMEs	13	163	29	357
Secured by mortgages on immovable property	180	2,252	107	1,345
thereof: SMEs	22	275	0	4
Exposures in default	276	3,446	342	4,275
Items associated with particular high risk	25	309	18	229
Covered bonds	0	0	0	2
Claims on institutions and corporates with a short-term credit assessment	0	0	0	0
Collective investments undertakings (CIU)	0	0	724	9,046
Equity	117	1,466	217	2,707
Other items	65	810	28	350
Securitization positions	118	1,471	95	1,188
Total standardized approach	**2,042**	**25,530**	3,002	37,522
Risk exposure amount for default funds contributions	**75**	**933**	135	1,693
Total Credit risk	**19,362**	**242,019**	19,530	244,128
Settlement risk	**1**	**9**	2	27
Credit Valuation Adjustment (CVA)				
Internal model approach	1,262	15,780	1,662	20,774
Standardized approach	8	97	34	428
Total Credit Valuation Adjustment	**1,270**	**15,877**	1,696	21,203

	Dec 31, 2015		Dec 31, 2014	
in € m.	Capital requirements	RWA	Capital requirements	RWA
Market risk in the trading book				
Internal model approach	3,045	38,063	3,328	41,602
Value-at-Risk	554	6,931	613	7,662
Stressed Value-at-Risk	1,372	17,146	1,454	18,181
Incremental Risk Charge	929	11,608	1,038	12,972
Comprehensive Risk Measurement (Correlation Trading)	190	2,378	223	2,788
Standardized approach	919	11,491	1,809	22,607
Traded debt instruments	811	10,135	1,684	21,049
Equity risk	66	822	84	1,051
Foreign exchange risk	7	83	14	181
Commodity risk	0	0	0	0
Other market risk	36	451	26	326
Total market risk in the trading book	**3,964**	**49,553**	5,137	64,209
Operational risk				
Advanced measurement approach	7,194	89,923	5,367	67,082
Total regulatory capital requirements and RWA	**31,791**	**397,382**	31,732	396,648

The following tables provide an analysis of key drivers for RWA movements observed for credit, market and operational risk and CVA in the reporting period. The classifications of key drivers are fully aligned with the recommendations of the Enhanced Disclosure Task Force (EDTF).

Development of Risk-weighted Assets for Credit Risk

	Dec 31, 2015		Dec 31, 2014	
in € m.	Credit risk	thereof: derivatives and repo-style transactions	Credit risk	thereof: derivatives and repo-style transactions
Credit risk RWA balance, beginning of year	**244,128**	**41,117**	202,186	29,454
Book size	(4,822)	(6,224)	(5,024)	(5,327)
Book quality	(2,103)	(95)	(2,348)	1,841
Model updates	728	0	11,676	11,676
Methodology and Policy	(3,346)	0	24,110	297
Acquisition and Disposals	(206)	0	(3,198)	(62)
Foreign exchange movements	10,378	2,479	11,752	3,237
Other	(2,738)	0	4,974	0
Credit risk RWA balance, end of year	**242,019**	**37,276**	244,128	41,117

Organic changes in our portfolio size and composition are considered in the category “Book size”. The category “Book quality” mainly represents the effects from portfolio rating migrations, loss given default, model parameter recalibrations as well as collateral coverage activities. “Model updates” include model refinements and advanced model roll out. RWA movements resulting from externally, regulatory-driven changes, e.g. applying new regulations, are considered in the “methodology and policy” section. “Acquisition and disposals” is reserved to show significant exposure movements which can be clearly assigned to new businesses or disposal-related activities. Changes that cannot be attributed to the above categories are reflected in the category “Other”.

The decrease in RWA for credit risk by 0.9% or € 2.1 billion since December 31, 2014 is due to various reasons which partly offset each other. The overall decrease in the category “Book size” is predominantly driven by de-risking activities relating to derivatives and security financing transactions mainly in our Core Bank. The decrease in “Methodology and Policy” resulted mainly from the application of a revised treatment to defined benefit pension fund exposure partly offset by a change in the applicable risk weight for insurance company exposure. The decrease in the category “Other” is mainly driven by movements resulting from the transitional treatment of our defined benefit pension fund assets as well as from movements applying the 10/15 % threshold rule. Process enhancements as well as the impact from recalibrations of our risk parameters shown in the category “Book quality” also contributed to the reduction. This is for the most part offset by the impact from foreign exchange movements mainly resulting from a strengthening US Dollar.

Development of Risk-weighted Assets for Credit Valuation Adjustment

in € m.	Dec 31, 2015	Dec 31, 2014
CVA RWA balance, beginning of year	**21,203**	0
Movement in risk levels	(5,159)	2,017
Market data changes and recalibrations	(1,552)	(1,914)
Model updates	0	7,400
Methodology and policy	(77)	12,330
Acquisitions and disposals	0	0
Foreign exchange movements	1,894	1,370
CVA RWA balance, end of year	**15,877**	21,203

The development of CVA RWA is broken down into a number of categories: movement in risk levels, which includes changes to the portfolio size and composition; market data changes and calibrations, which includes changes in market data levels and volatilities as well as recalibrations; model updates refers to changes to either the IMM credit exposure models or the value-at-risk models that are used for CVA RWA; methodology and policy relates to changes to the regulation, for 2014 the first introduction of CVA RWA. Any significant business acquisitions or disposals would be highlighted on their own.

As of December 31, 2015, the RWA for CVA amounted to € 15.9 billion, representing a decrease of € 5.3 billion (25 %) compared with € 21.2 billion for December 31, 2014. The decrease was driven by de-risking of the portfolio throughout the year, but also due to optimization of the CVA RWA hedging program and market volatility.

Development of Risk-weighted Assets for Market Risk

in € m.	Dec 31, 2015	Dec 31, 2014
Market risk RWA balance, beginning of year	**64,209**	47,259[1]
Movement in risk levels	(27,671)	(10,161)
Market data changes and recalibrations	3,919	(730)
Model updates	1,501	5,101
Methodology and policy	5,707	20,089
Acquisitions and disposals	0	(81)
Foreign exchange movements	1,888	2,732
Market risk RWA balance, end of year	**49,553**	64,209

[1] RWA balance beginning of the year 2014 is based on Basel 2.5.

The analysis for market risk covers movements in our internal models for value-at-risk, stressed value-at-risk, incremental risk charge and comprehensive risk measure as well as results from the market risk standardized approach, e.g. for trading securitizations and nth-to-default derivatives or trading exposures for Postbank. The market risk RWA movements due to changes in market data levels, volatilities, correlations, liquidity and ratings are included under the market data changes and recalibrations category. Changes to our market risk RWA internal models, such as methodology enhancements or risk scope extensions, are included in the category of model updates. In the methodology and policy category we reflect regulatory driven changes to our market risk RWA models and calculations. Significant new businesses and disposals would be assigned to the line item acquisition and disposals.

The € 14.7 billion (23%) RWA decrease for market risk since December 31, 2014 was driven by reduction in the category “movement in risk levels” predominantly in the Non-Core Operations Unit and reflected in all market risk components. The reduction in “movement in risk levels” is mainly due to de-risking activity in the Non-Core Operations Unit which particularly impacted the Market Risk Standardized Approach.

This was partly offset by increases in the categories “market data changes”, “methodology and policy” and “foreign exchange movements”. The increase in the methodology and policy resulted mainly from the Market Risk Standardized Approach where the transitional period granted by Article 337 (4) CRR terminated. As a result, the calculation is now based on the sum of the weighted net long positions and the sum of the weighted net short positions rather than the larger of the two sums. Additionally the increase in relation to the foreign exchange movements was predominately reflected in the Market Risk Standardized Approach.

Development of Risk-weighted Assets for Operational Risk

in € m.	Dec 31, 2015	Dec 31, 2014
Operational risk RWA balance, beginning of year	**67,082**	50,891
Loss profile changes (internal and external)	24,170	9,345
Expected loss development	(2,216)	37
Forward looking risk component	163	(734)
Model updates	724	7,652
Methodology and policy	0	0
Acquisitions and disposals	0	(109)
Operational risk RWA balance, end of year	**89,923**	67,082

The overall RWA for operational risk increase of € 22.8 billion was mainly driven by our early recognition of enhancements to our Advanced Measurement Approach (AMA) model in the second quarter of 2014, which led to additional RWA of € 7.7 billion. From the third quarter 2014, further effects from the model change related to reasonably possible litigation losses are shown under the category “loss profile changes”. The increase in “loss profile changes” resulted from large external market operational risk events which are reflected in our AMA model, such as settlements of regulatory matters by financial institutions.

Leverage Ratio

We manage our balance sheet on a Group level and, where applicable, locally in each region. In the allocation of financial resources we favour business portfolios with the highest positive impact on our profitability and shareholder value. We monitor and analyze balance sheet developments and track certain market-observed balance sheet ratios. Based on this we trigger discussion and management action by the Capital and Risk Committee. Following the publication of the CRR/CRD 4 framework, we established a leverage ratio calculation according to that framework.

Leverage Ratio according to revised CRR/CRD 4 framework (fully loaded)

The CRR/CRD 4 framework introduced a non-risk based leverage ratio that is intended to act as a supplementary measure to the risk based capital requirements. Its objectives are to constrain the build-up of leverage in the banking sector, helping avoid destabilizing deleveraging processes which can damage the broader financial system and the economy, and to reinforce the risk based requirements with a simple, non-risk based "backstop" measure.

We calculate our leverage ratio exposure on a fully loaded basis in accordance with Article 429 of the CRR as per Delegated Regulation (EU) 2015/62 of October 10, 2014 published in the Official Journal of the European Union on January 17, 2015 amending Regulation (EU) No 575/2013.

Our total leverage ratio exposure consists of the components derivatives, securities financing transactions (SFTs), off-balance sheet exposure and other on-balance sheet exposure (excluding derivatives and SFTs).

The leverage exposure for derivatives is calculated by using the regulatory mark-to-market method for derivatives comprising the current replacement cost plus a regulatory defined add-on for the potential future exposure. Variation margin received in cash from counterparties is deducted from the current replacement cost portion of the leverage ratio exposure measure and variation margin paid to counterparties is deducted from the leverage ratio exposure measure related to receivables recognized as an asset on the balance sheet, provided certain conditions are met. The effective notional amount of written credit derivatives, i.e., the notional reduced by any negative fair value changes that have been incorporated in Tier 1 capital is included in the leverage ratio exposure measure; the resulting exposure measure is further reduced by the effective notional amount of a purchased credit derivative on the same reference name provided certain conditions are met.

The SFT component includes the gross receivables for SFTs, which are netted with SFT payables if specific conditions are met. In addition to the gross exposure a regulatory add-on for the counterparty credit risk is included.

The Off-balance sheet exposure component follows the credit risk conversion factors (CCF) of the standardized approach for credit risk (0 %, 20 %, 50 %, or 100 %), which depend on the risk category subject to a floor of 10 %.

The other on-balance sheet exposure component (excluding derivatives and SFTs) reflects the accounting values of the assets (excluding derivatives and SFTs) as well as regulatory adjustments for asset amounts deducted in determining Tier 1 capital.

In order to harmonize the disclosure of the leverage ratio and its components, Article 451(2) of the CRR contains a mandate for the European Banking Authority (EBA) to develop draft implementing technical standards (ITS) based on the Basel Committee publication of the framework and disclosure requirements for the Basel 3 leverage ratio. On June 15, 2015 the EBA published its final draft ITS on disclosure and supervisory reporting of leverage ratio for EU institutions.

The following tables show the leverage ratio exposure and the leverage ratio, both on a fully loaded basis, on the disclosure tables of the ITS:

Summary reconciliation of accounting assets and leverage ratio exposures

in € bn.

(unless stated otherwise)	Dec 31, 2015	Dec 31, 2014
Total assets as per published financial statements	**1,629**	1,709
Adjustment for entities which are consolidated for accounting purposes but are outside the scope of regulatory consolidation	3	(28)
(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)	N/M	N/M
Adjustments for derivative financial instruments	(263)	(276)
Adjustment for securities financing transactions (SFTs)	25	16
Adjustment for off-balance sheet items (i.e. conversion to credit equivalent amounts of off-balance sheet exposures)	109	127
(Adjustment for intragroup exposures excluded from the leverage ratio total exposure measure in accordance with Article 429(7) of Regulation (EU) No 575/2013)	N/M	N/M
(Adjustment for exposures excluded from the leverage ratio total exposure measure in accordance with Article 429(14) of Regulation (EU) No 575/2013)	N/M	N/M
Other adjustments	(107)	(103)
Leverage ratio total exposure measure	**1,395**	1,445

N/M – Not meaningful

Leverage ratio common disclosure

in € bn. (unless stated otherwise)	Dec 31, 2015	Dec 31, 2014
On-balance sheet exposures (excluding derivatives and SFTs)		
On-balance sheet items (excluding derivatives, SFTs and fiduciary assets, but including collateral)	924	0
(Asset amounts deducted in determining Tier 1 capital)	(17)	0
Total on-balance sheet exposures (excluding derivatives, SFTs and fiduciary assets)	**907**	848
Derivative exposures		
Replacement cost associated with all derivatives transactions (ie net of eligible cash variation margin)	59	0
Add-on amounts for PFE associated with all derivatives transactions (mark-to-market method)	174	0
Exposure determined under Original Exposure Method	N/M	N/M
Gross-up for derivatives collateral provided where deducted from the balance sheet assets pursuant to the applicable accounting framework	0	0
(Deductions of receivables assets for cash variation margin provided in derivatives transactions)	(40)	0
(Exempted CCP leg of client-cleared trade exposures)	(8)	0
Adjusted effective notional amount of written credit derivatives	668	0
(Adjusted effective notional offsets and add-on deductions for written credit derivatives)	(637)	0
Total derivatives exposures	**215**	318
SFT exposures		
Gross SFT assets (with no recognition of netting), after adjusting for sales accounting transactions	183	0
(Netted amounts of cash payables and cash receivables of gross SFT assets)	(35)	0
Counterparty credit risk exposure for SFT assets	16	0
Derogation for SFTs: Counterparty credit risk exposure in accordance with Articles 429b(4) and 222 of Regulation (EU) No 575/2013	N/M	N/M
Agent transaction exposures	0	0
(Exempted CCP leg of client-cleared SFT exposure)	0	0
Total securities financing transaction exposures	**164**	152
Other off-balance sheet exposures		
Off-balance sheet exposures at gross notional amount	278	0
(Adjustments for conversion to credit equivalent amounts)	(169)	0
Other off-balance sheet exposures	**109**	127
Exempted exposures in accordance with Article 429(7) and (14) of Regulation (EU) No 575/2013 (on and off balance sheet)		
(Intragroup exposures (solo basis) exempted in accordance with Article 429(7) of Regulation (EU) No 575/2013 (on and off balance sheet))	N/M	N/M
(Exposures exempted in accordance with Article 429 (14) of Regulation (EU) No 575/2013 (on and off balance sheet))	N/M	N/M
Capital and total exposure measure		
Tier 1 capital fully loaded	48.7	50.7
Leverage ratio total exposure measure	1,395	1,445
Leverage ratio in % (CRR/CRD 4 fully loaded Leverage Ratio - using a CRR/CRD 4 fully loaded definition of Tier 1 capital)	3.5	3.5

N/M – Not meaningful

Breakdown of on-balance sheet exposures (excluding derivatives and SFTs)

in € bn.
(unless stated otherwise)

	Dec 31, 2015	Dec 31, 2014
Total on-balance sheet exposures (excluding derivatives, SFTs, and exempted exposures)	**884**	827
of which:		
Trading book exposures	211	206
Banking book exposures	673	621
of which:		
Covered bonds	3	5
Exposures treated as sovereigns	186	147
Exposures to regional governments, MDB, international organisations and PSE not treated as sovereigns	4	2
Institutions	11	19
Secured by mortgages of immovable properties	163	159
Retail exposures	36	35
Corporate	175	170
Exposures in default	7	11
Other exposures (e.g. equity, securitisations, and other non-credit obligation assets)	87	73

Description of the process used to manage the risk of excessive leverage

As described in the section “Risk Management Principles” of this report, the Capital and Risk Committee (CaR) is mandated to oversee and control integrated planning and to monitor our risk profile and capital capacity. We actively manage leverage exposure limits

– to allocate group leverage exposure capacity to businesses,
– to support business achievement of strategic performance plans,
– to provide a firm basis for achieving the target leverage ratio,
– to incentivize businesses to make appropriate choices at the margin based on a group-wide benchmark, and
– to maintain risk discipline.

In the case of limit excess the respective business is charged. The limit excess charges are calculated in accordance with the Group-wide limit-setting framework for leverage.

For further details please also refer to the “Capital Management” section in our Annual Report.

Description of the factors that had an impact on the leverage ratio in 2015

As of December 31, 2015, our fully loaded CRR/CRD 4 leverage ratio remained unchanged at 3.5 %, taking into account as of December 31, 2015 a fully loaded Tier 1 capital of € 48.7 billion over an applicable exposure measure of € 1,395 billion (€ 50.7 billion and € 1,445 billion as of December 31, 2014, respectively).

Over the year 2015 the active management of our leverage exposure resulted in a decrease of the leverage ratio exposure amounting to € 129 billion, though this decrease was partly offset by foreign exchange impacts of € 79 billion primarily related to the appreciation of the U.S. dollar to the euro. The decrease of € 50 billion mainly reflects reductions in derivatives and securities financing transaction of € 91 billion. Off-balance sheet exposures reduced € 18 billion primarily from the application of revised EBA treatment to defined benefit pension fund assets. This was offset by increases on our balance sheet for cash, central bank and interbank balances by € 26 billion, loans by € 22 billion and financials assets available for sale by € 9 billion.

Our leverage ratio calculated as the ratio of total assets under IFRS to total equity under IFRS was 24 as of December 31, 2015 compared to 23 as of December 31, 2014.

For main drivers of the Tier 1 capital development please refer to section Regulatory Capital in this report.

Credit Risk Exposure

Credit Risk: Regulatory Assessment

This section details our credit risk performance, focusing on regulatory measures such as exposure at default and RWA. The credit risk exposure is analysed by business division, country and industry concentrations, residual maturities, probabilities of default and actual losses.

Credit risk exposure by model approaches and business divisions

The following table provides an overview of our credit risk exposure broken down by model approaches and business divisions.

The line item "Other" in Advanced IRBA reflects exposure at default (EAD) from securitization positions in the banking book, specific equity positions and other non-credit obligation assets. Within the Standardized Approach, the line item "central governments and central banks" includes exposures to regional governments or local authorities, public sector entities, multilateral developments banks and international organizations. "Other" in the Standardized Approach includes EAD from exposures secured by mortgages on immovable property, exposures in default, items associated with particular high risk, covered bonds, claims on institutions and corporates with a short-term credit assessment, collective investments undertakings (CIU), equity positions (grandfathered), securitization positions in the banking book and other items.

EAD net by model approach and business division

Dec 31, 2015

in € m.	Corporate Banking & Securities	Private & Business Clients	Global Transaction Banking	Deutsche Asset & Wealth Management	Non-Core Operations Unit	Consolidation & Adjustments and Other	Total
Credit Risk							
Advanced IRBA	332,952	232,599	108,474	61,992	12,651	10,977	759,647
Central governments and central banks	68,401	800	19,160	2,917	292	8,239	99,809
Institutions	38,603	8,928	11,543	1,210	733	418	61,435
Corporates	161,617	22,023	70,578	53,247	5,944	817	314,225
Retail	1,318	193,942	88	2,619	1,536	0	199,502
Other	63,014	6,906	7,106	2,000	4,146	1,504	84,676
Foundation IRBA	2,534	7,963	220	0	4	0	10,720
Central governments and central banks	0	0	0	0	0	0	0
Institutions	0	2	0	0	0	0	2
Corporates	2,534	7,961	220	0	4	0	10,718
Standardized Approach	117,591	31,491	13,790	2,906	9,515	1,380	176,673
Central governments or central banks	83,386	20,235	7,121	577	2,507	206	114,032
Institutions	25,468	2,394	130	21	11	2	28,026
Corporates	5,519	1,638	3,918	1,227	876	574	13,751
Retail	7	5,655	395	50	757	0	6,864
Other	3,211	1,569	2,226	1,031	5,363	598	13,999
Risk exposure amount for default funds contributions	486	56	0	0	1	0	543
Total	453,563	272,109	122,484	64,898	22,171	12,357	947,582

							Dec 31, 2014
in € m.	Corporate Banking & Securities	Private & Business Clients	Global Transaction Banking	Deutsche Asset & Wealth Management	Non-Core Operations Unit	Consolidation & Adjustments and Other	Total
Credit Risk							
Advanced IRBA	298,982	225,016	115,780	50,954	20,890	8,248	719,868
Central governments and central banks	58,284	989	30,048	1,694	390	574	91,978
Institutions	41,988	7,651	10,662	1,000	1,497	297	63,095
Corporates	151,859	19,570	72,600	46,275	11,970	1,239	303,513
Retail	823	188,652	112	1,604	1,936	0	193,127
Other	46,028	8,154	2,359	380	5,097	6,138	68,156
Foundation IRBA	2,410	7,708	142	0	10	0	10,269
Central governments and central banks	0	0	0	0	0	0	0
Institutions	0	0	0	0	0	0	0
Corporates	2,410	7,708	142	0	10	0	10,269
Standardized Approach	84,565	31,721	15,734	3,767	8,702	26,572	171,060
Central governments or central banks	48,777	19,474	7,910	264	565	185	77,175
Institutions	29,195	2,973	98	20	32	173	32,491
Corporates	5,323	1,522	5,720	1,529	1,340	548	15,982
Retail	10	5,761	743	64	1,523	24	8,124
Other	1,260	1,990	1,264	1,891	5,243	25,641	37,288
Risk exposure amount for default funds contributions	1,531	62	1	0	2	0	1,595
Total	387,487	264,506	131,656	54,720	29,603	34,820	902,793

The overall increase in EAD levels in 2015 is mainly driven by foreign exchange movements which are accountable for € 40.7 billion of the € 44.8 billion change. Furthermore we saw increases in the advanced IRBA within the exposure class “Other”, mainly resulting from new securitization activities in CB&S and GTB and in the exposure class “central governments or central banks” in the standardized Approach from increases in interest earning deposits with central banks.

The increases are partly offset by reductions in the exposure class “Other” within the standardized approach resulting from the revised treatment to our defined benefit pension fund exposure. Furthermore we saw in the standardized approach a decrease in EAD within the exposure class “Institutions”, mainly resulting from reduced volume business with central counterparties in CB&S.

The table below shows the credit risk exposures before credit risk mitigation, the average amount of the exposures and RWA broken down by model approach and regulatory exposure class. The EAD as defined for regulatory purposes is presented on a gross basis, i.e. information for exposures covered by guarantees or credit derivatives is assigned to the exposure class of the original counterparty. The average EAD is calculated over the last four quarters of this fiscal year. In contrast to the EAD gross the RWA is shown after credit risk mitigation.

EAD gross, average EAD gross and RWA by model approach and exposure class

	Dec 31, 2015			Dec 31, 2014		
in € m.	EAD gross	Average EAD gross	RWA	EAD gross	Average EAD gross	RWA
Advanced IRBA						
Central governments and central banks	93,253	90,237	14,619	85,182	91,911	5,385
Institutions	59,745	64,020	14,149	61,785	67,954	13,869
Corporates	323,491	335,053	105,459	311,791	295,878	101,533
thereof:						
SMEs	10,092	9,095	3,720	21,661	7,200	6,040
Spezialized Lending	5,363	5,452	1,609	5,141	2,681	1,640
Other	308,036	320,505	100,129	284,988	285,997	93,853
Retail	198,333	196,987	39,980	192,892	191,604	38,867
thereof:				0	0	0
Secured by real estate SME	13,542	13,816	1,825	1,093	3,860	327
Secured by real estate non-SME	147,093	145,753	23,842	155,145	150,999	24,863
Qualifying revolving	4,194	4,319	437	4,417	4,376	532
Other SME	7,405	7,406	1,537	3,159	3,562	973
Other non-SME	26,099	25,693	12,340	29,078	28,807	12,172
Equity	6,091	5,133	18,388	4,318	4,056	12,216
thereof:						
Private equity exposures sufficiently diversified (190%)	137	105	261	0	38	0
Exchange-traded exposures (290%)	104	94	302	266	200	771
Other equity exposures (370%)	2,667	1,534	9,869	1,096	1,106	4,054
Significant financial sector investments subject to threshold exemptions (250%)	3,183	3,401	7,957	2,956	2,713	7,391
Securitization positions	73,036	68,405	14,201	53,670	49,804	13,296
Other non-credit obligation assets	5,552	8,594	3,427	10,168	7,638	14,258
Total advanced IRBA	**759,501**	**768,428**	**210,223**	719,805	708,845	199,422
Foundation approach						
Central governments and central banks	0	0	0	0	2	0
Institutions	2	22	5	0	1,230	0
Corporates	10,864	10,569	5,329	10,359	14,010	5,490
davon:						
SMEs	247	251	56	235	115	83
Spezialized Lending	4,451	4,565	3,299	4,320	7,060	3,329
Other	6,167	5,753	1,974	5,804	6,836	2,078
Total foundation approach	**10,866**	**10,591**	**5,333**	10,359	15,242	5,491

	Dec 31, 2015			Dec 31, 2014		
in € m.	EAD gross	Average EAD gross	RWA	EAD gross	Average EAD gross	RWA
Standardized approach						
Central governments or central banks	71,726	54,586	0	40,445	45,438	0
Regional governments or local authorities	18,639	18,860	6	18,322	18,231	7
Public sector entities	12,387	12,538	196	10,182	9,185	107
Multilateral development banks	7,111	6,647	0	4,931	2,585	0
International organizations	3,609	3,413	0	2,357	1,438	0
Institutions	27,982	31,480	671	32,449	29,759	810
Corporates	13,989	19,852	9,884	16,381	19,961	11,759
thereof: SMEs	752	1,004	650	1,399	1,519	1,125
Retail	7,179	7,600	5,018	8,612	8,444	5,697
thereof: SMEs	316	435	163	690	787	357
Secured by mortgages on immovable property	5,837	5,442	2,252	3,956	4,448	1,345
thereof: SMEs	636	519	275	9	6	4
Exposures in default	2,853	3,164	3,446	3,423	3,566	4,275
Items associated with particular high risk	213	233	309	161	219	229
Covered bonds	0	11	0	22	25	2
Claims on institutions and corporates with a short-term credit assessment	0	0	0	0	0	0
Collective investments undertakings (CIU)	0	10,146	0	25,262	23,892	9,046
Equity	1,541	2,454	1,466	2,707	2,563	2,707
Other items	884	465	810	419	311	350
Securitization positions	2,724	2,101	1,471	1,404	1,950	1,188
Total standardized approach	**176,673**	**178,992**	**25,530**	171,034	172,016	37,522
Risk exposure amount for default funds contributions	**543**	**1,108**	**933**	1,595	1,587	1,693
Total	**947,582**	**959,119**	**242,019**	902,793	897,690	244,128
thereof counterparty credit risk from						
Derivatives	104,912	118,385	33,788	122,742	115,728	37,690
Securities financing transactions	50,254	52,058	3,488	44,208	54,357	3,427

The overall increase in EAD is primarily contributable to foreign exchange movements across all exposure classes. The increase in exposure class “Central governments and central banks” in the advanced IRBA predominantly reflects the change in our deferred tax assets that rely on future profitability and arise from temporary differences which are subject to the threshold exemptions as outlined in Article 48 CRR and to less extent reductions in related products with central banks. The increase in the exposure class “Corporates Other” is primarily due to specific growth in CB&S as well as to reallocation from the exposure class “Corporate SME”. The increase in the exposure class “Other equity exposures” subject to 370% risk weight predominantly reflects the change of the applicable risk weight for our insurance companies. Higher exposures in the exposure class “Securitization positions” are materially driven by new transactions. Movements in the exposure class “Central governments or central banks” in the standardized approach are to high extent driven by increase in interest earning deposits with Central banks. The decrease in the exposure class “Other non-credit obligation assets” predominantly results from above mentioned shift of deferred tax assets to the exposure class “Central governments and central banks”. The material decrease in the exposure class “Collective investments undertakings (CIU)” reflects a change to the treatment of our defined benefit pension fund assets exposure.

The following three tables set out the distribution of the credit risk portfolio by model approach and regulatory exposure class before credit risk mitigation into geographical region, industry and residual maturity.

EAD gross by model approach, exposure class and geographical region

Dec 31, 2015

in € m.	Germany	Western Europe (excluding Germany)	Eastern Europe	North America	Central and South America	Asia/ Pacific	Africa	Other	Total
Advanced IRBA									
Central governments and central banks	1,171	11,917	4,127	52,817	1,292	16,719	918	4,292	93,253
Institutions	5,774	20,831	751	14,654	1,458	14,989	295	992	59,745
Corporates	40,404	88,798	4,430	121,763	7,539	43,884	2,637	14,036	323,491
thereof:									
SMEs	4,644	3,008	318	1,641	237	218	4	23	10,093
Spezialized Lending	2,801	2,085	127	284	0	66	0	0	5,363
Other	32,959	83,707	3,984	119,837	7,302	43,600	2,633	14,013	308,036
Retail	165,113	26,569	6,026	117	157	130	119	103	198,333
thereof:									
Secured by real estate SME	12,646	885	7	2	1	0	0	1	13,542
Secured by real estate non-SME	124,973	16,502	5,357	83	25	79	16	58	147,093
Qualifying revolving	4,131	35	5	5	5	7	2	4	4,194
Other SME	4,354	2,805	244	2	0	1	0	1	7,405
Other non-SME	18,986	6,366	413	26	125	43	101	40	26,099
Equity	704	1,637	0	498	1	3,024	2	226	6,091
thereof:									
Private equity exposures sufficiently diversified (190 %)	9	80	0	35	0	0	0	13	137
Exchange-traded exposures (290 %)	0	36	0	43	0	16	2	7	104
Other equity exposures (370 %)	559	1,492	0	406	0	36	0	174	2,667
Significant financial sector investments subject to threshold exemptions (250 %)	136	28	0	14	1	2,971	0	33	3,183
Securitization positions	4,988	19,043	486	40,901	1,263	5,022	1,325	8	73,036
Other non-credit obligation assets	N/M	N/M	N/M	N/M	N/M	N/M	N/M	N/M	5,552
Total advanced IRBA	218,154	168,796	15,819	230,751	11,710	83,767	5,295	19,657	759,501
Foundation approach									
Central governments and central banks	0	0	0	0	0	0	0	0	0
Institutions	2	0	0	0	0	0	0	0	2
Corporates	6,384	2,565	223	893	74	145	6	574	10,864
davon:									
SMEs	208	35	2	0	1	1	0	0	247
Spezialized Lending	1,562	1,270	111	820	17	97	0	574	4,451
Other	4,614	1,260	110	73	56	47	6	0	6,166
Total foundation approach	6,386	2,565	223	893	74	145	6	574	10,866

									Dec 31, 2015
in € m.	Germany	Western Europe (excluding Germany)	Eastern Europe	North America	Central and South America	Asia/ Pacific	Africa	Other	Total
Standardized approach									
Central governments or central banks	27,662	43,973	71	0	0	0	0	20	71,726
Regional governments or local authorities	18,317	322	0	0	0	0	0	0	18,639
Public sector entities	11,645	742	0	0	0	0	0	0	12,387
Multilateral development banks	0	802	0	0	0	0	0	6,309	7,111
International organizations	0	0	0	0	0	0	0	3,609	3,609
Institutions	4,946	8,296	0	11,346	248	3,146	0	0	27,982
Corporates	2,836	6,584	125	2,692	369	765	131	486	13,989
thereof: SMEs	117	618	2	0	2	13	0	0	752
Retail	2,286	3,678	416	16	10	751	7	15	7,179
thereof: SMEs	36	278	2	0	0	0	0	0	316
Secured by mortgages on immovable property	291	4,910	58	101	0	476	0	0	5,837
thereof: SMEs	7	622	6	0	0	0	0	0	636
Exposures in default	353	1,476	11	749	23	209	14	19	2,853
Items associated with particular high risk	1	199	11	0	1	1	0	0	213
Covered bonds	0	0	0	0	0	0	0	0	0
Claims on institutions and corporates with a short-term credit assessment	0	0	0	0	0	0	0	0	0
Collective investments undertakings (CIU)	0	0	0	0	0	0	0	0	0
Equity	204	208	0	764	0	66	0	299	1,541
Other items	93	791	0	0	0	0	0	0	884
Securitization positions	0	982	0	1,742	0	0	0	0	2,724
Total standardized approach	68,633	72,964	693	17,411	650	5,414	153	10,756	176,673
Risk exposure amount for default funds contributions	N/M	N/M	N/M	N/M	N/M	N/M	N/M	N/M	543
Total	293,173	244,325	16,734	249,054	12,434	89,326	5,454	30,988	947,582
Thereof counterparty credit risk from Derivatives	10,531	41,337	1,051	36,970	2,000	10,041	492	2,491	104,912
Securities financing transactions	387	14,547	90	22,614	1,157	8,405	282	2,772	50,254

N/M – Not meaningful

Dec 31, 2014

in € m.	Germany	Western Europe (excluding Germany)	Eastern Europe	North America	Central and South America	Asia/ Pacific	Africa	Other	Total
Advanced IRBA									
Central governments and central banks	0	5,983	3,579	54,008	1,405	13,060	1,135	6,011	85,182
Institutions	7,411	25,959	620	12,873	2,042	9,355	450	3,075	61,785
Corporates	42,305	86,364	6,331	107,428	6,207	48,578	2,643	11,935	311,791
thereof:									
SMEs	2,229	3,739	1,510	2,185	288	9,930	322	1,459	21,661
Spezialized Lending	2,483	2,289	93	188	0	88	0	0	5,141
Other	37,593	80,336	4,728	105,055	5,919	38,561	2,321	10,476	284,989
Retail	160,601	26,101	5,719	100	126	98	77	71	192,891
thereof:									
Secured by real estate SME	23	739	327	2	0	0	1	1	1,093
Secured by real estate non-SME	133,332	16,795	4,799	69	19	67	14	49	155,145
Qualifying revolving	4,351	38	5	5	5	7	2	3	4,417
Other SME	291	2,529	336	1	0	2	0	0	3,159
Other non-SME	22,601	5,999	254	23	102	22	60	18	29,078
Equity	934	241	0	383	4	2,614	4	138	4,318
thereof:									
Private equity exposures sufficiently diversified (190 %)	0	0	0	0	0	0	0	0	0
Exchange-traded exposures (290 %)	179	37	0	24	0	13	4	10	266
Other equity exposures (370 %)	551	152	0	247	4	27	0	116	1,096
Significant financial sector investments subject to threshold exemptions (250 %)	204	52	0	113	0	2,574	0	13	2,956
Securitization positions	3,459	12,568	592	22,023	273	14,194	33	528	53,670
Other non-credit obligation assets	N/M	N/M	N/M	N/M	N/M	N/M	N/M	N/M	10,168
Total advanced IRBA	214,710	157,216	16,841	196,814	10,057	87,899	4,343	21,758	719,805
Foundation approach	0	0	0	0	0	0	0	0	0
Central governments and central banks	0	0	0	0	0	0	0	0	0
Institutions	0	0	0	0	0	0	0	0	0
Corporates	6,379	2,487	223	645	50	108	8	459	10,358
davon:									
SMEs	201	32	1	0	0	1	0	0	235
Spezialized Lending	1,769	1,318	116	593	0	65	0	459	4,320
Other	4,409	1,137	106	52	50	42	8	0	5,804
Total foundation approach	6,380	2,487	223	645	50	108	8	458	10,359

									Dec 31, 2014
in € m.	Germany	Western Europe (excluding Germany)	Eastern Europe	North America	Central and South America	Asia/ Pacific	Africa	Other	Total
Standardized approach	0	0	0	0	0	0	0	0	0
Central governments or central banks	10,895	29,467	49	15	0	0	0	20	40,445
Regional governments or local authorities	17,993	329	0	0	0	0	0	0	18,322
Public sector entities	9,430	719	0	32	0	0	0	0	10,182
Multilateral development banks	0	724	0	0	0	0	0	4,207	4,931
International organizations	0	0	0	0	0	0	0	2,357	2,357
Institutions	6,501	12,830	1	10,064	627	2,326	0	101	32,449
Corporates	2,504	10,840	206	1,556	147	788	94	244	16,381
thereof: SMEs	90	1,287	11	0	0	3	0	7	1,399
Retail	2,345	5,088	411	143	0	616	0	10	8,613
thereof: SMEs	43	637	8	0	0	0	0	2	690
Secured by mortgages on immovable property	258	3,263	24	4	0	251	0	156	3,956
thereof: SMEs	6	2	0	0	0	0	0	0	9
Exposures in default	651	1,905	13	665	1	185	0	4	3,423
Items associated with particular high risk	1	136	0	0	0	0	0	24	161
Covered bonds	22	0	0	0	0	0	0	0	22
Claims on institutions and corporates with a short-term credit assessment	0	0	0	0	0	0	0	0	0
Collective investments undertakings (CIU)	16,431	7,108	0	1,630	28	66	0	(0)	25,262
Equity	295	1,593	0	611	0	79	0	129	2,707
Other items	88	327	0	5	0	0	0	0	419
Securitization positions	294	646	0	464	0	0	0	0	1,404
Total standardized approach	67,708	75,042	704	15,189	803	4,311	94	7,184	171,034
Risk exposure amount for default funds contributions	N/M	N/M	N/M	N/M	N/M	N/M	N/M	N/M	1,595
Total	288,798	234,744	17,768	212,648	10,910	92,317	4,445	29,400	902,793
Thereof counterparty credit risk from Derivatives	12,831	53,911	1,290	38,924	2,034	10,726	689	2,337	122,742
Securities financing transactions	1,056	15,242	1,160	18,534	1,499	3,436	393	2,887	44,208

N/M – Not meaningful

The increase in the exposure class “Central governments and central banks” in Germany and Western Europe is predominantly driven by the inclusion of the aforementioned deferred tax assets. These are also shown in the region North America but the reductions in interest earning deposits are offsetting these. The higher exposure in Corporates and North America reflect our specific growth in CB&S in leveraged debt business.

EAD gross by model approach, exposure class and industry

Dec 31, 2015

in € m.	Financial interme-diation	Fund manage-ment activities	Manu-factoring	Whole-sale and retailtrade	House-holds	Com-mercial real estate activites	Public sector	Other	Total
Advanced IRBA									
Central governments and central banks	61,820	0	0	0	0	0	31,432	0	93,253
Institutions	55,776	21	0	268	0	630	3,049	0	59,745
Corporates	103,850	8,850	48,235	21,631	35,215	28,882	2,112	74,716	323,491
thereof:									
SMEs	1,562	107	1,816	1,564	672	2,544	197	1,630	10,092
Spezialized Lending	0	0	0	0	0	5,359	0	4	5,363
Other	102,289	8,743	46,419	20,067	34,543	20,979	1,915	73,082	308,036
Retail	97	487	2,027	2,166	174,728	14,365	1	4,463	198,333
thereof:									
Secured by real estate SME	0	0	0	0	5,787	7,755	0	0	13,542
Secured by real estate non-SME	0	0	0	0	140,976	6,117	0	0	147,093
Qualifying revolving	0	0	0	0	4,194	0	0	0	4,194
Other SME	49	27	1,688	1,706	779	250	1	2,905	7,405
Other non-SME	48	459	339	460	22,992	243	0	1,558	26,099
Equity	1,740	45	2	52	0	172	3	4,078	6,091
thereof:									
Private equity exposures sufficiently diversified (190 %)	55	16	0	0	0	0	0	66	137
Exchange-traded exposures (290 %)	73	0	2	0	0	0	3	26	104
Other equity exposures (370 %)	1,612	28	0	52	0	172	0	803	2,667
Significant financial sector investments subject to threshold exemptions (250 %)	0	0	0	1	0	0	0	3,183	3,184
Securitization positions	12,897	19,142	0	0	0	810	0	40,186	73,036
Other non-credit obligation assets	N/M	N/M	N/M	N/M	N/M	N/M	N/M	N/M	5,552
Total advanced IRBA	236,181	28,544	50,264	24,118	209,943	44,859	36,597	123,443	759,500
Foundation approach									
Central governments and central banks	0	0	0	0	0	0	0	0	0
Institutions	0	0	0	0	0	0	2	0	2
Corporates	236	0	2,468	3,718	304	1,116	1	3,022	10,864
davon:									
SMEs	0	0	90	148	0	3	0	6	247
Spezialized Lending	72	0	307	9	303	1,109	0	2,651	4,451
Other	164	0	2,071	3,521	1	44	1	365	6,167
Total foundation approach	236	0	2,468	3,718	304	1,116	3	3,022	10,866

Dec 31, 2015

in € m.	Financial intermediation	Fund management activities	Manufactoring	Wholesale and retailtrade	Households	Commercial real estate activites	Public sector	Other	Total
Standardized approach									
Central governments and central banks	36,351	0	0	0	0	0	35,375	0	71,726
Regional governments or local authorities	0	0	0	0	0	41	18,598	0	18,639
Public sector entities	11,421	0	0	44	0	0	879	43	12,387
Multilateral development banks	7,111	0	0	0	0	0	0	0	7,111
International organizations	0	0	0	0	0	0	3,609	0	3,609
Institutions	27,811	35	0	0	0	0	0	136	27,982
Corporates	4,215	430	1,085	1,686	277	1,267	49	4,980	13,989
thereof: SMEs	37	16	100	147	11	168	0	273	752
Retail	8	0	61	101	6,261	431	0	316	7,179
thereof: SMEs	6	0	28	68	38	76	0	100	316
Secured by mortgages on immovable property	212	39	180	257	3,479	1,156	0	513	5,837
thereof: SMEs	37	32	80	164	5	12	0	306	636
Exposures in default	102	119	192	101	695	508	6	1,130	2,853
Items associated with particular high risk	0	0	1	6	115	1	79	11	213
Covered bonds	0	0	0	0	0	0	0	0	0
Claims on institutions and corporates with a short-term credit assessment	0	0	0	0	0	0	0	0	0
Collective investments undertakings (CIU)	0	0	0	0	0	0	0	0	0
Equity	667	0	30	14	0	75	15	741	1,541
Other items	93	0	0	0	0	0	0	791	884
Securitization positions	534	1,704	0	0	302	0	0	184	2,724
Total standardized approach	88,526	2,327	1,550	2,209	11,128	3,479	58,609	8,846	176,673
Risk exposure amount for default funds contributions	N/M	N/M	N/M	N/M	N/M	N/M	N/M	N/M	543
Total	324,942	30,870	54,281	30,044	221,375	49,454	95,209	135,311	947,582
Thereof counterparty credit risk from Derivatives	70,514	4,318	4,577	1,670	1,125	2,501	9,022	11,184	104,912
Securities financing transactions	45,151	97	6	4	100	2	4,169	725	50,254

N/M – Not meaningful

Dec 31, 2014

in € m.	Financial interme-diation	Fund manage-ment activities	Manu-factoring	Whole-sale and retailtrade	House-holds	Com-mercial real estate activites	Public sector	Other	Total
Advanced IRBA									
Central governments and central banks	66,993	49	0	0	0	0	12,068	6,072	85,182
Institutions	49,192	364	465	221	0	129	2,072	9,342	61,785
Corporates	25,334	8,889	45,262	19,952	31,536	23,758	1,328	155,731	311,791
thereof:									
SMEs	13,691	205	2,519	938	232	256	4	3,814	21,661
Spezialized Lending	0	0	0	141	0	5,000	0	1	5,141
Other	11,643	8,684	42,743	18,873	31,304	18,502	1,324	151,915	284,989
Retail	2	38	1,989	2,108	171,826	12,519	3	4,405	192,891
thereof:									
Secured by real estate SME	0	0	0	0	642	451	0	0	1,093
Secured by real estate non-SME	0	0	0	0	143,497	11,647	0	1	155,145
Qualifying revolving	0	0	0	0	4,417	0	0	0	4,417
Other SME	0	0	1,020	890	490	55	1	704	3,159
Other non-SME	2	38	969	1,218	22,781	366	3	3,701	29,078
Equity	93	22	7	16	0	155	0	4,025	4,318
thereof:									
Private equity exposures sufficiently diversified (190%)	0	0	0	0	0	0	0	0	0
Exchange-traded exposures (290%)	0	0	2	0	0	35	0	230	266
Other equity exposures (370%)	93	22	5	16	0	120	0	839	1,096
Significant financial sector investments subject to threshold exemptions (250%)	0	0	0	0	0	0	0	2,956	2,956
Securitization positions	950	17,521	0	0	672	340	156	34,032	53,670
Other non-credit obligation assets	N/M	N/M	N/M	N/M	N/M	N/M	N/M	N/M	10,168
Total advanced IRBA	142,563	26,883	47,723	22,298	204,034	36,901	15,628	213,607	719,805
Foundation approach									
Central governments and central banks	0	0	0	0	0	0	0	0	0
Institutions	0	0	0	0	0	0	0	0	0
Corporates	127	25	1,961	3,545	314	1,238	1	3,148	10,358
davon:									
SMEs	0	0	115	107	0	0	0	13	235
Spezialized Lending	2	25	49	11	313	1,167	0	2,753	4,320
Other	125	0	1,797	3,427	1	71	1	381	5,804
Total foundation approach	128	25	1,961	3,545	314	1,238	1	3,147	10,359

in € m.	Financial intermediation	Fund management activities	Manufactoring	Wholesale and retailtrade	Households	Commercial real estate activites	Public sector	Other	Total
									Dec 31, 2014
Standardized approach									
Central governments and central banks	10,174	2	0	0	0	0	29,476	793	40,445
Regional governments or local authorities	0	0	0	50	0	59	17,593	620	18,322
Public sector entities	6,697	0	0	42	0	8	2,258	1,176	10,182
Multilateral development banks	724	0	0	0	0	0	4,207	0	4,931
International organizations	1,602	0	0	0	0	0	0	755	2,357
Institutions	1,090	2	0	0	0	0	0	31,357	32,449
Corporates	175	1,650	1,356	1,873	364	1,933	38	8,991	16,381
thereof: SMEs	10	0	177	345	10	275	0	581	1,399
Retail	0	0	105	210	7,286	464	0	546	8,613
thereof: SMEs	0	0	71	175	50	58	0	336	690
Secured by mortgages on immovable property	0	0	0	4	3,428	368	0	156	3,956
thereof: SMEs	0	0	0	0	1	8	0	0	9
Exposures in default	147	9	224	138	911	583	5	1,407	3,423
Items associated with particular high risk	0	0	5	10	100	8	0	38	161
Covered bonds	22	0	0	0	0	0	0	0	22
Claims on institutions and corporates with a short-term credit assessment	0	0	0	0	0	0	0	0	0
Collective investments undertakings (CIU)	0	0	9	0	0	0	1,569	23,684	25,262
Equity	1,354	15	25	1	0	137	14	1,161	2,707
Other items	84	0	0	0	0	0	0	335	419
Securitization positions	5	514	0	0	784	0	0	101	1,404
Total standardized approach	22,076	2,191	1,724	2,329	12,873	3,559	55,161	71,120	171,034
Risk exposure amount for default funds contributions	N/M	N/M	N/M	N/M	N/M	N/M	N/M	N/M	1,595
Total	164,767	29,099	51,408	28,172	217,222	41,699	70,789	287,874	902,793
Thereof counterparty credit risk from Derivatives	21,586	6,133	4,073	1,776	1,348	2,826	9,046	75,955	122,742
Securities financing transactions	16,710	184	18	6	420	131	85	26,654	44,208

N/M – Not meaningful

The overall material decrease in the industry class “Other” reflects improvements in the allocation process. The increase in the industry class “Public sector” reflects the shift in the deferred tax assets as well as shifts from the class “Financial intermediation”.

The material increase in the exposure class “Corporates” and the industry class “Financial intermediation” is predominantly driven by specific growth in the CB&S leveraged debt business in addition to the before mentioned improvements related to the industry class “Other”.

EAD gross by model approach, exposure class and residual maturity

Dec 31, 2015

in € m.	Up to one month	Over 1 month to not more than 1 year	Over 1 year to not more than 2 years	Over 2 years to not more than 5 years	Over 5 years	Total
Advanced IRBA						
Central governments and central banks	59,670	11,308	2,284	16,120	3,870	93,253
Institutions	18,150	21,458	3,715	16,421	0	59,745
Corporates	39,259	100,373	34,544	147,303	2,011	323,491
thereof:						
SMEs	1,192	2,126	646	5,981	147	10,092
Spezialized Lending	304	1,101	638	1,875	1,445	5,363
Other	37,763	97,145	33,260	139,447	420	308,036
Retail	10,622	5,944	4,343	15,849	161,575	198,333
thereof:						
Secured by real estate SME	106	158	210	856	12,213	13,542
Secured by real estate non-SME	1,356	2,403	2,538	6,908	133,888	147,093
Qualifying revolving	4,032	162	0	0	0	4,194
Other SME	2,605	1,334	346	1,545	1,575	7,405
Other non-SME	2,523	1,887	1,249	6,540	13,900	26,099
Equity	59	1,446	2	4,425	160	6,091
thereof:						
Private equity exposures sufficiently diversified (190%)	0	0	0	137	0	137
Exchange-traded exposures (290%)	0	0	0	104	0	104
Other equity exposures (370%)	59	1,437	0	1,107	65	2,667
Significant financial sector investments subject to threshold exemptions (250%)	0	9	1	3,078	95	3,183
Securitization positions	1,740	3,156	3,459	26,596	38,085	73,036
Other non-credit obligation assets	N/M	N/M	N/M	N/M	N/M	5,552
Total advanced IRBA	129,500	143,685	48,347	226,715	205,701	759,501
Foundation approach						
Central governments and central banks	0	0	0	0	0	0
Institutions	0	2	0	0	0	2
Corporates	402	589	481	3,353	6,039	10,864
thereof:						
SMEs	7	4	16	10	210	247
Spezialized Lending	119	403	264	2,704	961	4,451
Other	276	182	201	639	4,869	6,167
Total foundation approach	402	591	481	3,353	6,039	10,866

Dec 31, 2015

in € m.	Up to one month	Over 1 month to not more than 1 year	Over 1 year to not more than 2 years	Over 2 years to not more than 5 years	Over 5 years	Total
Standardized approach						
Central governments or central banks	35,487	2,660	7,262	26,317	0	71,726
Regional governments or local authorities	234	6,238	1,502	6,623	4,042	18,639
Public sector entities	105	1,239	1,631	9,223	189	12,387
Multilateral development banks	12	230	324	6,545	0	7,111
International organizations	0	286	664	2,659	0	3,609
Institutions	1,841	6,425	7,414	12,165	137	27,982
Corporates	1,026	4,245	1,629	6,602	486	13,989
thereof: SMEs	145	72	133	324	78	752
Retail	1,201	490	452	2,030	3,006	7,179
thereof: SMEs	96	22	32	149	17	316
Secured by mortgages on immovable property	372	1,001	520	1,391	2,552	5,837
thereof: SMEs	120	34	66	410	6	636
Exposures in default	668	385	821	684	295	2,853
Items associated with particular high risk	15	8	7	124	58	213
Covered bonds	0	0	0	0	0	0
Claims on institutions and corporates with a short-term credit assessment	0	0	0	0	0	0
Collective investments undertakings (CIU)	0	0	0	0	0	0
Equity	0	560	0	981	0	1,541
Other items	0	64	12	142	668	884
Securitization positions	21	73	330	1,998	302	2,724
Total standardized approach	40,983	23,905	22,568	77,482	11,735	176,673
Risk exposure amount for default funds contributions	N/M	N/M	N/M	N/M	N/M	543
Total	170,885	168,180	71,396	307,551	223,476	947,582
Thereof counterparty credit risk from						
Derivatives	685	26,788	19,922	57,021	496	104,912
Securities financing transactions	38,536	6,716	799	4,203	0	50,254

N/M – Not meaningful

Dec 31, 2014

in € m.	Up to one month	Over 1 month to not more than 1 year	Over 1 year to not more than 2 years	Over 2 years to not more than 5 years	Over 5 years	Total
Advanced IRBA						
Central governments and central banks	60,299	9,280	1,408	14,010	184	85,182
Institutions	13,513	23,081	6,503	18,509	179	61,785
Corporates	38,426	106,617	32,795	129,733	4,220	311,791
thereof:						
SMEs	4,063	10,459	1,627	4,924	588	21,661
Spezialized Lending	392	1,426	1,108	1,628	588	5,141
Other	33,971	94,732	30,060	123,181	3,044	284,989
Retail	10,981	6,136	4,526	16,573	154,675	192,891
thereof:						
Secured by real estate SME	2	3	6	98	985	1,093
Secured by real estate non-SME	1,558	2,712	2,761	8,359	139,755	155,145
Qualifying revolving	4,238	179	0	0	0	4,417
Other SME	821	1,067	182	759	331	3,159
Other non-SME	4,363	2,174	1,577	7,359	13,605	29,078
Equity	1	44	22	3,573	678	4,318
thereof:						
Private equity exposures sufficiently diversified (190%)	0	0	0	0	0	0
Exchange-traded exposures (290%)	0	0	0	266	0	266
Other equity exposures (370%)	1	30	20	664	381	1,096
Significant financial sector investments subject to threshold exemptions (250%)	0	14	2	2,643	297	2,956
Securitization positions	1,445	4,313	1,738	20,684	25,490	53,670
Other non-credit obligation assets	N/M	N/M	N/M	N/M	N/M	10,168
Total advanced IRBA	124,666	149,470	46,994	203,082	185,425	719,805
Foundation approach						
Central governments and central banks	0	0	0	0	0	0
Institutions	0	0	0	0	0	0
Corporates	524	880	261	3,026	5,668	10,358
thereof:						
SMEs	23	5	1	28	178	235
Spezialized Lending	155	629	142	2,331	1,068	4,320
Other	346	246	118	667	4,423	5,804
Total foundation approach	524	880	261	3,026	5,669	10,359

						Dec 31, 2014
in € m.	Up to one month	Over 1 month to not more than 1 year	Over 1 year to not more than 2 years	Over 2 years to not more than 5 years	Over 5 years	Total
Standardized approach						
Central governments or central banks	9,569	2,175	4,706	23,995	0	40,445
Regional governments or local authorities	468	7,052	1,253	6,087	3,462	18,322
Public sector entities	129	817	1,463	7,551	222	10,182
Multilateral development banks	17	54	247	4,614	0	4,931
International organizations	0	51	123	2,184	0	2,357
Institutions	1,854	7,610	9,679	13,232	73	32,449
Corporates	2,460	3,625	1,812	7,919	565	16,381
thereof: SMEs	355	170	89	734	51	1,399
Retail	1,430	881	400	2,285	3,617	8,613
thereof: SMEs	182	30	52	404	22	690
Secured by mortgages on immovable property	125	920	146	745	2,020	3,956
thereof: SMEs	0	0	0	6	3	9
Exposures in default	842	463	212	1,561	345	3,423
Items associated with particular high risk	14	13	33	53	48	161
Covered bonds	22	0	0	0	0	22
Claims on institutions and corporates with a short-term credit assessment	0	0	0	0	0	0
Collective investments undertakings (CIU)	9	0	0	17,836	7,417	25,262
Equity	0	480	6	2,143	78	2,707
Other items	5	35	22	242	116	419
Securitization positions	19	67	165	436	716	1,404
Total standardized approach	16,964	24,242	20,265	90,884	18,679	171,034
Risk exposure amount for default funds contributions	N/M	N/M	N/M	N/M	N/M	1,595
Total	142,153	174,592	67,519	296,992	209,774	902,793
Thereof counterparty credit risk from						
Derivatives	265	33,504	23,697	63,770	1,506	122,742
Securities financing transactions	29,488	10,566	1,621	2,533	0	44,208

N/M – Not meaningful

The increase in the exposure class “Corporates other” and the residual maturity band “Over 2 years to not more than 5 years” is materially driven by specific growth in the CB&S leveraged debt business. The increase in the standardized approach and the exposure class “Central governments or central banks” in combination with the residual maturity band “Up to one month” is predominantly driven by increases in interest earning deposits with central banks which in general have a short maturity.

Advanced IRBA – Model validation results

The reviews conducted in 2015 for advanced IRBA rating systems including Postbank triggered recalibrations as shown in the table below. Changes in overall counts of parameters are due to newly approved rating systems or due to changes in granularity in existing risk parameter assignment. None of the recalibrations individually nor the impact of all recalibrations in the aggregate materially impacted our regulatory capital requirements.

Validation results for risk parameters used in our advanced IRBA

						2015
		PD		LGD		EAD
	Count	EAD in %	Count	EAD in %	Count	EAD in %
Appropriate	154	85.6	133	88.0	67	93.3
Overly conservative	2	0.3	9	10.5	12	5.2
Progressive	22	14.1	23	1.6	5	1.5
Total	178	100.0	165	100.0	84	100.0
Thereof already recalibrated and introduced in 2015						
Overly conservative	0	0.0	1	3.5	4	4.2
Progressive	2	10.1	9	0.3	0	0.0
Total	2	10.1	10	3.8	4	4.2

						2014
		PD		LGD		EAD
	Count	EAD in %	Count	EAD in %	Count	EAD in %
Appropriate	166	86.4	138	74.6	59	57.1
Overly conservative	2	0.1	2	9.4	14	42.9
Progressive	16	13.5	22	16.0	1	0.0
Total	184	100.0	162	100.0	74	100.0
Thereof already recalibrated and introduced in 2014						
Overly conservative	0	0.0	2	9.4	1	0.1
Progressive	5	10.8	0	0.0	0	0.0
Total	5	10.8	2	9.4	1	0.1

Individual risk parameter settings are classified as appropriate if no recalibration was triggered by the validation and thus the application of the current parameter setting is continued since still sufficiently conservative. A parameter classifies as overly conservative or progressive if the validation triggers a recalibration analysis leading to a potential downward or upward change of the current setting, respectively. The breakdown for PD, LGD and EAD is presented by number as well as by the relative EAD attached to the respective parameter as of December 31, 2015 and December 31, 2014.

The validations during 2015 largely confirmed our parameter settings. Negatively validated PD parameters with high materiality were caused by three rating systems. For two Postbank rating systems contributing around 10.1 % of EAD the PD parameter was classified as too progressive and for one of these systems the LGD was classified as overly conservative. The parameters were already amended. One Deutsche Bank rating system contributed to 2.1 % EAD and the PD was classified as too progressive. The recalibration was already performed and will go live in Q1 2016. In addition, one LGD parameter of Deutsche Bank contributed around 6.2 % of EAD and was classified as overly conservative. A recalibration is in preparation and planned to go live in 2016. One EAD parameter contributing 4.0 % of the free limit was classified as overly conservative and was already recalibrated during 2015. All other negatively validated parameters are only applied to smaller portfolios. Out of the 73 risk parameters, where a change was suggested during 2015 following their validation, 16 were already amended in 2015 and all others are scheduled for implementation in 2016.

In addition to the above, the comparison of regulatory expected loss ("EL") estimates with actual losses recorded also provides some insight into the predictive power of our parameter estimations and, therefore, EL calculations.

The EL used in this comparison is the forecast credit loss from counterparty defaults of our exposures over a one year period and is computed as the product of PD, LGD and EAD for performing exposures as of December 31 of the preceding year. The actual loss measure is defined by us as new provisions on newly impaired exposures recorded in our financial statements through profit and loss during the respective reported years.

While we believe that this approach provides some insight, the comparison has limitations as the two measures are not directly comparable. In particular, the parameter LGD underlying the EL calculation represents the loss expectation until finalization of the workout period while the actual loss as defined above represents the accounting information recorded for one particular financial year. Furthermore, EL is a measure of expected credit losses for a snapshot of our credit exposure at a certain balance sheet date while the actual loss is recorded for a fluctuating credit portfolio over the course of a financial year, i.e., including losses in relation to new loans entered into during the year.

According to the methodology described above, the following table provides a comparison of EL estimates for loans, commitments and contingent liabilities as of year-end 2014 through 2010, with actual losses recorded for the financial years 2015 through 2011, by regulatory exposure class for advanced IRBA exposures.

Comparison of expected loss estimates for loans, commitments and contingent liabilities with actual losses recorded by regulatory exposure class for advanced IRBA exposures

	Dec 31, 2014	2015	Dec 31, 2013	2014	Dec 31, 2012	2013	Dec 31, 2011	2012	Dec 31, 2010	2011
in € m.	Expected loss	Actual loss	Expected loss[1]	Actual loss	Expected loss	Actual loss	Expected loss	Actual loss	Expected loss	Actual loss
Central governments and central banks	3	0	3	0	3	18	1	0	2	0
Institutions	12	0	13	4	10	1	7	14	22	2
Corporates	300	334	355	229	351	717	445	393	449	363
Retail exposures secured by real estate property	306	207	324	212	284	223	294	224	222	359
Qualifying revolving retail exposures	17	4	21	8	23	7	23	12	2	30
Other retail exposures	334	354	378	355	404	370	418	385	390	301
Total expected loss and actual loss in the advanced IRBA	**971**	**900**	1,095	808	1,075	1,336	1,188	1,028	1,088	1,055

[1] 2013 EL figures are based on pro forma CRR/CRD 4.

Actual loss in 2015 was lower than expected, mainly driven Retail exposures secured by real estate property.

Actual loss in 2014 was below expectations mainly driven by a significant outperformance in Corporate exposures as well as in Retail exposures secured by real estate property.

The actual loss in 2013 exceeded the expected loss by € 261 million or 24 %. This was primarily due to higher than expected level of provisions in our corporate portfolio driven by a large single client credit event in a usually low risk portfolio of GTB as well as one large charge within NCOU. Additionally, actual loss for central governments was higher than expected driven by one single client. Better than expected performance in all retail exposure classes as well as in institutions partly offset the overall excess of actual compared to expected loss.

The actual loss in 2012 was 13 % lower than the expected loss across all exposure classes apart from Institutions, where actual loss was driven by one single client.

The decrease in expected loss as of December 31, 2014 in comparison to December 31, 2013 is mainly driven by lower volumes and to less extent by partially lower LGD parameters.

The decrease in expected loss as of December 31, 2012 in comparison to December 31, 2011 is mainly resulting from exposure reductions and to less extent by partially lower LGD parameters.

The consolidation of Postbank led to an increase in the expected loss starting December 31, 2010 and in the actual losses starting 2011.

The following table provides a year-to-year comparison of the actual loss by regulatory exposure class.

Year-to-year comparison of the actual loss by IRBA exposure class

in € m.	2015	2014	2013	2012	2011
Central governments and central banks	0	0	18	0	0
Institutions	0	4	1	14	2
Corporates	334	229	717	393	363
Retail exposures secured by real estate property	207	212	223	224	359
Qualifying revolving retail exposures	4	8	7	12	30
Other retail exposures	354	355	370	385	301
Total actual loss by IRBA in the advanced IRBA	**900**	808	1,336	1,028	1,055

Actual loss increased by € 92 million or 11% in 2015 compared to prior year driven by our shipping and leveraged finance portfolios recorded in CB&S.

Actual loss materially declined in 2014 compared to prior year due to the low level of new impairments across all businesses.

In 2013 the actual loss increased by € 308 million or 30 % compared to 2012 primarily driven by our corporate portfolio and to a minor extent exposures to central governments. The increase in our corporate portfolio was caused by a single client credit event in GTB along with higher actual losses for shipping companies recorded in CB&S as well as one large charge in NCOU related to the European Commercial Real Estate sector, while higher actual losses in central governments result from a charge to one single client. These increases were partly offset by slight reductions in our retail portfolios as well as in institutions.

The slight reduction of € 27 million or 3 % actual loss in 2012 compared to 2011 is driven by retail exposures secured by real estate property resulting from the alignment of Postbank's calculation model to the Group's approach.

Advanced IRBA Exposure

The following sections analyze our advanced IRBA credit exposures by obligor grade for exposure classes central governments and central banks, institutions, corporates and retail including relevant subcategories.

The table below sets out the mapping of internal ratings to obligor default probabilities following the internal rating process as outlined in section Credit Risk Measurement. All internal ratings and scorings are based on a uniform master scale, which assigns each rating or scoring result to the default probability determined for that class.

Internal Ratings and Probability of Defaults

Internal rating	PD range in %
iAAA	> 0.00 ≤ 0.01
iAA+	> 0.01 ≤ 0.02
iAA	> 0.02 ≤ 0.03
iAA–	> 0.03 ≤ 0.04
iA+	> 0.04 ≤ 0.05
iA	> 0.05 ≤ 0.07
iA–	> 0.07 ≤ 0.11
iBBB+	> 0.11 ≤ 0.18
iBBB	> 0.18 ≤ 0.30
iBBB–	> 0.30 ≤ 0.50
iBB+	> 0.50 ≤ 0.83
iBB	> 0.83 ≤ 1.37
iBB–	> 1.37 ≤ 2.27
iB+	> 2.27 ≤ 3.75
iB	> 3.75 ≤ 6.19
iB–	> 6.19 ≤ 10.22
iCCC+	> 10.22 ≤ 16.87
iCCC	> 16.87 ≤ 27.84
iCCC–	> 27.84 ≤ 99.99
Default	100.00

In the following tables we show our advanced IRBA credit exposures distributed on our internal rating scale. They also include our counterparty credit risk position from derivatives and securities financing transactions so far as it has been assigned to the advanced IRBA. For the vast majority of these exposures we make use of the IMM to derive the EAD where the appropriate netting and collateral agreements are already considered resulting in an EAD net of collateral.

The EAD gross information for exposures covered by guarantees or credit derivatives is assigned to the exposure class of the original counterparty respectively whereas the EAD net information assigns the exposures to the protection seller. As a consequence the EAD net can be higher than the EAD gross.

The EAD net is presented in conjunction with exposures-weighted average PD and LGD, the RWA and the average risk weight (RW). The effect of double default, as far as applicable to exposures outside of Postbank, is considered in the average RW. It implies that for a guaranteed exposure a loss only occurs if the primary obligor and the guarantor fail to meet their obligations at the same time. The ratio of expected loss by EAD for the non-defaulted exposures is provided in addition. For defaulted exposure, we apply a LGD conception already incorporating potential unexpected losses in the loss rate estimate as required by Article 181 (1) (h) CRR.

EAD for Advanced IRBA credit exposures by PD grade with central governments and central banks

in € m. (unless stated otherwise) — Dec 31, 2015

Internal rating	EAD gross	EAD net	EAD net thereof counterparty credit risk	Undrawn commitments	Average PD in %	Average LGD in %	RWA	Average RW in %	EL/EAD in %
iAAA	72,130	79,673	2,760	3,077	0.00	49.37	595	0.75	0.00
iAA+	4,822	4,822	3,725	0	0.02	32.53	280	5.80	0.01
iAA	273	273	46	16	0.03	30.83	32	11.75	0.01
iAA–	944	944	605	142	0.04	28.32	179	18.99	0.01
iA+	1,687	1,687	120	0	0.05	49.22	248	14.70	0.02
iA	1,388	2,077	321	339	0.07	47.78	686	33.03	0.03
iA–	1,225	2,047	333	119	0.09	49.54	844	41.24	0.04
iBBB+	459	324	227	53	0.14	33.66	125	38.45	0.05
iBBB	1,277	1,172	576	2	0.23	43.92	405	34.56	0.10
iBBB–	2,150	2,066	124	3	0.39	49.65	1,181	57.17	0.19
iBB+	249	118	101	5	0.64	38.84	107	91.16	0.25
iBB	239	100	1	1	1.07	46.97	109	109.65	0.50
iBB–	1,606	448	14	5	1.76	5.46	74	16.39	0.10
iB+	200	58	0	0	2.92	49.77	76	131.48	1.45
iB	3	3	0	0	4.82	24.32	3	85.71	1.17
iB–	290	56	0	6	7.95	49.95	119	210.57	3.97
iCCC+	597	232	153	2	13.07	25.49	303	130.48	3.32
iCCC	6	0	0	0	22.00	0.12	0	0.00	0.03
iCCC–	0	0	0	0	31.00	49.38	1	350.00	15.31
Total excluding default	89,544	96,100	9,106	3,771	0.07	47.84	5,367	5.58	0.02
Default	8	8	0	0	100.00	51.11	1	15.68	N/M
Total including default	93,253[1]	99,809[1]	9,106	3,771	0.07	47.84	14,619[1]	5.58	0.02

N/M – Not meaningful
[1] Includes exposures subject to deferred tax assets that rely on future profitability and arise from temporary differences which are subject to the threshold exemptions as outlined in Article 48 CRR

in € m. (unless stated otherwise) — Dec 31, 2014

Internal rating	EAD gross	EAD net	EAD net thereof counterparty credit risk	Undrawn commitments	Average PD in %	Average LGD in %	RWA	Average RW in %	EL/EAD in %
iAAA	71,845	79,376	2,764	2,262	0.00	49.26	904	1.14	0.00
iAA+	1,782	1,782	453	83	0.02	43.05	353	19.83	0.01
iAA	433	433	170	17	0.03	30.87	63	14.67	0.01
iAA–	325	325	200	135	0.04	29.16	59	18.27	0.01
iA+	1,543	1,543	235	2	0.05	48.76	233	15.11	0.02
iA	1,130	1,567	209	208	0.07	45.62	563	35.92	0.03
iA–	894	1,644	77	98	0.09	49.43	631	38.36	0.04
iBBB+	1,163	940	825	43	0.14	36.55	293	31.22	0.05
iBBB	1,550	1,445	377	6	0.23	49.08	610	42.24	0.11
iBBB–	1,708	1,741	69	0	0.39	49.49	976	56.07	0.19
iBB+	818	171	83	3	0.64	32.58	134	78.45	0.21
iBB	63	63	2	0	1.07	48.94	58	92.08	0.52
iBB–	983	613	4	2	1.76	2.74	52	8.42	0.05
iB+	166	104	66	0	2.92	49.87	143	137.67	1.46
iB	1	1	0	0	4.82	10.20	0	37.63	0.49
iB–	652	106	0	8	7.95	22.36	100	93.92	1.78
iCCC+	71	71	14	0	13.00	47.54	174	246.94	6.18
iCCC	2	0	0	0	22.00	45.63	1	327.78	10.04
iCCC–	0	0	0	0	0.00	0.00	0	0.00	0.00
Total excluding default	85,127	91,923	5,547	2,868	0.05	48.41	5,349	5.82	0.02
Default	55	55	0	0	100.00	66.15	36	65.52	N/M
Total including default	85,182	91,978	5,547	2,868	0.05	48.41	5,385	5.82	0.02

N/M – Not meaningful

The EAD gross associated with the advanced IRBA exposure to central governments and central banks has increased by € 8.0 billion. This is mainly driven by foreign exchange movements, the inclusion of deferred tax assets that rely on future profitability and arise from temporary differences which are subject to the threshold exemptions as outlined in Article 48 CRR and increased business in securities financing transaction.

EAD for Advanced IRBA credit exposures by PD grade with institutions

in € m. (unless stated otherwise)

	Dec 31, 2015								
Internal rating	EAD gross	EAD net	EAD net thereof counterparty credit risk	Undrawn commitments	Average PD in %	Average LGD in %	RWA	Average RW in %	EL/EAD in %
iAAA	2,208	2,850	893	265	0.02	41.35	491	17.21	0.01
iAA+	284	295	175	32	0.03	29.11	32	10.74	0.01
iAA	3,947	4,177	1,912	393	0.03	41.91	393	9.40	0.01
iAA–	8,584	9,467	4,838	1,896	0.04	44.14	1,321	13.95	0.02
iA+	12,343	12,845	8,833	1,556	0.05	25.75	1,652	12.86	0.01
iA	11,350	11,665	6,394	444	0.07	33.64	2,104	18.03	0.02
iA–	6,539	6,883	2,831	739	0.09	32.83	2,083	30.26	0.03
iBBB+	2,479	2,518	1,214	114	0.14	28.66	546	21.70	0.04
iBBB	1,742	1,810	1,133	166	0.23	20.68	455	25.16	0.05
iBBB–	6,750	5,777	1,384	301	0.39	32.32	2,856	49.44	0.13
iBB+	779	664	266	28	0.64	35.29	438	65.97	0.23
iBB	1,018	837	136	492	1.07	33.28	560	66.92	0.36
iBB–	830	804	101	72	1.76	16.38	367	45.61	0.29
iB+	194	185	72	53	2.92	28.51	110	59.56	0.56
iB	457	419	55	22	4.82	35.53	600	143.01	1.71
iB–	20	17	2	23	7.95	31.20	23	139.60	2.48
iCCC+	116	116	0	45	15.84	3.88	22	19.03	0.61
iCCC	7	7	1	4	21.88	14.49	6	90.69	3.16
iCCC–	25	25	11	7	31.00	27.93	47	191.99	8.66
Total excluding default	59,671	61,361	30,251	6,653	0.23	33.43	14,106	22.99	0.06
Default	74	74	0	0	100.00	11.68	43	57.60	N/M
Total including default	59,745	61,435	30,251	6,653	0.23	33.43	14,149	22.99	0.06

N/M – Not meaningful

in € m. (unless stated otherwise) — Dec 31, 2014

Internal rating	EAD gross	EAD net	EAD net thereof counterparty credit risk	Undrawn commitments	Average PD in %	Average LGD in %	RWA	Average RW in %	EL/EAD in %
iAAA	3,479	4,217	1,130	205	0.03	40.33	754	17.89	0.01
iAA+	521	535	260	46	0.03	38.95	75	14.00	0.01
iAA	3,036	3,040	1,097	429	0.03	38.94	223	7.33	0.01
iAA–	8,518	9,823	5,880	3,208	0.04	38.95	1,238	12.60	0.01
iA+	11,076	11,345	8,428	1,543	0.05	25.17	1,439	12.68	0.01
iA	7,867	7,997	3,491	433	0.07	33.92	1,738	21.74	0.02
iA–	10,816	10,915	6,598	416	0.09	26.24	2,170	19.88	0.02
iBBB+	2,774	2,709	1,479	139	0.14	25.37	689	25.44	0.04
iBBB	2,350	2,189	1,113	157	0.23	22.26	527	24.09	0.05
iBBB–	7,648	6,969	2,617	235	0.39	27.02	2,852	40.92	0.11
iBB+	1,218	1,149	337	15	0.64	24.63	537	46.73	0.16
iBB	726	569	113	480	1.07	38.15	477	83.73	0.41
iBB–	506	456	77	225	1.76	32.44	433	94.94	0.56
iB+	847	835	314	49	2.92	13.69	369	44.15	0.40
iB	127	87	20	0	4.86	28.45	88	101.25	1.38
iB–	28	13	5	0	7.95	31.67	18	135.09	2.52
iCCC+	9	6	0	0	13.00	22.89	6	105.13	2.98
iCCC	61	61	31	7	22.00	29.59	121	197.72	6.51
iCCC–	1	1	0	0	31.00	0.73	0	3.57	0.23
Total excluding default	61,606	62,915	32,990	7,587	0.20	30.55	13,753	21.86	0.05
Default	179	179	117	0	100.00	8.00	115	64.28	N/M
Total including default	61,785	63,095	33,108	7,587	0.20	30.55	13,869	21.86	0.05

N/M – Not meaningful

The EAD gross associated with the advanced IRB exposure to institutions has been slightly decreased by € 1.9 billion during the reporting period, mainly driven by reduction in derivative and securities financing transaction business which was partly offset by positive foreign exchange movements and reallocation of banking exposure in China due to a regulatory change in the equivalence treatment of prudential supervisory and regulatory requirements of non-EU countries, which led to a shift of exposures from corporates into institutions.

EAD for Advanced IRBA credit exposures by PD grade with corporates

in € m. (unless stated otherwise) — Dec 31, 2015

Internal rating	EAD gross	EAD net	EAD net thereof counterparty credit risk	Undrawn commitments	Average PD in %	Average LGD in %	RWA	Average RW in %	EL/EAD in %
iAAA	11,512	11,483	5,965	3,798	0.03	24.06	1,128	9.82	0.01
iAA+	23,717	23,633	17,380	5,417	0.03	28.73	2,097	8.87	0.01
iAA	15,659	15,597	5,244	10,023	0.03	23.38	1,235	7.92	0.01
iAA–	16,360	19,169	7,611	11,459	0.04	36.31	2,976	15.53	0.01
iA+	17,620	18,249	5,383	14,715	0.05	33.09	2,957	16.20	0.02
iA	23,457	24,549	4,257	21,159	0.07	33.09	4,945	20.15	0.02
iA–	27,721	28,405	5,683	17,618	0.09	33.39	6,677	23.51	0.18
iBBB+	25,938	25,958	3,832	19,912	0.14	35.17	7,805	30.07	0.05
iBBB	25,397	25,006	2,911	16,014	0.23	30.98	8,639	34.55	0.07
iBBB–	28,663	26,960	5,853	15,806	0.39	29.08	10,585	39.26	0.10
iBB+	20,173	19,247	5,612	13,015	0.64	28.89	9,840	51.12	0.18
iBB	20,726	18,768	3,244	14,337	1.07	29.12	12,129	64.63	0.30
iBB–	20,671	18,239	1,987	11,323	1.76	27.11	10,898	59.75	0.39
iB+	12,610	10,394	755	6,155	2.92	20.63	6,440	61.95	0.59
iB	11,953	10,019	516	8,687	4.81	20.73	7,538	75.23	0.97
iB–	5,181	4,140	658	2,912	7.93	19.49	3,369	81.38	1.52
iCCC+	5,343	4,964	425	1,089	14.55	8.96	2,223	44.79	1.20
iCCC	1,582	1,282	213	376	21.85	20.68	1,572	122.61	4.56
iCCC–	1,544	1,132	685	143	31.00	6.80	435	38.41	2.27
Total excluding default	315,827	307,193	78,216	193,959	1.10	29.41	103,488	33.69	0.21
Default	7,663	7,032	31	436	100.00	28.27	1,970	28.02	N/M
Total including default	323,491	314,225	78,246	194,395	1.10	29.41	105,459	33.69	0.21

N/M – Not meaningful

in € m. (unless stated otherwise) — Dec 31, 2014

Internal rating	EAD gross	EAD net	EAD net thereof counterparty credit risk	Undrawn commitments	Average PD in %	Average LGD in %	RWA	Average RW in %	EL/EAD in %
iAAA	13,117	13,108	8,215	4,301	0.03	23.00	1,726	13.17	0.01
iAA+	23,679	23,633	17,933	5,130	0.03	26.43	1,994	8.44	0.01
iAA	17,029	17,769	6,392	7,913	0.03	22.03	1,203	6.77	0.01
iAA–	16,131	19,448	6,865	12,753	0.04	38.26	3,137	16.13	0.02
iA+	19,330	19,833	6,089	13,185	0.05	29.47	2,825	14.25	0.01
iA	24,217	24,917	4,550	15,983	0.07	32.48	4,533	18.19	0.02
iA–	25,311	25,422	5,277	16,499	0.09	36.70	6,580	25.88	0.03
iBBB+	22,335	22,627	3,132	16,568	0.14	35.81	7,086	31.32	0.05
iBBB	27,182	26,235	4,345	15,739	0.23	31.86	8,934	34.05	0.07
iBBB–	25,503	24,339	4,282	14,499	0.39	32.31	11,172	45.90	0.12
iBB+	20,355	18,828	4,936	10,430	0.64	29.31	9,321	49.51	0.18
iBB	19,394	17,368	3,375	8,102	1.08	28.02	10,358	59.64	0.29
iBB–	17,960	15,712	2,699	8,516	1.77	29.43	10,053	63.99	0.43
iB+	11,192	9,164	1,008	5,286	2.92	21.95	6,193	67.58	0.62
iB	9,999	8,494	399	7,064	4.79	22.11	6,924	81.52	1.06
iB–	6,171	5,071	732	3,427	7.93	19.13	3,893	76.77	1.38
iCCC+	2,258	1,863	481	538	12.99	20.05	1,911	102.55	2.64
iCCC	896	808	165	266	21.66	16.91	820	101.47	3.89
iCCC–	1,584	1,145	610	68	31.00	12.07	820	71.60	3.96
Total excluding default	303,644	295,786	81,484	166,266	0.91	30.00	99,483	33.63	0.20
Default	8,147	7,727	196	525	100.00	26.18	2,050	26.53	N/M
Total including default	311,791	303,513	81,680	166,790	0.91	30.00	101,533	33.63	0.20

N/M – Not meaningful

The majority of these exposures are assigned to investment-grade customers. The exposures in the lowest rating classes are predominantly collateralized.

The EAD levels increased in total over the reporting period primarily driven by foreign exchange movements. The decrease in EAD in some investment grade rating classes results from a regulatory change in the equivalence treatment of prudential supervisory and regulatory requirements of non-EU countries (e.g. China), which led to a shift of exposures from corporates into institutions. In addition new securitization transactions result in lower exposure in the exposure class Corporates.

The increase of exposures in the internal rating class iCCC+ is mainly driven by changes in the internal dilution risk model. The probability of the dilution event is now determined independent of credit quality of seller being in the iCCC+ range.

EAD for advanced IRBA credit exposures by PD grade with retail exposures total

in € m. (unless stated otherwise) — Dec 31, 2015

Internal rating	EAD gross	EAD net	EAD net thereof counterparty credit risk	Undrawn commitments	Average PD in %	Average LGD in %	RWA	Average RW in %	EL/EAD in %
iAAA	44	121	0	58	0.03	20.79	6	4.64	0.01
iAA+	169	308	1	178	0.03	32.93	9	2.86	0.01
iAA	502	1,215	1	595	0.03	38.97	43	3.56	0.01
iAA–	978	1,134	0	338	0.04	18.86	40	3.51	0.01
iA+	919	943	1	404	0.05	18.37	17	1.81	0.01
iA	3,230	3,305	1	887	0.07	16.99	80	2.42	0.01
iA–	10,113	10,183	6	1,682	0.09	16.30	355	3.48	0.02
iBBB+	14,605	14,771	9	2,035	0.14	16.61	764	5.17	0.02
iBBB	23,672	23,668	12	2,435	0.23	15.92	1,797	7.59	0.04
iBBB–	32,013	32,021	6	2,499	0.38	16.46	3,531	11.03	0.06
iBB+	37,158	37,147	21	2,576	0.67	17.95	6,368	17.14	0.12
iBB	27,723	27,693	13	2,227	1.12	18.34	6,567	23.71	0.21
iBB–	18,032	18,009	7	1,806	1.84	19.97	5,832	32.38	0.37
iB+	6,202	6,185	6	579	2.92	22.38	2,485	40.18	0.65
iB	7,972	7,963	2	837	4.19	23.41	3,955	49.67	0.98
iB–	4,629	4,619	1	376	7.53	24.44	2,882	62.38	1.83
iCCC+	2,050	2,050	0	126	12.89	24.38	1,569	76.53	3.12
iCCC	2,547	2,548	0	69	19.18	23.71	2,439	95.70	4.47
iCCC–	948	929	1	17	31.00	23.96	955	102.81	7.41
Total excluding default	193,507	194,813	88	19,725	1.54	18.35	39,694	20.38	0.33
Default	4,826	4,689	0	51	100.00	35.33	287	6.11	N/M
Total including default	198,334	199,502	88	19,775	1.54	18.35	39,981	20.38	0.33

N/M – Not meaningful

in € m. (unless stated otherwise) — Dec 31, 2014

Internal rating	EAD gross	EAD net	EAD net thereof counterparty credit risk	Undrawn commitments	Average PD in %	Average LGD in %	RWA	Average RW in %	EL/EAD in %
iAAA	13	50	0	19	0.03	10.66	0	0.83	0.00
iAA+	73	95	1	80	0.03	25.11	1	1.40	0.01
iAA	572	716	2	332	0.03	27.02	15	2.11	0.01
iAA–	1,060	1,093	0	345	0.04	27.05	33	3.03	0.01
iA+	760	770	1	307	0.05	18.67	14	1.80	0.01
iA	3,575	3,616	4	850	0.07	18.16	96	2.66	0.01
iA–	11,280	11,340	4	1,619	0.09	17.37	428	3.77	0.02
iBBB+	14,251	14,371	5	1,903	0.14	16.86	759	5.28	0.02
iBBB	22,777	22,815	10	2,370	0.23	16.41	1,706	7.48	0.04
iBBB–	29,486	29,498	17	2,540	0.38	16.96	3,294	11.17	0.07
iBB+	33,191	33,178	12	2,646	0.66	18.05	5,696	17.17	0.12
iBB	26,385	26,367	13	2,259	1.12	18.16	6,297	23.88	0.21
iBB–	19,281	19,288	9	1,869	1.83	18.96	6,158	31.93	0.35
iB+	7,059	7,046	8	715	2.92	20.53	2,781	39.46	0.60
iB	8,002	7,985	4	444	4.25	22.42	3,962	49.62	0.94
iB–	4,317	4,303	3	200	7.59	24.55	2,766	64.28	1.84
iCCC+	2,172	2,162	1	111	12.91	24.01	1,655	76.55	3.07
iCCC	2,394	2,389	0	63	19.57	23.87	2,306	96.53	4.56
iCCC–	1,244	1,221	1	33	31.00	20.96	633	51.84	6.47
Total excluding default	187,892	188,304	96	18,705	1.63	18.34	38,601	20.50	0.34
Default	4,999	4,823	1	59	100.00	38.89	266	5.51	N/M
Total including default	192,891	193,127	96	18,763	1.63	18.34	38,867	20.50	0.34

N/M – Not meaningful

The risk parameters associated with the total advanced IRBA retail exposure remained broadly stable during the reporting period. The increased EAD is mainly resulting from increased business activity in consumer loans.

EAD for advanced IRBA credit exposures by PD grade with retail exposures secured by real estate SME

in € m. (unless stated otherwise) — Dec 31, 2015

Internal rating	EAD gross	EAD net	EAD net thereof counterparty credit risk	Undrawn commitments	Average PD in %	Average LGD in %	RWA	Average RW in %	EL/EAD in %
iAAA	0	0	0	0	0.00	0.00	0	0.00	0.00
iAA+	1	1	0	0	0.03	5.21	0	0.00	0.00
iAA	7	7	0	0	0.03	10.77	0	0.89	0.00
iAA–	14	14	0	0	0.04	8.35	0	0.91	0.00
iA+	57	57	0	12	0.05	14.17	1	1.75	0.01
iA	109	109	0	2	0.07	9.35	2	1.63	0.01
iA–	405	405	0	9	0.09	10.65	9	2.17	0.01
iBBB+	924	923	0	23	0.14	9.84	26	2.83	0.01
iBBB	1,478	1,471	0	37	0.23	10.19	63	4.31	0.02
iBBB–	2,047	2,042	0	67	0.39	10.04	131	6.42	0.04
iBB+	2,494	2,487	0	96	0.64	10.15	234	9.40	0.06
iBB	2,514	2,501	0	118	1.07	10.86	356	14.25	0.12
iBB–	1,549	1,542	0	85	1.76	10.95	303	19.63	0.19
iB+	717	710	0	24	2.92	11.47	194	27.27	0.33
iB	408	405	0	12	4.82	12.31	156	38.52	0.59
iB–	242	238	0	4	7.95	11.00	104	43.78	0.87
iCCC+	173	171	0	3	13.00	10.22	86	49.99	1.32
iCCC	118	117	0	2	22.00	11.99	80	68.00	2.62
iCCC–	116	114	0	2	31.00	11.95	78	68.58	3.61
Total excluding default	13,372	13,313	0	496	1.69	10.55	1,822	13.69	0.19
Default	170	166	0	2	100.00	19.11	3	1.70	N/M
Total including default	13,542	13,479	0	498	1.69	10.55	1,825	13.69	0.19

N/M – Not meaningful

in € m. (unless stated otherwise) — Dec 31, 2014

Internal rating	EAD gross	EAD net	EAD net thereof counterparty credit risk	Undrawn commitments	Average PD in %	Average LGD in %	RWA	Average RW in %	EL/EAD in %
iAAA	0	0	0	0	0.00	0.00	0	0.00	0.00
iAA+	0	0	0	0	0.00	0.00	0	0.00	0.00
iAA	1	1	0	0	0.03	16.62	0	1.94	0.00
iAA–	6	6	0	0	0.04	15.90	0	2.12	0.01
iA+	14	14	0	0	0.05	20.65	0	3.34	0.01
iA	52	52	0	0	0.07	22.73	2	4.72	0.02
iA–	116	116	0	1	0.09	21.85	6	5.50	0.02
iBBB+	135	135	0	1	0.14	18.18	9	6.33	0.03
iBBB	104	104	0	0	0.23	19.65	10	9.87	0.05
iBBB–	88	88	0	1	0.39	14.02	9	9.91	0.05
iBB+	93	92	0	0	0.64	15.74	14	14.76	0.10
iBB	62	61	0	1	1.08	14.80	12	19.54	0.15
iBB–	93	91	0	0	1.76	12.60	19	20.39	0.22
iB+	85	84	0	1	2.92	14.64	26	31.08	0.43
iB	60	60	0	0	4.81	12.84	21	35.59	0.59
iB–	37	35	0	0	7.95	16.40	21	58.06	1.30
iCCC+	27	25	0	0	13.00	14.78	17	66.44	1.82
iCCC	19	18	0	1	21.86	20.57	22	121.89	4.50
iCCC–	35	34	0	0	31.00	17.51	135	399.56	5.09
Total excluding default	1,029	1,017	0	6	2.91	16.99	323	31.74	0.47
Default	64	59	0	0	100.00	27.97	4	6.84	N/M
Total including default	1,093	1,076	0	6	2.91	16.99	327	31.74	0.47

N/M – Not meaningful

The increase of advanced IRBA retail exposures secured by real estate SME mainly results from a reallocation from Non-SME exposures.

EAD for advanced IRBA credit exposures by PD grade with retail exposures secured by real estate non-SME

in € m. (unless stated otherwise) — Dec 31, 2015

Internal rating	EAD gross	EAD net	EAD net thereof counterparty credit risk	Undrawn commitments	Average PD in %	Average LGD in %	RWA	Average RW in %	EL/EAD in %
iAAA	5	5	0	0	0.03	6.11	0	0.63	0.00
iAA+	39	39	0	0	0.03	8.64	0	1.10	0.00
iAA	199	199	0	3	0.03	8.07	2	0.82	0.00
iAA–	444	444	0	7	0.04	8.71	5	1.11	0.00
iA+	570	570	0	5	0.05	8.76	8	1.38	0.00
iA	2,363	2,362	0	38	0.07	10.36	46	1.94	0.01
iA–	8,207	8,207	0	184	0.09	12.73	257	3.13	0.01
iBBB+	11,528	11,527	0	269	0.14	13.51	534	4.63	0.02
iBBB	18,950	18,948	0	535	0.23	13.06	1,272	6.71	0.03
iBBB–	25,744	25,739	0	793	0.38	12.92	2,377	9.23	0.05
iBB+	29,606	29,598	0	1,117	0.67	13.88	4,284	14.47	0.09
iBB	20,408	20,396	0	1,154	1.13	13.04	3,960	19.42	0.15
iBB–	12,412	12,398	0	1,033	1.85	12.33	3,135	25.29	0.23
iB+	3,357	3,342	0	159	2.92	10.66	980	29.34	0.31
iB	5,082	5,077	0	553	4.08	13.56	2,129	41.93	0.54
iB–	2,756	2,752	0	227	7.46	14.00	1,632	59.32	1.03
iCCC+	1,165	1,161	0	65	12.87	14.37	892	76.80	1.83
iCCC	1,786	1,782	0	46	18.96	16.08	1,669	93.65	2.96
iCCC–	564	554	0	3	31.00	16.06	567	102.35	4.97
Total excluding default	145,187	145,099	0	6,192	1.37	13.11	23,749	16.37	0.19
Default	1,906	1,881	0	20	100.00	22.11	93	4.95	N/M
Total including default	147,093	146,980	0	6,212	1.37	13.11	23,842	16.37	0.19

N/M – Not meaningful

in € m.
(unless stated otherwise)

Dec 31, 2014

Internal rating	EAD gross	EAD net	EAD net thereof counterparty credit risk	Undrawn commitments	Average PD in %	Average LGD in %	RWA	Average RW in %	EL/EAD in %
iAAA	2	2	0	0	0.03	6.82	0	0.62	0.00
iAA+	19	19	0	0	0.03	7.41	0	0.74	0.00
iAA	338	338	0	30	0.03	12.43	4	1.22	0.00
iAA–	608	608	0	26	0.04	11.91	9	1.49	0.00
iA+	505	505	0	5	0.05	9.87	8	1.49	0.00
iA	2,874	2,874	0	84	0.07	12.73	67	2.32	0.01
iA–	9,685	9,685	0	250	0.09	13.94	329	3.40	0.01
iBBB+	12,130	12,128	0	276	0.14	13.41	556	4.59	0.02
iBBB	19,479	19,471	0	540	0.23	13.11	1,228	6.31	0.03
iBBB–	25,096	25,074	0	772	0.38	12.95	2,262	9.02	0.05
iBB+	27,934	27,914	0	1,096	0.67	13.53	3,916	14.03	0.09
iBB	21,739	21,710	0	1,308	1.12	12.83	4,182	19.26	0.14
iBB–	15,171	15,131	0	1,199	1.83	12.44	3,884	25.67	0.23
iB+	4,863	4,837	0	276	2.92	11.12	1,485	30.70	0.32
iB	5,568	5,553	0	149	4.19	13.48	2,394	43.10	0.54
iB–	2,770	2,758	0	49	7.57	14.06	1,683	61.02	1.04
iCCC+	1,362	1,351	0	34	12.91	13.89	1,020	75.49	1.76
iCCC	1,698	1,688	0	28	19.53	15.70	1,591	94.23	2.95
iCCC–	848	835	0	13	31.00	12.30	112	13.47	3.79
Total excluding default	152,690	152,480	0	6,135	1.46	13.11	24,730	16.22	0.19
Default	2,454	2,416	0	27	100.00	22.30	132	5.48	N/M
Total including default	155,144	154,896	0	6,162	1.46	13.11	24,863	16.22	0.19

N/M – Not meaningful

EAD for Advanced IRBA Credit Exposures by PD Grade with Qualifying Revolving Retail Exposures

in € m. (unless stated otherwise) — Dec 31, 2015

Internal rating	EAD gross	EAD net	EAD net thereof counterparty credit risk	Undrawn commitments	Average PD in %	Average LGD in %	RWA	Average RW in %	EL/EAD in %
iAAA	12	12	0	22	0.03	45.30	0	1.37	0.01
iAA+	58	58	0	97	0.03	44.78	1	1.31	0.01
iAA	181	181	0	271	0.03	45.07	2	1.18	0.01
iAA–	170	170	0	252	0.04	45.08	3	1.48	0.02
iA+	190	190	0	279	0.05	44.70	3	1.78	0.02
iA	429	429	0	622	0.07	44.93	10	2.32	0.03
iA–	605	605	0	859	0.09	45.47	18	2.92	0.04
iBBB+	585	585	0	812	0.14	44.86	24	4.11	0.06
iBBB	527	527	0	689	0.23	44.69	32	6.14	0.10
iBBB–	446	446	0	533	0.39	43.97	41	9.14	0.17
iBB+	363	363	0	379	0.65	43.48	49	13.46	0.28
iBB	239	239	0	202	1.09	45.55	50	21.06	0.50
iBB–	156	156	0	109	1.80	46.66	49	31.35	0.85
iB+	76	76	0	46	2.92	43.97	32	42.23	1.28
iB	60	60	0	25	4.48	50.93	38	62.68	2.23
iB–	32	32	0	10	7.70	51.48	29	90.25	3.93
iCCC+	16	16	0	4	12.93	48.02	19	113.98	6.20
iCCC	14	14	0	2	20.19	51.72	21	147.11	10.19
iCCC–	9	9	0	1	31.00	41.97	13	142.92	13.01
Total excluding default	4,170	4,170	0	5,214	0.67	44.99	434	10.40	0.31
Default	24	24	0	0	100.00	47.86	3	12.78	N/M
Total including default	4,194	4,194	0	5,214	0.67	44.99	437	10.40	0.31

N/M – Not meaningful

in € m. (unless stated otherwise) — Dec 31, 2014

Internal rating	EAD gross	EAD net	EAD net thereof counterparty credit risk	Undrawn commitments	Average PD in %	Average LGD in %	RWA	Average RW in %	EL/EAD in %
iAAA	4	4	0	8	0.03	47.05	0	1.24	0.01
iAA+	34	34	0	59	0.03	46.34	0	1.34	0.01
iAA	134	134	0	201	0.03	47.18	2	1.24	0.01
iAA–	147	147	0	217	0.04	46.55	2	1.52	0.02
iA+	156	156	0	229	0.05	46.31	3	1.83	0.02
iA	402	402	0	576	0.07	46.88	10	2.41	0.03
iA–	650	650	0	913	0.09	47.15	20	3.02	0.04
iBBB+	637	637	0	881	0.14	46.41	27	4.25	0.06
iBBB	580	580	0	756	0.23	46.24	37	6.33	0.10
iBBB–	498	498	0	599	0.39	45.36	47	9.44	0.18
iBB+	413	413	0	440	0.64	44.25	56	13.68	0.29
iBB	278	278	0	242	1.09	46.23	59	21.33	0.50
iBB–	188	188	0	131	1.79	46.72	59	31.36	0.84
iB+	96	96	0	58	2.92	45.40	42	43.58	1.33
iB	72	72	0	30	4.52	51.42	46	64.06	2.28
iB–	41	41	0	14	7.72	51.40	37	90.55	3.94
iCCC+	27	27	0	6	12.93	47.15	30	111.94	6.09
iCCC	21	21	0	3	20.20	52.14	32	148.42	10.29
iCCC–	14	14	0	1	31.00	43.41	21	147.86	13.46
Total excluding default	4,391	4,391	0	5,365	0.81	46.37	530	12.06	0.39
Default	25	25	0	1	100.00	51.08	2	9.35	N/M
Total including default	4,417	4,417	0	5,366	0.81	46.37	532	12.06	0.39

N/M – Not meaningful

EAD for Advanced IRBA Credit Exposures by PD Grade with Other Retail Exposures SME

in € m. (unless stated otherwise) — Dec 31, 2015

Internal rating	EAD gross	EAD net	EAD net thereof counterparty credit risk	Undrawn commitments	Average PD in %	Average LGD in %	RWA	Average RW in %	EL/EAD in %
iAAA	0	0	0	1	0.03	51.61	0	3.70	0.02
iAA+	1	1	0	2	0.03	47.95	0	3.53	0.01
iAA	15	15	0	15	0.03	56.99	1	4.62	0.02
iAA–	15	14	0	19	0.04	46.93	1	4.83	0.02
iA+	17	17	1	19	0.05	29.24	1	3.72	0.01
iA	89	85	0	69	0.05	41.62	8	9.08	0.02
iA–	273	266	2	240	0.08	34.01	20	7.41	0.03
iBBB+	570	549	3	453	0.14	27.90	43	7.83	0.04
iBBB	871	828	3	578	0.23	27.52	87	10.56	0.06
iBBB–	931	884	3	554	0.38	28.37	132	14.97	0.10
iBB+	944	904	7	474	0.63	30.95	191	21.17	0.19
iBB	912	864	6	400	1.05	31.85	234	27.14	0.33
iBB–	798	749	4	326	1.76	32.06	245	32.73	0.57
iB+	624	580	3	243	2.92	31.12	201	34.64	0.91
iB	478	443	1	174	4.81	29.51	149	33.60	1.41
iB–	317	293	1	99	7.94	26.65	93	31.79	2.11
iCCC+	157	145	0	37	13.00	26.17	55	37.55	3.40
iCCC	68	60	0	10	21.87	29.38	33	54.56	6.37
iCCC–	78	65	1	6	31.00	30.34	41	63.56	9.40
Total excluding default	7,157	6,762	35	3,720	2.20	30.14	1,534	22.69	0.64
Default	248	202	0	11	100.00	40.68	2	1.15	N/M
Total including default	7,405	6,965	35	3,731	2.20	30.14	1,537	22.69	0.64

N/M – Not meaningful

in € m. (unless stated otherwise)

Dec 31, 2014

Internal rating	EAD gross	EAD net	EAD net thereof counterparty credit risk	Undrawn commitments	Average PD in %	Average LGD in %	RWA	Average RW in %	EL/EAD in %
iAAA	0	0	0	0	0.00	0.00	0	0.00	0.00
iAA+	0	0	0	1	0.03	54.00	0	6.67	0.02
iAA	16	16	0	16	0.03	65.27	1	6.78	0.02
iAA–	29	29	0	10	0.04	57.45	2	7.31	0.02
iA+	2	2	0	2	0.05	46.20	0	6.34	0.02
iA	24	24	0	20	0.06	56.34	2	9.54	0.03
iA–	74	74	0	47	0.09	50.03	8	11.32	0.04
iBBB+	83	82	0	48	0.14	46.15	11	13.70	0.07
iBBB	127	126	2	78	0.23	49.37	25	19.69	0.12
iBBB–	230	227	3	150	0.39	45.65	56	24.55	0.18
iBB+	320	312	2	208	0.65	43.43	94	30.12	0.28
iBB	358	348	5	209	1.08	44.46	132	37.81	0.48
iBB–	389	381	4	208	1.76	40.70	153	40.22	0.72
iB+	403	389	4	203	2.92	35.34	148	37.93	1.03
iB	353	334	0	153	4.80	31.34	116	34.78	1.50
iB–	267	251	1	92	7.94	29.16	86	34.20	2.31
iCCC+	161	150	0	37	13.00	27.36	57	37.77	3.55
iCCC	71	63	0	15	21.86	30.01	33	52.90	6.51
iCCC–	83	70	0	8	31.00	32.69	47	67.03	10.13
Total excluding default	2,990	2,879	23	1,505	4.04	39.11	971	33.73	1.30
Default	169	158	0	7	100.00	42.48	2	1.18	N/M
Total including default	3,159	3,037	23	1,512	4.04	39.11	973	33.73	1.30

N/M – Not meaningful

EAD for Advanced IRBA Credit Exposures by PD Grade with Other Retail Exposures non – SME

in € m. (unless stated otherwise) — Dec 31, 2015

Internal rating	EAD gross	EAD net	EAD net thereof counterparty credit risk	Undrawn commitments	Average PD in %	Average LGD in %	RWA	Average RW in %	EL/EAD in %
iAAA	27	104	0	35	0.03	18.63	5	5.20	0.01
iAA+	71	210	0	79	0.03	34.18	8	3.61	0.01
iAA	101	814	1	306	0.03	45.10	39	4.75	0.01
iAA–	334	491	0	60	0.04	18.43	32	6.42	0.02
iA+	85	109	1	88	0.05	23.27	4	3.83	0.01
iA	261	336	0	157	0.07	26.68	19	5.52	0.02
iA–	643	716	4	390	0.09	30.31	56	7.80	0.03
iBBB+	1,018	1,202	6	479	0.14	33.30	141	11.74	0.05
iBBB	1,845	1,882	9	592	0.23	36.19	337	17.89	0.08
iBBB–	2,823	2,899	3	550	0.39	44.61	848	29.24	0.18
iBB+	3,729	3,784	13	506	0.66	49.37	1,608	42.50	0.33
iBB	3,656	3,700	8	356	1.12	47.75	1,966	53.13	0.54
iBB–	3,097	3,143	3	256	1.87	50.14	2,098	66.76	0.93
iB+	1,428	1,477	3	106	2.92	49.59	1,078	72.98	1.45
iB	1,943	1,978	1	73	4.21	48.77	1,484	75.02	2.05
iB–	1,281	1,305	0	37	7.51	47.72	1,023	78.40	3.58
iCCC+	538	556	0	17	12.87	48.45	518	93.22	6.22
iCCC	561	575	0	10	19.00	48.46	637	110.66	9.19
iCCC–	181	187	0	5	31.00	51.64	255	136.75	16.01
Total excluding default	**23,622**	**25,468**	**53**	**4,102**	**2.37**	**44.88**	**12,154**	**47.72**	**1.16**
Default	2,478	2,415	0	19	100.00	46.17	185	7.67	N/M
Total including default	**26,100**	**27,883**	**53**	**4,120**	**2.37**	**44.88**	**12,340**	**47.72**	**1.16**

N/M – Not meaningful

in € m. (unless stated otherwise)									Dec 31, 2014
Internal rating	EAD gross	EAD net	EAD net thereof counterparty credit risk	Undrawn commitments	Average PD in %	Average LGD in %	RWA	Average RW in %	EL/EAD in %
iAAA	7	45	0	12	0.03	7.53	0	0.80	0.00
iAA+	20	42	1	20	0.03	16.00	1	1.73	0.00
iAA	83	227	2	86	0.03	34.26	8	3.62	0.01
iAA–	270	303	0	91	0.04	45.24	20	6.46	0.02
iA+	83	93	1	70	0.05	19.09	3	3.12	0.01
iA	223	264	4	169	0.07	29.06	15	5.73	0.02
iA–	755	816	4	408	0.09	30.88	65	7.93	0.03
iBBB+	1,266	1,388	5	697	0.14	31.60	156	11.25	0.04
iBBB	2,486	2,533	8	996	0.23	33.16	406	16.04	0.08
iBBB–	3,575	3,612	14	1,018	0.39	39.18	920	25.48	0.15
iBB+	4,430	4,448	10	902	0.65	42.22	1,616	36.32	0.27
iBB	3,948	3,969	8	500	1.11	43.06	1,912	48.17	0.48
iBB–	3,439	3,497	5	330	1.84	43.43	2,043	58.42	0.80
iB+	1,611	1,639	4	178	2.92	43.59	1,080	65.89	1.27
iB	1,950	1,966	4	111	4.28	45.39	1,385	70.44	1.92
iB–	1,202	1,217	2	45	7.55	46.70	939	77.16	3.51
iCCC+	596	609	1	34	12.88	45.02	532	87.31	5.78
iCCC	585	598	0	16	19.36	45.37	628	104.99	8.71
iCCC–	263	268	0	10	31.00	44.10	318	118.49	13.67
Total excluding default	26,791	27,536	73	5,694	2.40	40.71	12,047	43.75	1.06
Default	2,287	2,165	0	25	100.00	57.30	125	5.78	N/M
Total including default	29,078	29,701	73	5,718	2.40	40.71	12,172	43.75	1.06

N/M – Not meaningful

The increase of advanced IRBA retail exposure secured by real estate SME mainly results from a reallocation from Non-SME exposures.

The table below shows our Advanced IRBA exposure distributed based on the corresponding exposure classes for each relevant geographical location. As geographical location we show countries where the Bank maintains a branch or subsidiary and exposure volume is equal to or higher than € 0.5 million. Exposure which does not meet these criteria is shown in “Other”, which also comprises exposure to international organizations. Exposures are assigned to the specific geographical location based on the country of domicile of the respective counterparty. The EAD net is presented in conjunction with exposures-weighted average LGD and PD in percentage. It excludes the following exposure classes: securitization positions in the regulatory banking book, specific equity positions and non-credit obligation assets.

EAD net, average LGD and average PD of Advanced IRBA credit exposures by geographical location

Dec 31, 2015

in € m. (unless stated otherwise)	Central governments and central banks	Institutions	Corporates	Retail secured by real estate SME	Retail secured by real estate non-SME	Retail qualifying revolving	Retail other SME	Retail other non-SME	Total
American Virgin Islands									
EAD net	0	0	35	0	0	0	0	0	35
Average LGD in %	0	0	29.06	0	0	0	0	0	29.06
Average PD in %	0	0	0.73	0	0	0	0	0	0.73
Argentina									
EAD net	77	0	189	0	3	1	0	8	278
Average LGD in %	49.97	0	34.84	11.92	11.97	41.47	0	31.81	38.70
Average PD in %	12.99	0	6.84	0.39	5.29	0.39	0	7.95	8.54
Australia									
EAD net	2,063	2,956	3,466	0	12	1	1	2	8,501
Average LGD in %	25.89	40.59	40.74	0	21.85	40.12	82.40	31.61	37.06
Average PD in %	0.01	0.07	1.25	0	3.37	0.82	13.00	4.57	0.54
Austria									
EAD net	230	321	927	17	36	3	0	11	1,545
Average LGD in %	44.21	31.57	35.11	7.61	14.42	41.61	27.95	27.88	34.91
Average PD in %	0.01	0.21	2.64	0.60	6.92	0.51	6.49	10.50	1.88
Barbados									
EAD net	0	0	241	0	0	0	0	0	241
Average LGD in %	0	0	25.81	0	0	26.16	0	0	25.81
Average PD in %	0	0	0.28	0	0	0.44	0	0	0.28
Belgium									
EAD net	599	1,208	2,651	1	38	2	0	9	4,509
Average LGD in %	49.98	43.78	37.49	10.80	16.96	42.84	22.74	41.05	40.66
Average PD in %	0	0.06	0.43	2.02	2.62	1.20	6.65	4.64	0.30
Bermuda									
EAD net	0	0	1,775	0	0	0	0	0	1,775
Average LGD in %	0	0	33.14	0	0	0	0	0	33.14
Average PD in %	0	0	3.54	0	0	0	0	0	3.54
Brazil									
EAD net	52	1,114	1,998	0	6	1	0	6	3,178
Average LGD in %	49.53	17.74	39.76	0	14.68	39.57	53.59	43.10	32.16
Average PD in %	0.39	0.42	2.26	0	1.71	0.34	0.39	15.30	1.61
British Virgin Islands									
EAD net	0	0	8,065	0	0	0	0	0	8,065
Average LGD in %	0	0	9.55	0	0	0	0	0	9.55
Average PD in %	0	0	3.29	0	0	0	0	0	3.29
Canada									
EAD net	757	2,793	3,892	1	6	1	0	13	7,461
Average LGD in %	30.43	27.21	36.52	11.95	14.73	40.88	5.04	14.06	32.36
Average PD in %	0.04	0.06	3.16	1.07	3.16	0.38	0.23	17.70	1.71
Cayman Islands									
EAD net	0	0	7,965	0	0	0	0	1	7,966
Average LGD in %	0	0	30.25	0	5.20	45.43	39.10	49.91	30.25
Average PD in %	0	0	1.21	0	0.39	0.64	0.64	0.15	1.20
Chile									
EAD net	0	0	555	0	0	1	0	3	559
Average LGD in %	47.63	0	47.13	0	5.46	43.05	0	24.91	46.99
Average PD in %	0.02	0	0.72	0	0.43	0.21	0	2.57	0.73

Dec 31, 2015

in € m. (unless stated otherwise)	Central governments and central banks	Institutions	Corporates	Retail secured by real estate SME	Retail secured by real estate non-SME	Retail qualifying revolving	Retail other SME	Retail other non-SME	Total
China									
EAD net	2,741	5,112	5,416	0	16	1	0	5	13,291
Average LGD in %	50.93	40.93	37.60	29.28	14.28	42.77	0	50.06	41.60
Average PD in %	0	0.17	1.43	100.00	1.84	0.79	0	5.29	0.65
Colombia									
EAD net	0	0	166	0	2	0	0	2	170
Average LGD in %	0	0	36.73	0	12.82	39.23	56.81	49.74	36.67
Average PD in %	0	0	0.58	0	0.48	1.36	0.64	9.95	0.71
Czech Republic									
EAD net	433	388	231	0	4	0	0	3	1,059
Average LGD in %	50.00	44.41	42.01	0	11.39	40.28	0	28.81	46.01
Average PD in %	0	0.08	1.46	0	0.97	0.66	0	7.19	0.37
Denmark									
EAD net	82	1,899	919	4	12	0	0	3	2,920
Average LGD in %	47.98	15.05	41.59	5.20	15.02	42.62	0	23.31	24.33
Average PD in %	0	0.15	0.19	0.64	2.12	0.46	0	22.83	0.18
Finland									
EAD net	64	267	744	0	3	0	0	0	1,079
Average LGD in %	50.00	31.77	41.64	0	16.09	38.11	39.03	58.04	39.63
Average PD in %	0	0.04	0.24	0	1.24	0.43	1.76	7.53	0.18
France									
EAD net	939	6,112	5,842	4	65	5	0	87	13,054
Average LGD in %	48.99	22.71	41.33	26.22	12.81	42.59	18.44	16.18	32.85
Average PD in %	0	0.09	0.48	2.23	5.33	0.86	2.37	4.04	0.31
Germany									
EAD net	1,835	6,184	42,343	12,600	124,947	4,131	4,073	19,297	215,411
Average LGD in %	47.41	22.08	35.77	10.28	12.84	45.06	22.63	39.58	20.95
Average PD in %	0	0.42	4.04	2.45	2.57	1.24	1.94	5.36	2.98
Greece									
EAD net	0	18	1,394	0	6	1	0	2	1,421
Average LGD in %	0	33.48	18.36	0	12.78	41.69	0	30.95	18.56
Average PD in %	0	31.00	12.65	0	4.75	0.79	0	5.01	12.82
Guernsey									
EAD net	0	0	379	0	0	0	0	0	379
Average LGD in %	0	0	14.93	0	0	45.50	0	0	14.93
Average PD in %	0	0	1.87	0	0	0.23	0	0	1.87
Hong Kong									
EAD net	132	565	5,839	0	10	0	0	2	6,548
Average LGD in %	29.84	42.13	27.63	0	23.63	40.33	0	20.66	28.92
Average PD in %	0.02	0.06	1.08	0	1.62	0.42	0	0.52	0.97
Hungary									
EAD net	191	38	217	0	3	0	0	2	453
Average LGD in %	50.00	50.65	46.17	0	22.31	42.52	39.10	33.92	47.94
Average PD in %	0.39	0.41	1.47	0	0.80	2.05	0.23	5.59	0.94

Dec 31, 2015

in € m. (unless stated otherwise)	Central governments and central banks	Institutions	Corporates	Retail secured by real estate SME	Retail secured by real estate non-SME	Retail qualifying revolving	Retail other SME	Retail other non-SME	Total
India									
EAD net	1,406	3,126	6,188	0	3	1	0	9	10,733
Average LGD in %	49.50	43.78	38.28	0	11.08	42.73	38.53	46.97	41.36
Average PD in %	0.39	0.47	3.00	0	2.79	1.78	1.04	12.61	1.93
Indonesia									
EAD net	278	0	2,113	0	1	0	0	1	2,393
Average LGD in %	49.99	0	33.07	0	10.60	41.95	0	20.45	35.03
Average PD in %	0.23	0	3.54	0	0.89	0.84	0	2.37	3.15
Ireland									
EAD net	2	168	6,156	1	29	0	0	3	6,360
Average LGD in %	49.97	42.93	22.06	13.43	12.61	39.07	7.11	26.67	22.59
Average PD in %	0.05	0.63	20.31	1.90	8.55	0.79	1.73	1.73	19.71
Israel									
EAD net	11	0	484	0	16	1	0	1	511
Average LGD in %	49.98	0	53.10	21.50	26.48	33.66	0	17.70	52.14
Average PD in %	0.05	0	0.67	0.07	5.07	0.97	0	4.16	0.79
Italy (incl. San Marino)									
EAD net	1,954	896	6,314	310	7,157	2	1,361	4,048	22,041
Average LGD in %	47.02	25.02	39.60	19.65	7.82	41.37	23.89	75.06	34.61
Average PD in %	0.10	1.11	11.82	10.52	1.98	1.00	10.81	24.07	9.32
Japan									
EAD net	7,097	2,330	2,089	0	2	1	0	0	11,519
Average LGD in %	49.98	22.76	20.65	0	12.04	39.54	0	54.56	39.15
Average PD in %	0	0.08	0.53	0	0.53	0.18	0	3.82	0.11
Jersey									
EAD net	0	63	1,507	0	0	0	0	0	1,570
Average LGD in %	1.00	17.57	18.36	0	58.10	0	0	0	18.34
Average PD in %	0	0.04	2.43	0	100.00	0	0	0	2.35
Luxembourg									
EAD net	16	1,360	10,750	0	40	1	0	2	12,168
Average LGD in %	48.18	41.69	22.81	7.09	10.58	41.67	3.80	32.77	24.91
Average PD in %	0	0.28	2.72	0.64	8.71	3.67	1.02	29.88	2.47
Malaysia									
EAD net	115	0	997	0	4	0	0	2	1,118
Average LGD in %	46.13	0	44.32	0	49.84	42.71	0	19.31	44.48
Average PD in %	0.07	0	0.40	0	15.64	0.34	0	26.17	0.47
Malta									
EAD net	1	30	158	0	2	0	0	0	191
Average LGD in %	49.62	42.46	7.92	0	22.02	45.89	0	55.37	13.73
Average PD in %	0.05	0.07	1.26	0	7.18	1.19	0	2.27	1.12
Mauritius									
EAD net	0	0	194	0	1	0	0	0	195
Average LGD in %	0	0	38.37	0	16.53	45.50	0	33.79	38.30
Average PD in %	0	0	1.53	0	2.37	2.35	0	2.42	1.54
Mexico									
EAD net	0	181	941	1	4	1	0	79	1,206
Average LGD in %	1.00	42.43	38.29	5.40	11.52	41.92	0	50.88	39.63
Average PD in %	0	0.21	2.08	2.92	0.82	0.56	0	48.50	4.82

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in € m. (unless stated otherwise)	Central governments and central banks	Institutions	Corporates	Retail secured by real estate SME	Retail secured by real estate non-SME	Retail qualifying revolving	Retail other SME	Retail other non-SME	Total
Netherlands									
EAD net	170	1,588	11,385	3	79	2	0	13	13,241
Average LGD in %	46.49	42.84	30.47	11.16	14.27	42.68	22.40	19.36	32.05
Average PD in %	0.01	0.08	5.86	1.08	2.34	0.90	0.70	3.33	5.06
New Zealand									
EAD net	145	0	793	0	2	0	0	0	940
Average LGD in %	49.98	50.00	22.66	0	12.48	44.76	39.10	16.57	26.84
Average PD in %	0	1.76	0.10	0	0.72	0.15	98.17	8.69	0.09
Nigeria									
EAD net	12	0	424	0	1	0	0	1	439
Average LGD in %	26.89	0	30.09	0	23.51	41.85	0	82.98	30.17
Average PD in %	1.07	0	6.82	0	1.32	3.18	0	20.02	6.69
Norway									
EAD net	12	447	1,367	0	17	0	0	1	1,844
Average LGD in %	50.00	44.21	25.17	0	17.07	40.70	0	35.04	29.88
Average PD in %	0	0.04	0.67	0	2.76	1.14	0	6.31	0.53
Pakistan									
EAD net	48	0	206	0	1	0	0	2	257
Average LGD in %	49.99	0	28.64	0	9.24	45.39	0	47.35	32.74
Average PD in %	7.95	0	5.88	0	8.22	2.33	0	9.42	6.30
Peru									
EAD net	22	0	257	0	1	0	0	5	285
Average LGD in %	58.13	0	45.41	0	7.25	39.17	0	52.32	46.41
Average PD in %	0.05	0	0.74	0	0.40	0.64	0	10.14	0.86
Philippines									
EAD net	495	0	504	0	2	0	0	2	1,004
Average LGD in %	43.70	0	30.15	0	16.68	41.08	0	85.89	36.95
Average PD in %	0.23	0	0.56	0	0.31	0.31	0	11.87	0.42
Poland									
EAD net	1,566	80	1,248	7	5,288	1	243	333	8,765
Average LGD in %	50.00	35.35	40.79	33.49	29.76	41.59	58.47	56.76	36.82
Average PD in %	0.05	0.32	7.67	2.30	1.92	2.91	5.72	12.31	2.89
Portugal									
EAD net	5	69	540	7	1,360	0	104	467	2,551
Average LGD in %	48.55	41.70	37.37	13.50	9.40	42.34	22.86	17.45	18.30
Average PD in %	0.62	2.64	7.18	9.83	5.59	0.46	15.10	11.96	7.40
Qatar									
EAD net	459	0	521	0	2	0	0	0	982
Average LGD in %	50.00	0	27.83	0	21.39	41.90	0	33.23	38.19
Average PD in %	0	0	1.02	0	1.40	0.14	0	3.69	0.54
Romania									
EAD net	0	2	21	0	3	0	0	28	55
Average LGD in %	1.00	19.98	49.57	0	8.16	43.72	0	84.29	63.24
Average PD in %	0	9.69	0.16	0	6.44	1.35	0	21.33	11.59
Russion Federation									
EAD net	256	0	836	0	39	2	0	25	1,158
Average LGD in %	49.99	0	43.95	0	20.76	29.34	47.44	8.49	43.71
Average PD in %	0.39	0	0.58	0	1.42	1.19	0.23	1.23	0.58
Saudi Arabia									
EAD net	235	906	2,198	0	3	0	0	2	3,345
Average LGD in %	49.88	32.98	26.64	0	26.84	37.43	0	12.77	29.99
Average PD in %	0	0.07	1.48	0	0.41	0.91	0	3.57	1.00

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in € m. (unless stated otherwise)	Central governments and central banks	Institutions	Corporates	Retail secured by real estate SME	Retail secured by real estate non-SME	Retail qualifying revolving	Retail other SME	Retail other non-SME	Total
Singapore									
EAD net	1,245	142	6,682	0	15	1	0	2	8,086
Average LGD in %	49.98	41.49	22.08	0	16.17	40.32	39.10	7.71	26.70
Average PD in %	0	0.04	1.73	0	0.83	0.53	0.14	0.66	1.44
South Africa									
EAD net	30	224	311	0	6	1	0	7	579
Average LGD in %	49.74	45.25	49.71	5.40	13.84	37.00	0	28.27	47.30
Average PD in %	0.09	0.12	2.40	0.09	4.85	0.61	0	0.61	1.40
South Korea									
EAD net	1,698	11	3,660	0	2	0	0	0	5,372
Average LGD in %	52.50	49.62	41.56	0	16.56	44.17	0	51.21	45.02
Average PD in %	0	0.64	0.27	0	1.76	0.82	0	6.47	0.19
Spain									
EAD net	975	461	5,618	512	7,149	4	1,177	1,252	17,148
Average LGD in %	50.09	38.48	36.58	14.07	13.38	44.73	53.63	61.26	30.03
Average PD in %	0.91	0.34	14.76	9.39	4.05	0.79	8.00	16.76	8.64
Sri Lanka									
EAD net	56	0	112	0	0	0	0	4	172
Average LGD in %	50.00	0	46.97	0	23.40	41.78	0	86.03	48.76
Average PD in %	2.92	0	1.47	0	0.39	0.66	0	15.79	2.24
Sweden									
EAD net	2	953	989	0	15	1	0	2	1,962
Average LGD in %	29.97	38.05	37.87	0	22.53	42.58	81.51	24.61	37.83
Average PD in %	0.03	0.07	0.69	0	1.31	2.22	0.23	12.07	0.40
Switzerland									
EAD net	10,104	2,235	10,669	5	189	10	2	49	23,262
Average LGD in %	49.85	31.30	21.37	5.08	13.29	42.10	16.85	26.08	34.65
Average PD in %	0	0.11	1.24	0.71	2.53	0.71	0.73	6.23	0.61
Taiwan									
EAD net	744	0	1,251	0	0	0	0	6	2,002
Average LGD in %	30.66	0	38.06	0	8.00	40.43	0	2.33	35.20
Average PD in %	0	0	0.29	0	0.23	0.26	0	0.21	0.18
Thailand									
EAD net	710	0	1,398	0	2	0	0	1	2,111
Average LGD in %	49.99	0	35.65	0	15.91	40.94	0	17.27	40.45
Average PD in %	0.09	0	0.54	0	0.97	0.30	0	4.30	0.39
Turkey									
EAD net	158	0	2,981	0	4	1	0	2	3,146
Average LGD in %	49.99	0	19.56	5.20	16.64	43.33	0	49.40	21.11
Average PD in %	0.39	0	1.39	0.14	18.29	3.71	0	13.41	1.37
Ukraine									
EAD net	36	0	133	0	6	0	0	2	177
Average LGD in %	50.00	0	37.85	0	13.02	41.42	0	83.73	40.10
Average PD in %	13.00	0	15.71	0	0.29	4.12	0	14.33	14.63

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in € m. (unless stated otherwise)	Central governments and central banks	Institutions	Corporates	Retail secured by real estate SME	Retail secured by real estate non-SME	Retail qualifying revolving	Retail other SME	Retail other non-SME	Total
United Arab Emirates									
EAD net	172	0	2,266	1	16	1	0	15	2,470
Average LGD in %	50.00	0	35.53	21.50	20.55	43.39	0	32.62	36.42
Average PD in %	0	0	3.04	0.45	0.94	0.48	0	0.48	2.80
United Kingdom									
EAD net	437	3,456	19,876	4	210	4	0	662	24,650
Average LGD in %	49.69	42.13	32.23	6.30	18.40	39.76	15.57	14.33	33.32
Average PD in %	0	0.54	0.93	0.44	10.44	1.04	1.52	94.02	3.45
United States of America									
EAD net	50,475	13,026	97,156	0	77	4	1	1,218	161,958
Average LGD in %	48.27	37.26	25.43	16.47	24.20	44.28	46.64	46.88	33.66
Average PD in %	0	0.23	2.36	1.18	3.02	0.59	17.31	0.29	1.44
Uruguay									
EAD net	0	0	20	0	0	0	0	2	22
Average LGD in %	50.00	0	11.86	0	10.44	42.96	0	53.01	16.01
Average PD in %	0.23	0	7.97	0	0.59	0.16	0	0.49	7.05
Venezuela									
EAD net	114	0	54	0	4	0	0	10	181
Average LGD in %	2.27	0	10.11	0	13.87	34.25	43.40	19.62	5.78
Average PD in %	13.00	0	7.99	0	1.70	0.32	0.15	3.79	10.78
Vietnam									
EAD net	39	0	128	0	2	0	0	0	169
Average LGD in %	49.99	0	44.86	0	20.73	44.39	0	36.49	45.80
Average PD in %	1.07	0	2.68	0	0.18	0.66	0	3.65	2.28
Other									
EAD net	4,753	708	7,480	0	58	5	1	169	13,175
Average LGD in %	44.26	37.95	23.15	0	15.13	39.88	37.59	35.31	31.68
Average PD in %	0.25	8.93	5.32	0	5.88	2.05	1.54	10.11	3.75
thereof:									
International Organizations									
EAD net	3,000	313	96	0	0	0	0	0	3,409
Average LGD in %	48.00	52.27	45.00	0	0	0	0	84.11	48.31
Average PD in %	0.01	0.01	0.10	0	0	0	0	94.11	0.01
Total	99,809[1]	61,435	314,225	13,479	146,980	4,194	6,965	27,884	674,971[1]

[1] Includes exposures subject to deferred tax assets that rely on future profitability and arise from temporary differences which are subject to the threshold exemptions as outlined in Article 48 CRR

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in € m. (unless stated otherwise)	Central governments and central banks	Institutions	Corporates	Retail secured by real estate SME	Retail secured by real estate non-SME	Retail qualifying revolving	Retail other SME	Retail other non-SME	Total
American Virgin Islands									
EAD net	0	0	277	0	0	0	0	0	277
Average LGD in %	0	0	5.79	0	0	0	0	0	5.79
Average PD in %	0	0	0.47	0	0	0	0	0	0.47
Argentina									
EAD net	43	0	92	0	1	1	0	5	143
Average LGD in %	45.97	0	20.99	0	13.81	43.47	61.89	11.06	28.27
Average PD in %	13.00	0	6.27	0	7.08	1.38	31.00	1.86	8.13
Australia									
EAD net	1,508	2,002	3,054	0	12	1	1	1	6,579
Average LGD in %	33.43	34.01	33.71	0	14.15	41.01	38.71	9.62	33.70
Average PD in %	0.02	0.05	0.89	0	2.41	1.12	0.23	0.51	0.44
Austria									
EAD net	181	528	957	0	44	4	0	15	1,728
Average LGD in %	42.06	32.83	37.63	0	14.10	42.67	0	18.81	35.88
Average PD in %	0.01	0.17	2.43	0	3.40	1.05	0	7.01	1.55
Barbados									
EAD net	0	0	139	0	0	0	0	0	139
Average LGD in %	0	0	16.11	0	0	26.85	0	18.30	16.11
Average PD in %	0	0	0.33	0	0	0.43	0	0.64	0.33
Belgium									
EAD net	604	1,383	1,783	0	43	2	0	7	3,823
Average LGD in %	47.10	43.16	31.72	0	18.02	44.15	61.90	35.50	38.15
Average PD in %	0	0.05	0.56	0	5.32	1.23	0.39	4.14	0.35
Bermuda									
EAD net	0	3	1,876	0	0	0	0	0	1,879
Average LGD in %	0	40.00	25.21	0	0	47.60	0	47.60	25.24
Average PD in %	0	0.12	3.05	0	0	0.09	0	0.09	3.04
Brazil									
EAD net	334	1,159	1,584	0	6	1	0	2	3,086
Average LGD in %	50.00	22.51	34.23	0	13.41	40.70	52.70	17.42	31.49
Average PD in %	0.14	0.22	3.18	0	2.25	0.88	1.07	2.90	1.74
British Virgin Islands									
EAD net	0	0	7,347	0	0	0	0	0	7,347
Average LGD in %	50.00	0	12.66	0	0	47.60	0	61.43	12.66
Average PD in %	0	0	3.02	0	0	0.09	0	0.64	3.02
Canada									
EAD net	324	1,934	4,325	1	6	1	0	6	6,598
Average LGD in %	33.89	28.20	34.14	14.04	12.08	41.94	3.80	9.22	32.34
Average PD in %	0.03	0.05	0.70	0.64	1.10	1.12	0.64	3.68	0.48
Cayman Islands									
EAD net	0	0	7,347	0	0	0	0	0	7,348
Average LGD in %	0	0	34.31	0	5.00	47.53	0	100.00	34.31
Average PD in %	0	0	1.37	0	0.39	0.39	0	0.64	1.37
Chile									
EAD net	0	184	443	0	0	0	0	2	630
Average LGD in %	49.06	44.07	44.22	0	5.00	41.54	0	37.73	44.15
Average PD in %	0.01	0.12	0.20	0	0.09	0.98	0	0.81	0.18

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in € m. (unless stated otherwise)	Central governments and central banks	Institutions	Corporates	Retail secured by real estate SME	Retail secured by real estate non-SME	Retail qualifying revolving	Retail other SME	Retail other non-SME	Total
China									
EAD net	2,004	8	13,574	0	13	1	0	2	15,603
Average LGD in %	51.62	50.00	44.55	85.20	12.90	44.33	53.60	32.51	45.44
Average PD in %	0	0.03	0.46	100.00	0.94	0.53	100.00	0.96	0.40
Colombia									
EAD net	0	0	197	0	1	0	0	1	199
Average LGD in %	0	0	38.67	0	12.75	41.63	0	65.69	38.59
Average PD in %	0	0	0.49	0	0.42	2.30	0	1.96	0.50
Czech Republic									
EAD net	451	81	296	0	4	0	1	3	835
Average LGD in %	50.00	38.52	41.20	0	13.34	41.66	55.67	33.02	45.57
Average PD in %	0	0.13	0.25	0	1.67	0.59	0.44	2.58	0.12
Denmark									
EAD net	47	453	943	0	16	0	0	3	1,463
Average LGD in %	31.62	39.58	41.78	0	14.74	44.00	0	43.74	40.47
Average PD in %	0	0.33	0.47	0	6.57	1.36	0	4.43	0.48
Finland									
EAD net	5	191	671	0	2	0	0	0	869
Average LGD in %	50.00	23.91	37.58	0	12.18	41.23	0	54.34	34.60
Average PD in %	0	0.04	0.21	0	2.74	0.42	0	0.88	0.18
France									
EAD net	1,195	4,333	6,016	1	65	5	0	85	11,700
Average LGD in %	46.69	32.85	39.95	26.43	15.13	44.32	24.06	16.07	37.70
Average PD in %	0.01	0.10	1.77	0.58	5.09	0.89	0.17	5.22	1.01
Germany									
EAD net	1,953	7,861	45,320	23	133,182	4,350	283	22,681	215,653
Average LGD in %	47.88	18.86	33.92	14.04	13.04	46.45	57.41	38.01	21.31
Average PD in %	0	0.25	4.42	4.18	2.92	1.38	2.72	5.79	3.39
Gibraltar									
EAD net	0	0	17	0	1	0	0	0	19
Average LGD in %	0	0	18.98	0	19.08	0	0	69.61	19.06
Average PD in %	0	0	0.37	0	0.41	0	0	62.34	0.46
Greece									
EAD net	0	50	1,482	0	5	1	0	3	1,541
Average LGD in %	50.00	31.94	15.11	0	8.47	42.71	0	26.34	15.67
Average PD in %	4.82	22.00	8.21	0	2.23	0.93	0	1.93	8.63
Guernsey									
EAD net	0	0	401	0	0	0	0	0	401
Average LGD in %	0	0	16.64	0	0	47.60	0	53.60	16.65
Average PD in %	0	0	1.49	0	0	0.39	0	2.92	1.49
Hong Kong									
EAD net	147	501	5,513	0	6	0	0	1	6,168
Average LGD in %	30.00	33.25	26.62	0	11.44	42.72	0	22.25	27.22
Average PD in %	0.02	0.07	1.32	0	0.73	0.34	0	0.53	1.19
Hungary									
EAD net	164	44	329	0	2	0	0	2	542
Average LGD in %	50.00	50.79	46.90	0	25.94	42.23	0	38.68	48.03
Average PD in %	0.39	0.43	1.61	0	2.10	2.25	0	7.38	1.17

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India									
EAD net	1,375	3,048	5,550	0	1	1	0	3	9,978
Average LGD in %	49.49	45.41	39.14	0	8.76	43.25	0	54.40	42.49
Average PD in %	0.39	0.47	1.79	0	0.85	2.10	0	2.76	1.19
Indonesia									
EAD net	312	0	2,291	0	1	0	0	1	2,605
Average LGD in %	50.00	0	35.23	0	8.45	41.19	0	4.60	36.97
Average PD in %	0.23	0	1.50	0	17.62	2.77	0	0.25	1.35
Ireland									
EAD net	5	1,993	6,483	1	34	0	0	2	8,517
Average LGD in %	50.00	6.24	25.32	57.34	13.41	41.29	61.90	16.45	20.82
Average PD in %	0.07	5.98	18.30	86.56	10.98	0.65	0.19	2.64	15.38
Israel									
EAD net	16	0	462	0	17	1	0	1	496
Average LGD in %	50.00	0	34.52	0	8.54	34.99	61.90	10.05	34.07
Average PD in %	0.05	0	2.94	0	8.12	1.11	0.09	6.94	3.03
Italy (incl. San Marino)									
EAD net	1,488	2,105	5,930	226	7,153	2	1,353	4,036	22,292
Average LGD in %	44.96	31.53	35.83	10.33	7.28	42.74	23.13	64.29	31.00
Average PD in %	0.11	0.27	9.63	14.19	1.98	1.42	12.79	23.95	8.48
Japan									
EAD net	5,626	1,498	2,225	0	1	1	0	0	9,350
Average LGD in %	50.11	39.06	30.30	0	7.09	40.39	0	32.87	43.62
Average PD in %	0	0.09	7.56	0	0.57	0.45	0	0.45	1.81
Jersey									
EAD net	0	0	914	0	0	0	0	0	915
Average LGD in %	0	40.00	14.48	0	35.29	0	0	47.60	14.49
Average PD in %	0	1.76	1.59	0	56.95	0	0	0.07	1.61
Luxembourg									
EAD net	20	986	10,662	0	40	1	0	2	11,709
Average LGD in %	50.00	28.45	22.89	0	9.93	43.49	0	44.51	23.36
Average PD in %	0	0.35	5.90	0	8.75	3.14	0	25.85	5.44
Malaysia									
EAD net	65	0	855	0	3	0	0	2	925
Average LGD in %	43.89	0	45.35	0	9.25	43.73	0	3.88	45.03
Average PD in %	0.07	0	0.45	0	80.42	0.32	0	89.01	0.89
Malta									
EAD net	13	19	202	0	2	0	0	0	237
Average LGD in %	49.98	37.64	5.48	0	12.01	47.45	0	68.44	10.72
Average PD in %	0.05	0.12	1.13	0	7.49	1.87	0	10.98	1.04
Mauritius									
EAD net	0	0	134	0	1	0	0	0	135
Average LGD in %	0	0	36.53	0	5.97	47.59	0	19.53	36.36
Average PD in %	0	0	1.44	0	0.16	0.28	0	0.21	1.43
Mexico									
EAD net	0	347	755	0	4	1	0	76	1,183
Average LGD in %	50.00	47.25	43.52	0	10.11	38.72	0	41.96	44.40
Average PD in %	0.07	0.21	1.13	0	3.77	1.28	0	45.19	3.71

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Netherlands									
EAD net	213	4,779	11,300	0	79	3	0	15	16,389
Average LGD in %	47.53	23.42	31.49	0	14.93	44.58	26.96	28.79	29.26
Average PD in %	0.02	0.06	4.91	0	4.18	0.70	1.61	3.35	3.43
New Zealand									
EAD net	24	88	319	0	1	0	0	0	432
Average LGD in %	50.00	27.24	39.20	0	8.84	46.69	0	45.59	37.32
Average PD in %	0	0.04	0.14	0	0.81	0.17	0	1.22	0.11
Nigeria									
EAD net	30	0	617	0	1	0	0	0	649
Average LGD in %	3.76	0	8.18	0	29.27	41.56	0	55.46	8.02
Average PD in %	0.64	0	3.33	0	0.83	2.69	0	1.58	3.20
Norway									
EAD net	12	614	1,038	0	17	0	1	1	1,682
Average LGD in %	50.00	41.65	26.63	0	17.66	43.48	10.10	60.47	32.20
Average PD in %	0	0.04	1.96	0	2.98	0.45	1.64	11.18	1.25
Pakistan									
EAD net	0	0	180	0	0	0	0	1	182
Average LGD in %	50.00	0	40.77	0	7.94	47.41	0	13.36	40.54
Average PD in %	7.95	0	5.79	0	0.23	1.14	0	0.34	5.75
Peru									
EAD net	91	0	234	0	0	0	0	2	327
Average LGD in %	50.00	0	28.77	0	0	46.09	0	7.96	34.58
Average PD in %	0.05	0	0.48	0	0	0.89	0	0.81	0.36
Philippines									
EAD net	310	0	427	0	1	0	0	0	739
Average LGD in %	50.00	0	39.13	0	12.03	42.14	0	50.44	43.64
Average PD in %	0.23	0	0.66	0	0.29	0.75	0	0.86	0.48
Poland									
EAD net	1,223	102	1,060	327	4,738	1	335	196	7,981
Average LGD in %	50.00	33.33	40.14	31.92	29.81	42.17	58.74	39.44	35.86
Average PD in %	0.05	0.13	13.38	6.58	1.40	2.68	12.52	11.52	3.69
Portugal									
EAD net	4	250	537	6	1,431	1	114	417	2,759
Average LGD in %	50.00	14.66	34.01	9.25	9.81	44.21	19.27	19.95	16.94
Average PD in %	0.64	2.47	8.41	8.18	5.39	0.73	12.80	11.54	6.95
Qatar									
EAD net	0	0	377	0	1	0	0	0	378
Average LGD in %	0	0	31.77	0	7.98	44.11	0	21.22	31.71
Average PD in %	0	0	0.26	0	2.01	0.20	0	3.33	0.26
Romania									
EAD net	0	2	38	0	0	0	0	1	41
Average LGD in %	0	49.83	47.93	0	3.31	40.89	0	18.39	46.91
Average PD in %	0	0.51	0.22	0	1.37	0.65	0	2.72	0.30
Russion Federation									
EAD net	549	0	2,310	0	45	1	0	48	2,953
Average LGD in %	50.00	0	36.68	0	15.11	38.70	57.37	7.31	38.34
Average PD in %	0.23	0	0.54	0	1.70	1.39	8.50	0.44	0.50
Saudi Arabia									
EAD net	101	733	2,074	0	3	0	0	0	2,912
Average LGD in %	49.99	28.11	28.76	0	25.84	39.08	0	35.54	29.33
Average PD in %	0	0.08	0.55	0	0.56	1.38	0	1.28	0.41

Dec 31, 2014

in € m. (unless stated otherwise)	Central governments and central banks	Institutions	Corporates	Retail secured by real estate SME	Retail secured by real estate non-SME	Retail qualifying revolving	Retail other SME	Retail other non-SME	Total
Singapore									
EAD net	915	392	5,250	0	14	1	0	2	6,573
Average LGD in %	50.00	39.95	18.25	0	9.20	40.84	61.90	8.96	23.94
Average PD in %	0	0.04	2.06	0	0.74	0.49	0.64	0.64	1.65
Slovakia									
EAD net	8	4	29	0	0	0	0	0	41
Average LGD in %	50.00	23.68	44.76	0	5.18	35.50	0	37.84	43.43
Average PD in %	0.05	0.09	0.23	0	18.46	0.51	0	37.47	0.39
South Africa									
EAD net	56	389	457	1	6	1	0	1	910
Average LGD in %	50.00	19.48	44.57	5.40	10.26	33.45	0	16.22	33.89
Average PD in %	0.09	0.17	0.88	0.09	8.50	0.69	0	3.94	0.58
South Korea									
EAD net	1,410	1,403	2,180	0	2	0	0	0	4,995
Average LGD in %	48.41	38.49	41.21	0	8.58	44.14	0	28.98	42.47
Average PD in %	0	0.08	1.53	0	1.33	1.24	0	0.88	0.69
Spain									
EAD net	923	1,209	4,958	485	7,344	3	944	1,464	17,331
Average LGD in %	50.41	24.62	32.84	11.66	12.65	44.74	52.49	58.11	27.26
Average PD in %	1.04	1.28	15.73	6.86	5.26	3.36	3.90	18.28	8.82
Sri Lanka									
EAD net	102	0	101	0	0	0	0	0	203
Average LGD in %	50.00	0	46.64	0	5.00	37.17	0	61.74	48.32
Average PD in %	2.92	0	1.65	0	0.23	0.50	0	28.11	2.29
Sweden									
EAD net	3	548	1,094	0	14	1	0	2	1,661
Average LGD in %	30.00	39.50	41.24	0	14.72	43.19	0	45.63	40.43
Average PD in %	0.03	0.09	0.57	0	1.99	0.89	0	31.69	0.45
Switzerland									
EAD net	4,313	2,357	9,909	2	169	11	0	44	16,805
Average LGD in %	49.77	29.28	21.73	7.99	14.01	43.40	15.70	18.09	29.91
Average PD in %	0	0.06	1.94	0.33	4.32	0.68	0.45	5.54	1.21
Taiwan									
EAD net	742	0	1,501	0	0	0	0	5	2,248
Average LGD in %	33.55	0	39.97	0	0	41.17	0	2.66	37.77
Average PD in %	0	0	0.32	0	0	11.39	0	0.70	0.22
Thailand									
EAD net	595	0	1,169	0	3	0	0	1	1,768
Average LGD in %	50.00	0	43.82	0	10.72	42.38	0	6.87	45.83
Average PD in %	0.09	0	0.52	0	0.82	0.32	0	0.32	0.37
Turkey									
EAD net	191	2,827	885	0	5	1	0	2	3,910
Average LGD in %	50.00	10.08	47.28	0	9.80	43.81	0	29.66	20.46
Average PD in %	0.39	0.41	4.15	0	2.70	2.28	0	5.86	1.26
Ukraine									
EAD net	27	0	112	0	2	0	0	0	142
Average LGD in %	50.00	0	49.91	0	17.93	42.61	0	51.28	49.50
Average PD in %	13.00	0	10.40	0	0.42	1.51	0	3.06	10.75

Dec 31, 2014

in € m. (unless stated otherwise)	Central governments and central banks	Institutions	Corporates	Retail secured by real estate SME	Retail secured by real estate non-SME	Retail qualifying revolving	Retail other SME	Retail other non-SME	Total
United Arab Emirates									
EAD net	214	0	2,640	0	13	1	0	14	2,881
Average LGD in %	50.00	0	38.10	0	12.09	45.01	0	35.89	38.86
Average PD in %	0.01	0	2.49	0	0.81	0.34	0	0.43	2.29
United Kingdom									
EAD net	334	4,652	20,311	4	232	4	2	172	25,711
Average LGD in %	50.00	40.25	31.00	7.16	18.77	41.99	50.03	13.75	32.69
Average PD in %	0	0.30	2.36	2.90	14.14	0.58	2.03	85.47	2.62
United States of America									
EAD net	54,744	11,045	85,958	1	63	4	1	278	152,093
Average LGD in %	49.54	37.15	25.77	8.34	12.96	45.51	72.86	37.02	35.17
Average PD in %	0.09	0.11	2.02	0.39	3.60	0.55	0.79	2.38	1.19
Uruguay									
EAD net	0	0	62	0	0	0	0	2	65
Average LGD in %	50.00	0	9.46	0	6.98	40.67	0	3.01	9.33
Average PD in %	0.23	0	15.16	0	0.45	0.40	0	0.11	14.61
Venezuela									
EAD net	9	0	42	0	1	0	0	9	62
Average LGD in %	31.42	0	27.59	0	12.35	30.18	49.65	4.73	24.40
Average PD in %	7.95	0	13.67	0	0.85	0.59	0.15	0.59	10.52
Vietnam									
EAD net	60	0	153	0	2	0	0	0	215
Average LGD in %	50.00	0	43.20	0	8.37	46.34	0	26.68	44.82
Average PD in %	1.07	0	2.22	0	0.46	2.73	0	1.01	1.89
Other									
EAD net	6,896	991	5,742	1	48	5	1	78	13,761
Average LGD in %	42.40	40.43	19.32	4.71	15.26	41.59	39.24	12.23	32.36
Average PD in %	0.29	5.20	8.14	4.82	3.98	2.12	5.78	7.28	3.97
thereof:									
International Organizations									
EAD net	5,117	354	143	0	0	0	0	0	5,614
Average LGD in %	45.30	49.45	41.26	0	0	0	0	18.30	45.46
Average PD in %	0.01	0.01	0.08	0	0	0	0	2.92	0.01
Total	91,978	63,095	303,513	1,076	154,900	4,416	3,036	29,699	651,713

The shift in EAD for China between the exposure classes “Institutions” and “Corporates” results from a regulatory change in the equivalence treatment of non-EU countries’ prudential supervisory and regulatory requirements. The increase in Switzerland and the exposure class “Central governments and central banks” is predominantly driven by higher interest earning deposits with the swiss national bank. The overall increase in the United States of America exposure is predominantly driven by specific growth in CB&S in our leveraged debt business partly offset by lower interest earning deposits with central banks.

The following table shows our undrawn commitment exposure treated within the advanced IRBA. It is broken down by regulatory exposure class and also provides the corresponding exposure-weighted credit conversion factors and resulting EADs.

Undrawn commitment exposure within the advanced IRBA by regulatory exposure class

	Dec 31, 2015			Dec 31, 2014		
in € m. unless stated otherwise	Undrawn commitments	Weighted Credit Conversion Factor (CCF) in %	Exposure value for undrawn commitments (EAD)	Undrawn commitments	Weighted Credit Conversion Factor (CCF) in %	Exposure value for undrawn commitments (EAD)
Central governments and central banks	1,526	93	1,412	889	81	718
Institutions	2,038	36	734	2,057	36	748
Corporates	201,370	31	62,871	174,303	33	57,536
Retail	20,373	64	13,051	19,611	64	12,565
thereof:						
Secured by real estate SME	504	52	264	6	36	2
Secured by real estate non-SME	6,213	81	5,027	6,168	76	4,714
Qualifying revolving	5,507	65	3,599	5,660	66	3,752
Other SME	4,317	46	1,994	1,997	33	649
Other non-SME	3,832	57	2,167	5,781	60	3,447
Total EAD of undrawn commitments in the advanced IRBA	**225,307**	**35**	**78,068**	196,860	36	71,566

A year-on-year comparison shows an increase in undrawn commitments predominantly driven by the corporates exposure resulting from specific growth in our leveraged debt business in CB&S and GTB and to less extent also by foreign exchange movements.

Exposures with regulatory defined risk weights

For specific exposures in the advanced IRBA we are required to apply regulatory defined risk weights. In the following section we summarize our IRBA exposures for equities and other non-credit obligation assets falling under this requirement. Credit risk mitigation techniques have not been applied.

The table below shows our equity exposures under the simple risk weight approach.

EAD of equity investments by risk weight

in € m.		Dec 31, 2015	Dec 31, 2014
Risk Position	Risk Weight		
Private equity exposures in sufficiently diversified portfolios	190 %	137	0
Exchange traded equity exposures	290 %	104	266
Other equity exposures	370 %	2,668	1,096
Total EAD of equity investments (IRBA simple risk-weight approach)		**2,909**	1,362

The increase in other equity exposures predominantly reflects the change of the applicable risk weight for insurance companies.

The following table presents the exposures assigned to the exposure class “other non-credit obligation assets”, to financial sector entities (FSE) and to deferred tax assets (DTA). FSE represent positions of significant investments in CET1 instruments of financial sector entities which are subject to the treshold exemptions as outlined in Article 48 CRR. DTA are deferred tax assets that rely on future profitability and arise from temporary differences which are subject to the threshold exemptions as outlined in Article 48 CRR.

EAD of other non-credit obligation assets, DTA and FSE by risk weight

in € m.		Dec 31, 2015	Dec 31, 2014
Risk Position	Risk Weight		
Other non-credit obligation assets - cash	0 %	2,126	2,130
Other non-credit obligation assets - other	100 %	3,427	3,891
DTA and FSE	250 %	6,882	7,103
Total EAD other non-credit obligation assets, DTA ans FSE		**12,435**	13,124

Foundation IRBA Exposure

Within the Postbank portfolios we assign our exposures to the relevant regulatory exposure class by taking into account factors like customer-specific characteristics and the rating system used. The following tables also consider Postbank’s counterparty credit risk position resulting from derivatives and SFTs as far as they are assigned to the foundation IRBA.

The tables below show our foundation IRBA exposures for institutions and corporates, distributed on our internal rating scale, showing also the PD range for each grade. For yearend 2015 end 2014 we don’t report any exposure for central governments and central banks. The internal rating grades take into account the respective external Standard & Poor’s rating grade equivalents. The EAD net is presented in conjunction with risk-weighted assets calculated and the average RW. The information is shown after credit risk mitigation obtained in the form of financial, physical and other collateral as well as guarantees and credit derivatives.

EAD for Foundation IRBA credit exposures by PD grade for institutions

in € m. (unless stated otherwise)							Dec 31, 2015
Internal rating	EAD gross	EAD net	EAD net thereof counterparty credit risk	Undrawn commitments	Average PD in %	RWA	Average RW in %
iAAA	0	0	0	0	0.00	0	0.00
iAA+	0	0	0	0	0.00	0	0.00
iAA	0	0	0	0	0.00	0	0.00
iAA–	0	0	0	0	0.00	0	0.00
iA+	0	0	0	0	0.00	0	0.00
iA	0	0	0	0	0.00	0	0.00
iA–	0	0	0	0	0.00	0	0.00
iBBB+	0	0	0	0	0.00	0	0.00
iBBB	0	0	0	0	0.00	0	0.00
iBBB–	0	0	0	0	0.00	0	0.00
iBB+	0	0	0	0	0.00	0	0.00
iBB	0	0	0	0	0.00	0	0.00
iBB–	0	0	0	0	0.00	0	0.00
iB+	0	0	0	0	0.00	0	0.00
iB	0	0	0	0	0.00	0	0.00
iB–	0	0	0	0	0.00	0	0.00
iCCC+	0	0	0	0	0.00	0	0.00
iCCC	2	2	0	0	18.00	5	246.68
iCCC–	0	0	0	0	0.00	0	0.00
Total excluding default	2	2	0	0	18.00	5	246.68
Default	0	0	0	0	0.00	0	N/M
Total including default	2	2	0	0	18.00	5	246.68

N/M – Not meaningful

in € m.
(unless stated otherwise) Dec 31, 2014

Internal rating	EAD gross	EAD net	EAD net thereof counterparty credit risk	Undrawn commitments	Average PD in %	RWA	Average RW in %
iAAA	0	0	0	0	0.00	0	0.00
iAA+	0	0	0	0	0.00	0	0.00
iAA	0	0	0	0	0.00	0	0.00
iAA–	0	0	0	0	0.00	0	0.00
iA+	0	0	0	0	0.00	0	0.00
iA	0	0	0	0	0.00	0	0.00
iA–	0	0	0	0	0.00	0	0.00
iBBB+	0	0	0	0	0.00	0	0.00
iBBB	0	0	0	0	0.00	0	0.00
iBBB–	0	0	0	0	0.00	0	0.00
iBB+	0	0	0	0	0.00	0	0.00
iBB	0	0	0	0	0.00	0	0.00
iBB–	0	0	0	0	0.00	0	0.00
iB+	0	0	0	0	0.00	0	0.00
iB	0	0	0	0	0.00	0	0.00
iB–	0	0	0	0	0.00	0	0.00
iCCC+	0	0	0	0	0.00	0	0.00
iCCC	0	0	0	0	0.00	0	0.00
iCCC–	0	0	0	0	0.00	0	0.00
Total excluding default	0	0	0	0	0.00	0	0.00
Default	0	0	0	0	0.00	0	N/M
Total including default	0	0	0	0	0.00	0	0.00

N/M – Not meaningful

EAD net for Foundation IRBA credit exposures by PD grade for corporates

in € m.
(unless stated otherwise) Dec 31, 2015

Internal rating	EAD gross	EAD net	EAD net thereof counterparty credit risk	Undrawn commitments	Average PD in %	RWA	Average RW in %
iAAA	0	0	0	0	0.00	0	0.00
iAA+	0	0	0	0	0.00	0	0.00
iAA	412	2,018	0	10	0.03	206	10.19
iAA–	2	713	0	0	0.04	84	11.78
iA+	0	0	0	0	0.00	0	0.00
iA	46	42	0	2	0.06	7	16.63
iA–	185	196	0	0	0.09	34	17.56
iBBB+	1,054	767	8	48	0.15	194	25.30
iBBB	1,441	995	30	85	0.23	411	41.28
iBBB–	996	644	23	28	0.38	364	56.55
iBB+	1,073	565	52	5	0.69	356	63.11
iBB	623	189	6	5	1.23	124	65.87
iBB–	258	85	3	3	2.06	68	79.90
iB+	7	0	0	0	0.00	0	0.00
iB	80	31	1	0	3.78	36	115.35
iB–	58	40	8	2	7.26	55	138.55
iCCC+	3	0	0	0	12.76	0	60.70
iCCC	31	30	2	12	19.26	63	211.78
iCCC–	40	40	0	30	61.25	27	66.33
Total excluding default	6,308	6,355	134	231	0.78	2,030	31.43
Default	66	58	1	6	100.00	0	N/M
Total including default	6,375	6,413	134	237	1.68	2,030	31.43

N/M – Not meaningful

in € m.
(unless stated otherwise)

Internal rating	EAD gross	EAD net	EAD net thereof counterparty credit risk	Undrawn commitments	Average PD in %	RWA	Average RW in %
					Dec 31, 2014		
iAAA	0	0	0	0	0.00	0	0.00
iAA+	0	0	0	0	0.00	0	0.00
iAA	276	1,767	0	8	0.03	180	10.20
iAA–	0	18	0	0	0.04	2	13.26
iA+	0	0	0	0	0.00	0	0.00
iA	72	26	0	1	0.06	4	16.90
iA–	205	822	8	0	0.08	135	16.48
iBBB+	867	548	8	24	0.15	124	22.55
iBBB	1,231	914	34	58	0.23	396	43.36
iBBB–	870	571	22	86	0.38	320	56.14
iBB+	1,251	799	63	31	0.69	547	68.49
iBB	642	239	3	4	1.23	165	69.15
iBB–	180	36	1	0	2.06	29	80.39
iB+	13	0	0	0	0.00	0	0.00
iB	110	32	0	0	3.78	18	54.87
iB–	60	39	11	0	7.26	50	130.12
iCCC+	10	6	0	0	12.76	11	198.98
iCCC	84	71	8	4	18.00	178	251.10
iCCC–	0	0	0	0	0.00	0	0.00
Total excluding default	5,870	5,886	159	218	0.56	2,161	36.72
Default	169	167	2	5	100.00	0	N/M
Total including default	6,039	6,053	161	224	3.30	2,161	36.72

N/M – Not meaningful

The increase in EAD results from movements in the foreign exchange levels and slight growth. The decrease in RWA primarily reflects improved rating migrations.

Foundation Internal Ratings – Model Validation

We regularly validate our rating methodologies and credit risk parameters at Postbank. Whereas the rating methodology validation focuses on the discriminatory power of the models, the risk parameter validation for PD analyzes its predictive power when compared against historical default experiences.

Validation results of risk parameters used in our Foundation IRBA at Postbank

				PD
	2015			2014
	Count	EAD in %	Count	EAD in %
Appropriate	1	100.0	0	0.0
Overly conservative	0	0.0	0	0.0
Progressive	0	0.0	2	100.0
Total	**1**	**100.0**	2	100.0
Thereof already recalibrated and introduced		in 2015		in 2014
Overly conservative	0	0.0	0	0.0
Progressive	0	0.0	0	0.0
Total	**0**	**0.0**	0	0.0

Above table summarizes the outcome of the model validations for the risk parameter PD used in our foundation IRBA for Postbank. If individual risk parameter settings are classified as appropriate, no recalibration was triggered by the validation. The breakdown is presented by number as well as by the relative EAD attached to the respective parameter as of December 31, 2015 and as of December 31, 2014.

The validation classifies the PD parameter settings for the foundation IRBA relevant rating system of Postbank as appropriate. For consistency reasons one rating system with slotting approach is no longer being counted as foundation IRBA model.

The table below shows our Foundation IRBA exposure distributed based on the corresponding exposure classes for each relevant geographical location. As geographical location we show countries where the Bank maintains a branch or subsidiary and exposure volume is equal to or higher than € 0.5 million. Exposure which does not meet these criteria is shown in “Other”, which also comprises exposure to international organizations. Exposures are assigned to the specific geographical location based on the country of domicile of the respective counterparty. The EAD net is presented in conjunction with exposures-weighted average PD in percentage.

EAD net and average PD of Foundation IRBA credit exposures by geographical location (including derivatives and SFTs)

in € m. (unless stated otherwise)	Dec 31, 2015				Dec 31, 2014			
	Central governments and central banks	Institutions	Corporates	Total	Central governments and central banks	Institutions	Corporates	Total
Argentina								
EAD net	0	0	10	10	0	0	9	9
Average PD in %	0	0	11.08	11.08	0	0	0.13	0.13
Australia								
EAD net	0	0	4	4	0	0	6	6
Average PD in %	0	0	0.20	0.20	0	0	0.27	0.27
Austria								
EAD net	0	0	243	243	0	0	249	249
Average PD in %	0	0	0.18	0.18	0	0	0.20	0.20
Belgium								
EAD net	0	0	95	95	0	0	88	88
Average PD in %	0	0	0.13	0.13	0	0	2.15	2.15
Brazil								
EAD net	0	0	11	11	0	0	13	13
Average PD in %	0	0	4.27	4.27	0	0	0.28	0.28
Canada								
EAD net	0	0	1	1	0	0	0	0
Average PD in %	0	0	0.35	0.35	0	0	0	0
Chile								
EAD net	0	0	3	3	0	0	1	1
Average PD in %	0	0	1.40	1.40	0	0	0.07	0.07
China								
EAD net	0	0	5	5	0	0	5	5
Average PD in %	0	0	0.63	0.63	0	0	1.17	1.17
Colombia								
EAD net	0	0	4	4	0	0	3	3
Average PD in %	0	0	0.14	0.14	0	0	0.16	0.16
Czech Republic								
EAD net	0	0	25	25	0	0	19	19
Average PD in %	0	0	0.16	0.16	0	0	0.28	0.28
Denmark								
EAD net	0	0	19	19	0	0	12	12
Average PD in %	0	0	0.40	0.40	0	0	1.47	1.47
Finland								
EAD net	0	0	12	12	0	0	12	12
Average PD in %	0	0	0.10	0.10	0	0	0.17	0.17
France								
EAD net	0	0	187	187	0	0	180	180
Average PD in %	0	0	0.18	0.18	0	0	1.06	1.06
Germany								
EAD net	0	2	4,866	4,868	0	0	4,621	4,621
Average PD in %	0	18.00	1.57	1.59	0	0	2.72	2.72
Gibraltar								
EAD net	0	0	0	0	0	0	0	0
Average PD in %	0	0	0	0	0	0	0	0
Greece								
EAD net	0	0	0	0	0	0	10	10
Average PD in %	0	0	0	0	0	0	0.07	0.07
Hong Kong								
EAD net	0	0	4	4	0	0	2	2
Average PD in %	0	0	0.16	0.16	0	0	0.34	0.34
Hungary								
EAD net	0	0	19	19	0	0	19	19
Average PD in %	0	0	0.18	0.18	0	0	0.43	0.43

	Dec 31, 2015				Dec 31, 2014			
in € m. (unless stated otherwise)	Central governments and central banks	Institutions	Corporates	Total	Central governments and central banks	Institutions	Corporates	Total
India								
EAD net	0	0	10	10	0	0	6	6
Average PD in %	0	0	11.60	11.60	0	0	0.31	0.31
Indonesia								
EAD net	0	0	1	1	0	0	2	2
Average PD in %	0	0	0.25	0.25	0	0	0.28	0.28
Ireland								
EAD net	0	0	10	10	0	0	8	8
Average PD in %	0	0	0.33	0.33	0	0	0.27	0.27
Israel								
EAD net	0	0	0	0	0	0	1	1
Average PD in %	0	0	0	0	0	0	0.43	0.43
Italy								
EAD net	0	0	133	133	0	0	117	117
Average PD in %	0	0	0.17	0.17	0	0	0.25	0.25
Japan								
EAD net	0	0	3	3	0	0	2	2
Average PD in %	0	0	0.19	0.19	0	0	0.35	0.35
Luxembourg								
EAD net	0	0	67	67	0	0	42	42
Average PD in %	0	0	31.05	31.05	0	0	0.16	0.16
Malaysia								
EAD net	0	0	3	3	0	0	2	2
Average PD in %	0	0	0.25	0.25	0	0	0.31	0.31
Mexico								
EAD net	0	0	5	5	0	0	7	7
Average PD in %	0	0	0.16	0.16	0	0	0.16	0.16
Netherlands								
EAD net	0	0	92	92	0	0	102	102
Average PD in %	0	0	0.31	0.31	0	0	0.42	0.42
Nigeria								
EAD net	0	0	2	2	0	0	2	2
Average PD in %	0	0	49.80	49.80	0	0	8.72	8.72
Norway								
EAD net	0	0	6	6	0	0	3	3
Average PD in %	0	0	0.11	0.11	0	0	0.13	0.13
Peru								
EAD net	0	0	5	5	0	0	2	2
Average PD in %	0	0	0.13	0.13	0	0	0.13	0.13
Philippines								
EAD net	0	0	1	1	0	0	0	0
Average PD in %	0	0	0.04	0.04	0	0	0	0
Poland								
EAD net	0	0	24	24	0	0	26	26
Average PD in %	0	0	0.36	0.36	0	0	0.70	0.70
Portugal								
EAD net	0	0	10	10	0	0	7	7
Average PD in %	0	0	0.12	0.12	0	0	0.22	0.22
Qatar								
EAD net	0	0	0	0	0	0	1	1
Average PD in %	0	0	0	0	0	0	0.09	0.09

in € m. (unless stated otherwise)	Dec 31, 2015 Central governments and central banks	Institutions	Corporates	Total	Dec 31, 2014 Central governments and central banks	Institutions	Corporates	Total
Singapore								
EAD net	0	0	2	2	0	0	3	3
Average PD in %	0	0	0.18	0.18	0	0	0.13	0.13
Slovakia								
EAD net	0	0	12	12	0	0	12	12
Average PD in %	0	0	0.19	0.19	0	0	0.59	0.59
South Africa								
EAD net	0	0	2	2	0	0	1	1
Average PD in %	0	0	0.17	0.17	0	0	0.20	0.20
South Korea								
EAD net	0	0	3	3	0	0	2	2
Average PD in %	0	0	0.26	0.26	0	0	0.31	0.31
Spain								
EAD net	0	0	86	86	0	0	47	47
Average PD in %	0	0	0.18	0.18	0	0	0.41	0.41
Sweden								
EAD net	0	0	27	27	0	0	21	21
Average PD in %	0	0	0.13	0.13	0	0	0.29	0.29
Switzerland								
EAD net	0	0	64	64	0	0	111	111
Average PD in %	0	0	0.28	0.28	0	0	0.81	0.81
Taiwan								
EAD net	0	0	1	1	0	0	1	1
Average PD in %	0	0	0.14	0.14	0	0	0.35	0.35
Thailand								
EAD net	0	0	2	2	0	0	3	3
Average PD in %	0	0	0.23	0.23	0	0	0.22	0.22
Turkey								
EAD net	0	0	5	5	0	0	3	3
Average PD in %	0	0	0.38	0.38	0	0	1.40	1.40
United Arab Emirates								
EAD net	0	0	1	1	0	0	2	2
Average PD in %	0	0	0.21	0.21	0	0	0.19	0.19
United Kingdom								
EAD net	0	0	198	198	0	0	158	158
Average PD in %	0	0	0.32	0.32	0	0	41.44	41.44
United States of America								
EAD net	0	0	72	72	0	0	51	51
Average PD in %	0	0	0.31	0.31	0	0	0.47	0.47
Uruguay								
EAD net	0	0	4	4	0	0	2	2
Average PD in %	0	0	35.21	35.21	0	0	0.12	0.12
Other								
EAD	0	0	35	35	0	0	40	40
Average PD in %	0	0	5.45	5.45	0	0	2.15	2.15
thereof:								
International Organizations								
EAD	0	0	0	0	0	0	0	0
Average PD in %	0	0	0	0	0	0	0	0
Total	0	2	6,413	6,415	0	0	6,053	6,053

The table below summarizes our foundation approach exposure for specialized lending on an EAD basis. For the calculation of minimum capital requirements regulatory risk weights are applied where potential risk mitigating factors are already considered in the assignment of a risk weight to a specific structure. Additional credit risk mitigation techniques have not been applied.

Exposure for specialized lending by risk weight

in € m.			Dec 31, 2015	Dec 31, 2014
Risk weight category	Remaining maturity	Risk weight		
1 (strong)	< 2.5 years	50%	375	215
1 (strong)	≥ 2.5 years	70%	2,470	2,592
2 (good)	< 2.5 years	70%	134	352
2 (good)	≥ 2.5 years	90%	802	458
3 (satisfactory)	< 2.5 years	115%	265	8
3 (satisfactory)	≥ 2.5 years	115%	157	421
4 (weak)	< 2.5 years	250%	2	23
4 (weak)	≥ 2.5 years	250%	9	18
5 (defaulted)	< 2.5 years	0%	43	50
5 (defaulted)	≥ 2.5 years	0%	49	78
Total EAD of specialized lending			**4,305**	4,215

Standardized Approach exposure by risk weight before and after credit mitigation

The table below shows exposure values in the standardized approach broken down by risk weight before and after credit risk mitigation obtained in the form of eligible financial collateral, guarantees and credit derivatives. Securitization positions in the regulatory banking book and Postbank's CIU exposures assigned to the standardized approach are excluded. Postbank CIUs exposure is displayed in the table "EAD of CIUs of Postbank in the Standardized Approach by Risk Weight".

Exposure values in the standardized approach by risk weight

	Dec 31, 2015		Dec 31, 2014	
in € m.	Before credit risk mitigation	After credit risk mitigation	Before credit risk mitigation	After credit risk mitigation
Risk weight				
0 %	112,461	113,021	83,870	84,907
2 %	27,466	27,212	31,773	31,654
4 %	0	0	0	0
10 %	0	0	22	22
20 %	1,603	1,656	1,131	1,197
35 %	3,959	3,958	3,699	3,698
50 %	1,904	1,847	12,020	12,056
70 %	0	0	2,992	2,992
75 %	7,179	6,442	8,612	7,250
100 %	17,420	13,016	20,388	15,152
150 %	1,959	1,869	3,062	2,926
Total EAD in the standardized approach	**173,949**	**169,021**	167,568	161,854

The slight increase in EAD is predominantly driven by additional exposure in interest earning deposits with central banks partially offset by the impact of the changed treatment of our defined benefit pension fund assets exposure.

The table below comprises bonds in the form of collective investment undertakings assigned to the standardized approach based on a "look through" treatment as well as the exposure values for collective investment undertakings with risk weights calculated by third parties from Postbank. Credit risk mitigation techniques have not been applied.

EAD of CIUs of Postbank in the standardized approach by risk weight

in € m.	Dec 31, 2015	Dec 31, 2014
Bonds in CIUs		
0 %	0	0
5 %	0	1,569
11 %	0	0
22 %	0	2
55 %	0	0
110 %	0	0
200 %	0	44
300 %	0	0
EAD for bonds in CIUs	**0**	1,615
CIUs with risk weight calculated by third parties		
< 22 %	0	0
> 22 % < 110 %	0	215
> 110 %	0	8
EAD for CIUs with risk weight calculated by third parties	**0**	223
Total EAD for CIUs in the standardized approach	**0**	1,838

A change to the treatment of our defined benefit pension fund assets exposure explains the reduction in 2015.

Regulatory Application of Credit Risk Mitigation Techniques

The following section summarises the value of credit risk mitigation exposures in form of financial and personal collateral. The tables are shown for the advanced IRBA, the foundation IRBA and the standardized approach. Details regarding the general approach for applying regulatory credit risk mitigations are outlined in the section "risk quantification and measurement".

The table below shows the advanced IRBA exposures before credit risk mitigation in conjunction with the proportional amounts for eligible advanced IRBA collateral as well as guarantees and credit derivatives.

Collateralized credit risk exposure in the Advanced IRBA by exposure class

	Dec 31, 2015				Dec 31, 2014			
in € m.	Total EAD	Eligible advanced IRBA collateral	Guarantees and credit derivatives	Total EAD collateralized[1]	Total EAD	Eligible advanced IRBA collateral	Guarantees and credit derivatives	Total EAD collateralized[1]
Central governments and central banks	93,253	1,440	2,498	3,938	85,182	1,004	2,129	3,133
Institutions	59,744	12,497	1,986	14,483	61,785	12,036	2,456	14,492
Corporates	323,512	78,121	23,953	102,074	311,791	67,424	25,091	92,514
thereof:								
SMEs	10,093	3,230	624	3,854	21,661	2,243	3,145	5,388
Spezialized Lending	5,363	4,590	0	4,590	5,141	0	0	0
Other	308,057	70,301	23,329	93,630	284,989	65,180	21,946	87,126
Retail	198,376	138,655	824	139,479	192,891	135,969	968	136,937
thereof:								
Secured by real estate SME	13,542	9,952	63	10,015	1,093	826	16	842
Secured by real estate non-SME	147,093	123,643	112	123,755	155,144	129,994	248	130,242
Qualifying revolving	4,194	100	0	100	4,417	103	0	103
Other SME	7,428	1,691	482	2,173	3,159	427	122	549
Other non-SME	26,118	3,269	167	3,436	29,078	4,619	581	5,200
Total	**674,885**[2]	**230,713**	**29,262**	**259,975**	651,649[2]	216,433	30,644	247,077

[1] Excludes collateralization which is reflected in the EPE measure.
[2] Includes exposure subject to dilution risk of € 2.8 billion per end 2015 and € 1.4 billion per year end 2014. The increase is predominantly driven by a change in the internal dilution risk model.

The increase in EAD and respective collateralized EAD is materially driven by foreign exchange movements. In addition specific growth in CB&S partially also results in overall increase. The rise in the exposure class Central governments and central banks is partially driven by Deferred Tax Assets which have been shown under the exposure class other non-credit obligation assets in 2014.

The following table provides the Foundation IRBA exposures before credit risk mitigation in conjunction with the proportional amounts for financial and other collateral as well as guarantees and credit derivatives.

Collateralized credit risk exposure in the Foundation IRBA by exposure class

	Dec 31, 2015				
in € m.	Total EAD	Financial collateral	Other collateral	Guarantees and credit derivatives	Total EAD collateralized
Central governments and central banks	0	0	0	0	0
Institutions	2	0	0	0	0
Corporates	6,375	0	0	693	693
thereof:					
SMEs	273	0	0	50	50
Specialized Lending	0	0	0	0	0
Other	6,102	0	0	643	643
Total	6,377	0	0	693	693

in € m.	Total EAD	Financial collateral	Other collateral	Guarantees and credit derivatives	Total EAD collateralized
					Dec 31, 2014
Central governments and central banks	0	0	0	0	0
Institutions	1	0	0	0	0
Corporates	6,039	0	0	567	567
thereof:					
SMEs	235	0	0	17	17
Specialized Lending	0	0	0	0	0
Other	5,804	0	0	550	550
Total	6,040	0	0	567	567

The table below shows the standard approach exposures, financial collateral and guarantees and credit derivatives by exposure class.

Exposure values in the standardized approach by exposure class

in € m.	Total EAD	Financial collateral	Guarantees and credit derivatives	Total EAD collater-alized	Total EAD	Financial collateral	Guarantees and credit derivatives	Total EAD collater-alized
	Dec 31, 2015				Dec 31, 2014			
Central governments or central banks	71,726	0	226	226	40,445	29	431	460
Regional governments and local authorities	18,639	2	6	8	18,322	4	33	37
Public sector entities	12,387	0	329	329	10,182	1	474	475
Multilateral development banks	7,111	0	0	0	4,931	0	0	0
International organizations	3,609	0	0	0	2,357	0	0	0
Institutions	27,982	271	45	316	32,449	169	42	211
Corporates	13,989	3,685	63	3,747	16,381	4,268	20	4,288
Retail	7,179	107	0	107	8,613	385	0	385
Secured by mortgages on immovable property	5,837	77	0	77	3,956	0	0	0
Exposures in default	2,853	115	0	115	3,423	138	0	138
Items associated with particular high risk	213	4	0	4	161	2	0	2
Covered bonds	0	0	0	0	22	0	0	0
Claims on institutions and corporates with a short-term credit assessment	0	0	0	0	0	0	0	0
Collective investment undertakings (CIU)	0	0	0	0	25,262	0	0	0
Equity	1,541	0	0	0	2,707	0	0	0
Other items	884	0	0	0	419	0	0	0
Total	**173,949**	**4,259**	**669**	**4,928**	169,630	4,996	1,001	5,996

The slight increase in EAD is predominantly resulting from higher positions in interest earning deposits with central banks. That is partially offset by material reduction in the exposure class “Collective investment undertakings (CIU)” , reflecting the different treatment for calculating the credit risk exposure amount.

Counterparty Credit Risk

Counterparty Credit Risk (CCR) is defined as the risk that the counterparty could default before the final settlement of the cash flows of derivatives or securities financing transactions. We calculate the exposure to CCR using the internal model method (IMM) and the mark-to-market method.

The following table presents our CCR exposure by product type and calculation method applied. Under the mark to market method the positive market values before netting and collateral, the potential future exposure and the exposure at default are shown. Under the IMM only the exposure at default is presented. Given the nature of the internal model the simulation process of futures market values across all asset classes is including the impact from regulatory netting and collateralization.

Counterparty credit risk exposures by calculation method

Dec 31, 2015

in € m.	Gross positive mark-to-market of contracts	Potential Future Credit Exposure	Netting benefits	Collateral held	Net credit exposure
Mark-to-Market Method	21,786	15,246	(17,478)	2,748	46,521
Interest rate contracts	13,489	2,839	(12,205)	229	4,122
Currency contracts	1,740	1,933	(1,777)	361	1,896
Equity contracts	3,778	6,616	(1,553)	533	8,841
Commodity contracts	1,387	1,605	(867)	902	2,125
Credit derivatives	1,391	2,253	(1,075)	723	2,569
Securities financing transactions	N/M	N/M	N/M	N/M	26,966
Internal Model Method	N/M	N/M	N/M	N/M	108,646
Total	21,786	15,246	(17,478)	2,748	155,166

N/M – Not meaningful

Dec 31, 2014

in € m.	Gross positive mark-to-market of contracts	Potential Future Credit Exposure	Netting benefits	Collateral held	Net credit exposure
Mark-to-Market Method	37,702	28,487	(34,981)	3,787	61,519
Interest rate contracts	15,633	4,897	(12,868)	632	7,662
Currency contracts	2,793	3,687	(2,967)	593	3,513
Equity contracts	13,844	11,818	(15,931)	779	9,731
Commodity contracts	1,715	1,597	(575)	697	2,737
Credit derivatives	3,718	6,487	(2,639)	1,086	7,565
Securities financing transactions	N/M	N/M	N/M	N/M	30,310
Internal Model Method	N/M	N/M	N/M	N/M	105,430
Total	37,702	28,487	(34,981)	3,787	166,949

N/M – Not meaningful

The overall reduction reflects the banks ongoing efforts in de-risking activities as well as decreases due to lower market volumes. The slight increase in internal model method exposure is partly driven by shifts from the mark-to-market method reflecting process improvements.

The table below discloses the exposure of the credit derivative transactions split into the part held in the regulatory banking book, which is shown under the heading “used for own credit portfolio” and the part held in the regulatory trading book, referred to as “acting as intermediary”.

Nominal volumes of credit derivative exposure

					Dec 31, 2015
	Used for own credit portfolio		Acting as intermediary		
in € m.	Protection bought	Protection sold	Protection bought	Protection sold	Total[1]
Credit default swaps – single name	3,574	387	383,293	365,940	753,194
Credit default swaps – multi name	0	0	324,648	311,626	636,273
Total return swaps	0	45	5,132	3,819	8,996
Total notional amount of credit derivatives	3,574	432	713,073	681,385	1,398,463

[1] Includes credit default swaps on indices and nth-to-default credit default swaps.

					Dec 31, 2014
	Used for own credit portfolio		Acting as intermediary		
in € m.	Protection bought	Protection sold	Protection bought	Protection sold	Total[1]
Credit default swaps – single name	6,235	437	440,577	424,802	872,050
Credit default swaps – multi name	0	100	284,103	276,969	561,172
Total return swaps	0	973	7,121	5,987	14,081
Total notional amount of credit derivatives	6,235	1,509	731,801	707,758	1,447,303

[1] Includes credit default swaps on indices and nth-to-default credit default swaps.

The notional value of credit derivatives qualifying as hedges for regulatory purposes in the regulatory banking book amounts to EUR 21.3 billion per December 2015 (EUR 16.6 billion per December 2014).

The overall decrease in nominal volumes reflects the reduced market activities of our business. This is accompanied by a change in our business strategy where we reduce materially our volumes in single name products and shift this on a decreasing level into the multi name business.

The reduction in the protection bought positions for our own credit portfolio reflects the drop in overall recognized positions due to regulatory requirements.

Economic capital usage for credit risk

Economic Capital Usage for Credit Risk per Business Area

			2015 increase (decrease) from 2014	
in € m.	Dec 31, 2015	Dec 31, 2014	in € m.	in %
Corporate Banking & Securities	6,634	5,799	835	14
Private & Business Clients	3,724	3,547	177	5
Global Transaction Banking	2,076	2,302	(226)	(10)
Deutsche Asset & Wealth Management	456	323	133	41
Non-Core Operations Unit	777	868	(92)	(11)
Consolidation & Adjustments	18	46	(28)	(60)
Total	**13,685**	12,885	799	6

The economic capital usage for credit risk increased to € 13.7 billion as of December 31, 2015, € 799 million or 6 % higher compared to year-end 2014. This change mainly reflects increases from the internal model recalibration.

Securitization Details

The amounts reported in the following tables provide details of our securitization exposures separately for the regulatory banking and trading book. The presentation of the banking and trading book exposures is in line with last year's disclosure. The details of our trading book securitization positions subject to the MRSA are included in this chapter, while details of the trading book securitization positions covered under the Comprehensive Risk Measure ("CRM") are described in chapter "Trading Market Risk".

Outstanding Exposures Securitized

We are only exposed to credit or market risks related to the exposures securitized, as shown below, to the extent that we have retained or purchased any of the related securitization positions. The risk of the retained or purchased positions depends on the relative position in the payment waterfall structure of the securitization transaction. For disclosure purposes, we are deemed to be originator and additionally sponsor in case of multi-seller securitizations, which is reflected in the disclosure of the total outstanding exposures securitized in the sponsor column and our share of those exposures in the originator column.

The following table details the total banking book outstanding exposure split by exposure type, i.e., the overall pool size, we have securitized in our capacity as either originator or sponsor through traditional or synthetic securitization transactions. Within the originator columns the table provides information of the underlying securitized asset pool which was either originated from our balance sheet or acquired from third parties. The amounts reported are either the carrying values as reported in our consolidated financial statements for on-balance sheet exposures in synthetic securitizations or the principal notional amount for traditional securitizations and off-balance sheet exposures in synthetic transactions. Of the € 55.3 billion total outstanding securitized exposure reported as of December 31, 2015 in the table below as originator, the amount retained was € 40.1 billion reflecting an increase in both outstanding securitized as well as retained exposures which for December 31, 2014 were € 46.5 billion and € 27.0 billion respectively.

For sponsor relationships, the total outstanding exposure securitized reported in the table below represents the principal notional amount of outstanding exposures of the entities issuing the securities and other receivables. As of December 31, 2015, our retained or repurchased exposure of the € 7.1 billion total outstanding exposure securitized shown in the sponsor columns including multi-seller transactions was € 4.3 billion. The remaining exposure is held by third parties. As of December 31, 2014, our total outstanding exposure securitized resulting from sponsoring activities amounted to € 29.3 billion. This included exposure from multi-seller transactions in the amount of € 8.8 billion. The wind down of the funding of securitization positions through ABCP conduits was due to a management decision. The total reported outstanding exposure securitized is derived using information received from servicer reports of the third parties with whom the conduits have relationships.

Outstanding Exposures Securitized by Exposure Type (Overall Pool Size) within the Banking Book

	Dec 31, 2015				Dec 31, 2014			
	Originator		Sponsor[1]		Originator		Sponsor[1]	
in € m.	Traditional	Synthetic	Traditional	Synthetic	Traditional	Synthetic	Traditional	Synthetic
Residential mortgages	8,157	0	670	69	8,485	2,171	635	64
Commercial mortgages	7,848	0	4,408	0	9,978	0	7,525	0
Credit card receivables	0	0	0	0	0	0	1,560	0
Leasing	93	0	0	0	89	0	3,691	0
Loans to corporates or SMEs (treated as corporates)[2]	70	39,156	1,922	0	1,320	24,420	6,814	0
Consumer loans	0	0	0	0	0	0	6,506	0
Trade receivables	0	0	0	0	0	0	547	0
Covered bonds	0	0	0	0	0	0	0	0
Other liabilities	0	0	0	0	0	0	0	0
Other assets[3]	0	0	0	0	0	0	1,974	0
Total outstanding exposures securitized[4]	**16,167**	**39,156**	**7,000**	**69**	19,873	26,592	29,252	64

[1] As of December 31, 2015 included under sponsor is the amount € 4.3 billion of multi-seller related securitized exposures, of which we have originated € 2.6 billion, and therefore have also included this amount under originator. For December 31, 2014 the amounts were € 8.8 billion and € 4.8 billion respectively.
[2] SMEs are small- or medium-sized entities.
[3] 2014 amount consists mainly of securitizations supporting rental car and dealer floorplan activities.
[4] For a regulatory assessment of our exposure to credit risk in relation to securitization activity in the banking book see table "Banking Book Securitization Positions Retained or Purchased by Risk Weight Band".

The table below provides the total outstanding exposure securitized in relation to securitization positions held in our regulatory trading book separately for originator and sponsor activities and further broken down into traditional and synthetic transactions. Short synthetic single tranche CDOs have been reflected as originator positions for which the synthetic pool size was determined as the maximum pool size of the position sets referencing a given synthetic pool. The total outstanding exposure securitized as shown in the table below does not reflect our risk as it includes exposures not retained by us, does not consider the different positioning in the waterfall of related positions and – most notably – does not reflect hedging. Compared with last year, the pool of outstanding exposures securitized decreased for synthetic securitizations from € 119.2 billion as of December 31, 2014 to € 93.1 billion. This decrease follows the general rundown of this product class managed in our NCOU.

Outstanding Exposures Securitized by Exposure Type (Overall Pool Size) within the Trading Book

	Dec 31, 2015				Dec 31, 2014			
	Originator		Sponsor[1]		Originator		Sponsor[1]	
in € m.	Traditional	Synthetic	Traditional	Synthetic	Traditional	Synthetic	Traditional	Synthetic
Residential mortgages	6,743	0	7,671	0	9,227	0	9,362	0
Commercial mortgages	41,217	6,645	46,288	0	41,404	14,588	72,439	0
Credit card receivables	0	0	0	0	0	0	0	0
Leasing	0	0	0	0	0	0	0	0
Loans to corporates or SMEs (treated as corporates)[2]	58	86,411	0	0	768	104,513	1,402	0
Consumer loans	0	0	0	0	0	147	0	0
Trade receivables	0	0	0	0	0	0	0	0
Covered bonds	0	0	0	0	0	0	0	0
Other liabilities	0	0	0	0	0	0	0	0
Other assets	3,653	0	2,003	0	1,451	0	0	0
Total outstanding exposures securitized[3]	**51,671**	**93,056**	**55,962**	0	52,850	119,247	83,204	0

[1] As of December 31, 2015 included under sponsor is the amount € 49.3 billion of multi-seller related securitized exposures, of which we have originated € 20.7 billion, and therefore have also included this amount under originator. For December 31, 2014 the amounts were € 73.4 billion and € 28.3 billion respectively.
[2] SMEs are small- or medium-sized entities.
[3] For a regulatory assessment of our exposure to credit risk in relation to securitization activity in the trading book see table "Trading Book Securitization Positions Retained or Purchased by Risk Weight Band subject to the MRSA". Additionally the table includes securitized exposure as originator amounting to € 8.5 billion and as sponsor amounting to € 4.6 billion already reflected in table "Outstanding Exposures Securitized by Exposure Type (Overall Pool Size) within the Banking Book".

The following table provides details of the quality of the underlying asset pool of outstanding exposures securitized for which we are an originator and hold positions in the regulatory banking book. An exposure is reported as past due when it has the status past due for 30 days or more and has not already been included as impaired. For our originated synthetic securitizations, impaired and past due exposure amounts are determined through our internal administration, while for our originated traditional securitizations, impaired and past due exposure amounts are primarily derived from investor reports of underlying exposures.

Separately, the table details losses we recognized in 2015 and 2014 for retained or purchased securitization positions as originator by exposure type. The losses are those reported in the consolidated statement of income. The amounts are the actual losses in the underlying asset pool to the extent that these losses are allocated to the retained or purchased securitization positions held by us after considering any eligible credit protection. This applies to both traditional and synthetic transactions.

Impaired and Past Due Exposures Securitized and Losses Recognized by Exposure Type (Overall Pool Size) as Originator

	Dec 31, 2015	2015	Dec 31, 2014	2014
in € m.	Impaired/ past due[1]	Losses	Impaired/ past due[1]	Losses
Residential mortgages	1,437	3	2,406	2
Commercial mortgages	0	0	0	0
Credit card receivables	0	0	0	0
Leasing	0	0	0	0
Loans to corporates or SMEs (treated as corporates)[2]	32	0	14	13
Consumer loans	0	0	0	0
Trade receivables	0	0	0	0
Covered bonds	0	0	0	0
Other liabilities	0	0	0	0
Other assets	0	0	0	0
Total impaired and past due exposures securitized and losses recognized[3]	**1,469**	**3**	2,420	15

[1] Includes the impaired and past due exposures in relation to the overall pool of multi-seller securitizations which could reflect more than our own originated portion.
[2] SMEs are small- or medium-sized entities.
[3] For a regulatory assessment of our exposure to credit risk in relation to securitization activity in the banking book see table “Banking Book Securitization Positions Retained or Purchased by Risk Weight Band”.

The total impaired or past due exposure securitized decreased by € 1.0 billion in 2015. The reduction was mainly attributed to the exposure types “Residential mortgages” Losses recorded by us in 2015 decreased to € 3 million compared to € 15 million in 2014.

The following table provides details of existing banking and trading book outstanding exposures split by exposure type for which there is a management intention to securitize them in either an existing or new securitization transaction in the near future. Outstanding exposures awaiting securitization do not include assets due for securitization without risk transfer i.e., those securitizations where we will keep all tranches.

Outstanding Exposures Awaiting Securitization (Exposure Amount)

	Dec 31, 2015		Dec 31, 2014	
in € m.	Banking Book	Trading Book	Banking Book	Trading Book
Residential mortgages	0	0	0	0
Commercial mortgages	0	2,236	0	1,754
Credit card receivables	0	0	0	0
Leasing	0	0	0	0
Loans to corporates or SMEs (treated as corporates)[1]	0	0	1,645	15
Consumer loans	0	0	0	0
Trade receivables	0	0	0	0
Covered bonds	0	0	0	0
Other liabilities	0	0	0	0
Other assets	0	0	0	0
Outstanding exposures awaiting securitization	**0**	**2,236**	1,645	1,770

[1] SMEs are small- or medium-sized entities.

As of December 31, 2015 we held commercial mortgages in the amount of € 2.2 billion in the trading book with the intention to securitize them.

Securitization Positions Retained or Purchased

The table below shows the amount of the securitization positions retained or purchased in the banking book. The reported amounts are based on the regulatory exposure values prior to the application of credit risk mitigation. The securitization positions in the regulatory trading book were reported based on the exposure definition in Articles 327 to 332 CRR which states that identical or closely matched securities and derivatives are offset to a net position. The capital requirements for securitization positions both – regulatory banking and regulatory trading book – are additionally reported by the underlying exposure type.

Securitization Positions Retained or Purchased by Exposure Type

Dec 31, 2015

	Banking Book					Trading Book				
in € m.	On-balance securitization positions	Off-balance, derivative and SFT securitization positions	Regulatory exposure value	thereof ≥ 1,250% risk weighted	Capital requirements	On-balance securitization positions	Off-balance, derivative and SFT securitization positions	Regulatory exposure value	thereof 1,250% risk weighted	Capital requirements
Residential mortgages	6,481	1,011	7,492	199	335	2,125	252	2,378	355	230
Commercial mortgages	1,882	597	2,479	91	123	1,484	3,767	5,251	194	234
Credit card receivables	184	0	184	0	3	22	33	55	0	0
Leasing	5,156	492	5,648	1	89	58	0	58	0	3
Loans to corporates or SMEs (treated as corporates)[1]	45,218	1,825	47,043	27	498	1,683	13,857	15,540	2,064	163
Consumer loans	9,376	1,098	10,474	0	151	480	7	488	3	12
Trade receivables	0	92	92	0	1	17	0	17	0	1
Covered bonds	0	0	0	0	0	0	0	0	0	0
Other liabilities	0	0	0	0	0	0	0	0	0	0
Other assets	2,296	49	2,345	71	55	897	350	1,248	223	162
Total securitization positions retained or purchased[2]	70,592	5,163	75,755	390	1,254	6,767	18,267	25,034	2,838	805

[1] SMEs are small- or medium-sized entities.
[2] For a regulatory assessment of our exposure to credit risk in relation to securitization activities see table “Banking Book Securitization Positions Retained or Purchased by Risk Weight Band” and table “Trading Book Securitization Positions Retained or Purchased by Risk Weight Band subject to MRSA”.

	Dec 31, 2014									
	Banking Book					Trading Book				
in € m.	On-balance securitization positions	Off-balance, derivative and SFT securitization positions	Regulatory exposure value	thereof 1,250% risk weighted	Capital require-ments	On-balance securitization positions	Off-balance, derivative and SFT securitization positions	Regulatory exposure value	thereof 1,250% risk weighted	Capital require-ments
Residential mortgages	3,048	1,532	4,581	113	239	3,020	20	3,040	537	625
Commercial mortgages	1,854	882	2,736	158	169	1,682	2,573	4,256	287	399
Credit card receivables	0	970	970	0	7	63	16	78	6	10
Leasing	2,582	1,439	4,021	5	77	10	0	10	0	1
Loans to corporates or SMEs (treated as corporates)[1]	27,622	3,269	30,891	42	343	1,443	3,715	5,158	231	359
Consumer loans	6,423	2,031	8,454	7	193	345	0	345	66	70
Trade receivables	0	0	0	0	0	16	0	16	0	0
Covered bonds	0	0	0	0	0	0	0	0	0	0
Other liabilities	0	0	0	0	0	0	0	0	0	0
Other assets	3,083	338	3,421	99	131	665	8	673	182	218
Total securiti-zation positions retained or purchased[2]	44,612	10,461	55,074	424	1,159	7,243	6,332	13,576	1,309	1,682

[1] SMEs are small- or medium-sized entities.
[2] For a regulatory assessment of our exposure to credit risk in relation to securitization activities see table “Banking Book Securitization Positions Retained or Purchased by RiskWeight Band” and table “Trading Book Securitization Positions Retained or Purchased by Risk Weight Band subject to the MRSA”.

Total retained or purchased securitization positions in the banking book increased throughout the year 2015. The major increase which is in the exposure type “Loans to corporate or SMEs” is driven by our originator activities and foreign exchange related movements. The Increase for the exposure type “Residential mortgages” is mainly driven by new deals for which we act as investor and the new exposure definition according to Article 246 (1) CRR.

Within the trading book, following the end of the transitional period granted by Article 337 (4) CRR, the reported numbers are based on the sum of the weighted net long positions and the weighted net short positions rather than on the larger of the two sums. Driven by this change the securitization exposure increased by € 11.5 billion or 84 % mainly for the exposure type “Loans to corporates or SMEs”. Despite the overall exposure increase the capital requirement declined by 52 % due to our active de-risking strategy.

Securitization Positions Retained or Purchased by Region (Exposure Amount)

	Dec 31, 2015		Dec 31, 2014	
in € m.	Banking Book	Trading Book	Banking Book	Trading Book
Europe	25,120	7,136	19,024	3,531
Americas	45,100	16,007	32,888	8,485
Asia/Pacific	5,462	1,310	3,004	1,456
Other	72	581	157	104
Total securitization positions retained or purchased[1]	**75,755**	**25,034**	55,074	13,576

[1] For a regulatory assessment of our exposure to credit risk in relation to securitization activities see table “Banking Book Securitization Positions Retained or Purchased by Risk Weight Band” and table “Trading Book Securitization Positions Retained or Purchased by Risk Weight Band subject to the MRSA”.

The amounts shown in the table above are based on the country of domicile of the obligors of the exposures securitized. The increase in exposures in the banking book for the regions “Americas” and “Europe” resulted from our originator activities and foreign exchange related movements. The exposure increase in the trading book is driven by the aforementioned regulatory rule change.

Types of Special Purposes Entities used by Deutsche Bank as Sponsor of Securitizations

In 2015 we ceased to act as a sponsor of asset backed commercial paper (“ABCP”) programs, resulting in a complete unwind of our European and American ABCP conduits.

ABCP Program Exposures by Major Conduits

in € m.	Dec 31,2015	Dec 31,2014
Aspen Funding Corp.	0	1,022
Newport Funding Corp.	0	546
Gemini Securitization Corp. LLC	0	1,074
Sedona Capital Funding Corp. LLC	0	1
Montage Funding LLC	0	0
Saratoga Funding Corp. LLC	0	0
Rhein Main Securitization Ltd.	0	1,077
RM Multi-Asset Ltd.	0	0
RM Fife Ltd.	0	296
RM AYR Ltd.	0	0
RM Sussex Ltd.	0	777
RM Chestnut Ltd.	0	0
Sword Securitization Ltd.; Scimitar Securitization Ltd.	0	0
SPAN NO 9 PT LIMITED	0	0
Total	**0**	3,720

When we act as originator or sponsor of a securitization transaction, we sell securitization tranches (or arrange for such sale through mandated market making institutions) solely on an “execution only” basis and only to sophisticated operative corporate clients that rely on their own risk assessment. In the ordinary course of business, we do not offer such tranches to operative corporate clients to which, at the same time, we offer investment advisory services.

We occasionally use securitization SPEs to securitize third-party exposures in which we act as sponsor. In certain cases we also retain some of the securitized exposure.The majority (79 %) of our € 1.2 billion sponsor positions consists of senior securitization facilities backed by corporate loans.

Our division Deutsche Asset & Wealth Management (“Deutsche AWM”) provides asset management services to undertakings for collective investments, including mutual funds and alternative investment funds, and private individuals offering access to traditional and alternative investments across all major asset classes, including securitization positions. Less than 3 % of those positions consisted of tranches in securitization transactions where Deutsche Bank acts as originator or sponsor.

Banking Book Securitization Exposure

Banking Book Securitization Positions Retained or Purchased by Risk Weight Band

	Dec 31, 2015			Dec 31, 2014		
in € m.	Exposure amount	Capital requirements IRBA[1]	Capital requirements standardized approach	Exposure amount	Capital requirements IRBA[1]	Capital requirements standardized approach
≤ 10 %	65,061	343	0	44,968	246	0
> 10 ≤ 20 %	4,322	34	17	4,170	37	9
> 20 ≤ 50 %	2,714	176	30	2,427	97	1
> 50 ≤ 100 %	2,645	108	58	2,313	124	53
> 100 ≤ 350 %	295	46	1	313	40	3
> 350 ≤ 650 %	159	51	0	160	51	0
> 650 < 1,250 %	170	128	0	299	202	0
≥ 1,250% ≤ 1,325 %	390	250	13	424	266	29
Total securitization positions retained or purchased	**75,755**	**1,136**	**118**	55,074	1,064	95

[1] After considering value adjustments according to Article 266 (1,2) CRR. Including capital requirements for maturity mismatch of synthetic securitizations by risk weight band defined as notional weighted average risk weight of the underlying pool.

Although the overall banking book exposure increased by 38 % to € 75.8 billion, the capital requirements only increased by 8 % to € 1.3 billion. This is due to the fact that the major exposure increase to € 65.1 billion was subject to the ≤ 10 % risk weight bucket which was mainly driven by new originator activities. Whereas exposure subject to > 650 < 1,250 % and ≥ 1,250 ≤ 1,325 % bucket decreased to € 170 million and € 390 million following an exposure decrease in existing positions and the new exposure definition according to Article 246 (1) CRR.

The largest portion for IRBA eligible banking book securitization exposures are treated according to the Supervisory Formula Approach (“SFA”). For the remaining IRBA eligible banking book exposures we use the Ratings Based Approach (“RBA”).

Banking Book Securitization Positions Retained or Purchased by Risk Weight Bands subject to the IRBA-Rating Based Approach (RBA)

	Dec 31, 2015				Dec 31, 2014			
	Exposure amount		Capital requirements, IRBA-RBA[1]		Exposure amount		Capital requirements, IRBA-RBA[1]	
in € m.	Securitization	Re-Securitization	Securitization[2]	Re-Securitization	Securitization	Re-Securitization	Securitization[2]	Re-Securitization
≤ 10 %	3,625	0	23	0	5,295	0	33	0
> 10 ≤ 20 %	2,203	0	22	0	2,056	0	21	0
> 20 ≤ 50 %	812	698	142	22	854	1,064	50	34
> 50 ≤ 100 %	1,445	18	90	1	1,487	29	120	1
> 100 ≤ 350 %	170	33	28	3	78	7	7	1
> 350 ≤ 650 %	16	10	6	3	58	0	19	0
> 650 < 1,250 %	69	17	38	9	154	16	85	9
≥ 1,250% ≤ 1,325 %	302	18	192	18	342	46	244	19
Total securitization positions retained or purchased	**8,642**	**794**	**541**	**56**	10,324	1,162	579	64

[1] After considering value adjustments according to Article 266 (1,2) CRR.
[2] Including capital requirements for maturity mismatch of synthetic securitizations by risk weight band defined as notional weighted average risk weight of the underlying pool.

Exposures subject to the IRBA-RBA decreased for securitization by € 1.7 billion mainly driven by exposure reduction of exiting positions. Our re-securitization exposure decreased by € 0.4 billion, following an exposure reduction of one significant transaction, which accounted to 49 % of the total re-securitization portfolio.

Banking Book Securitization Positions Retained or Purchased by Risk Weight Band subject to the IRBA-Internal Assessment Approach (IAA)

	Dec 31, 2015				Dec 31, 2014			
	Exposure amount		Capital requirements, IRBA-IAA[1]		Exposure amount		Capital requirements, IRBA-IAA[1]	
in € m.	Securitization	Re-Securitization	Securitization	Re-Securitization	Securitization	Re-Securitization	Securitization	Re-Securitization
≤ 10 %	0	0	0	0	996	0	7	0
> 10 ≤ 20 %	0	0	0	0	1,160	0	11	0
> 20 ≤ 50 %	0	0	0	0	245	33	5	1
> 50 ≤ 100 %	0	0	0	0	47	0	3	0
> 100 ≤ 350 %	0	0	0	0	166	0	28	0
> 350 ≤ 650 %	0	0	0	0	0	0	0	0
> 650 < 1,250 %	0	0	0	0	0	0	0	0
1,250 %	0	0	0	0	0	0	0	0
Total securitization positions retained or purchased	**0**	**0**	**0**	**0**	2,614	33	53	1

[1] After considering value adjustments according to Article 266 (1,2) CRR.

In 2015 we ceased to act as a sponsor of asset backed commercial paper programs, resulting in a complete unwind of our European and American ABCP conduits, which for December 31, 2014 was € 2.6 billion.

Banking Book Securitization Positions Retained or Purchased by Risk Weight Band subject to the IRBA-Supervisory Formula Approach (SFA)

	Dec 31, 2015				Dec 31, 2014			
	Exposure amount		Capital requirements, IRBA-SFA[1]		Exposure amount		Capital requirements, IRBA-SFA[1]	
in € m.	Securitization	Re-Securitization	Securitization	Re-Securitization	Securitization	Re-Securitization	Securitization	Re-Securitization
≤ 10 %	61,435	0	320	0	38,676	0	206	0
> 10 ≤ 20 %	1,006	55	11	1	317	49	3	1
> 20 ≤ 50 %	464	0	11	0	217	0	7	0
> 50 ≤ 100 %	299	0	17	0	5	0	0	0
> 100 ≤ 350 %	83	0	15	0	36	0	5	0
> 350 ≤ 650 %	133	0	43	0	102	0	32	0
> 650 < 1,250 %	84	0	81	0	129	0	108	0
1,250 %	37	0	40	0	7	0	3	0
Total securitization positions retained or purchased	**63,541**	**55**	**538**	**1**	39,487	49	365	1

[1] After considering value adjustments according to Article 266 (1,2) CRR.

Banking Book exposure subject to the IRBA-Supervisory Formula Approach overall increased to € 63.6 billion in 2015. This increase is mainly driven by Originator activities and securitization positions which funding source changed from ABCP conduits formerly calculated under the IRBA-Internal Assessment Approach and is now subject to the IRBA-Supervisory Formula Approach.

The Credit Risk Standardized Approach (“CRSA”) is used for securitization positions where the underlying portfolio predominantly concerns credit risk exposures, which would qualify for application of the CRSA if these exposures would be directly held by us.

Banking Book Securitization Positions Retained or Purchased by Risk Weight Band subject to the Credit Risk Standardized Approach (CRSA)

	Dec 31, 2015				Dec 31, 2014			
	Exposure amount		Capital requirements, SA		Exposure amount		Capital requirements, SA	
in € m.	Securitization	Re-Securitization	Securitization	Re-Securitization	Securitization	Re-Securitization	Securitization	Re-Securitization
≤ 10 %	0	0	0	0	0	0	0	0
> 10 ≤ 20 %	1,058	0	17	0	588	0	9	0
> 20 ≤ 50 %	740	0	0	0	14	0	1	0
> 50 ≤ 100 %	0	0	58	0	745	0	53	0
> 100 ≤ 350 %	9	0	1	0	27	0	3	0
> 350 ≤ 650 %	0	0	0	0	0	0	0	0
> 650 < 1,250 %	0	0	0	0	0	0	0	0
1,250 %	0	0	0	0	23	6	23	6
Total securitization positions retained or purchased	**2,724**	**0**	**118**	**0**	1,398	6	89	6

Exposure subject to CRSA increased by € 1.3 billion, mainly driven by investor activities and securitization positions which funding source changed from ABCP conduits formerly calculated under the IRBA-Internal Assessment Approach and is now subject to the IRBA-Supervisory Formula Approach.

Trading Book Securitization Exposure

For trading book securitization positions not covered under the CRM, the capital requirement for specific market risk is calculated based on the MRSA. The MRSA risk weight calculation for trading book securitization positions is generally based on the same methodologies which apply to banking book securitization positions. More details on the approaches are provided in section “Regulatory Securitization Framework” as well as in section “Trading Market Risk”.

Trading Book Securitization Positions Retained or Purchased by Risk Weight Band subject to the Market Risk Standardized Approach (MRSA)

	Dec 31, 2015				Dec 31, 2014			
	Exposure amount		Capital requirements, MRSA		Exposure amount		Capital requirements, MRSA	
in € m.	Securitization	Re-Securitization	Securitization	Re-Securitization	Securitization	Re-Securitization	Securitization	Re-Securitization
≤ 10 %	11,746	0	18	0	4,540	0	26	0
> 10 ≤ 20 %	6,009	0	69	0	4,568	0	51	0
> 20 ≤ 50 %	799	179	24	5	1,289	249	29	8
> 50 ≤ 100 %	1,166	122	74	8	582	100	35	6
> 100 ≤ 350 %	686	62	25	9	533	96	73	14
> 350 ≤ 650 %	1,054	13	35	4	174	36	63	13
> 650 < 1,250 %	360	0	5	0	81	18	45	11
1,250 %	2,656	182	348	182	1,008	302	1,008	302
Total securitization positions retained or purchased	**24,476**	**558**	**595**	**209**	12,774	801	1,329	353

On a year to year comparison the trading book securitization positions increased mainly in the risk weight buckets ≤ 10 % and 1,250 % due to positions contributing to the exposure amount but subject to an own funds requirements cap according to Article 335 CRR. Furthermore a regulatory change which results in the consideration of the sum of net long and net short exposure in comparison to the maximum amount (Article 337 (4) CRR) increased the trading book securitization exposure significantly.

Re-securitization Positions

Trading book re-securitization exposure is reduced by 56 % as a result of hedging being recognized according to Articles 327-332 CRR.

Re-Securitization Positions Retained or Purchased (Exposure Amount)

	Dec 31, 2015				Dec 31, 2014			
	Banking Book		Trading Book		Banking Book		Trading Book	
in € m.	Before hedging/ insurances	After hedging/ insurances	Before hedging/ insurances	After hedging/ insurances	Before hedging/ insurances	After hedging/ insurances	Before hedging/ insurances	After hedging/ insurances
Re-Securitization Positions	849	849	1,255	558	1,250	1,250	1,313	801

Risk mitigation in the form of financial guarantees has not been applied to our re-securitization positions in neither the banking nor the trading book.

Securitization Activities

The 2015 year-end amounts in the tables below show a decrease of our securitization sponsor activity compared with 2014. An increase as of year-end 2015 of our securitization originator activity in the banking book predominately concerned the exposure type “Loans to corporates or SMEs” dominated by the synthetic transactions executed by the Credit Portfolio Strategies Group (“CPSG”). Securitization activities in the trading book decreased by 30 % to € 26.6 billion due to the general decline of the US commercial real estate market.

Securitization Activity – Total Outstanding Exposures Securitized (i.e., the underlying pools) by Exposure Type within the Banking Book

	Originator			Sponsor	
	Dec 31, 2015		2015	Dec 31, 2015	
in € m.	Traditional	Synthetic	Realized gains (losses) from sales/ liquidations	Traditional	Synthetic
Residential mortgages	0	0	0	0	0
Commercial mortgages	488	0	7	0	0
Credit card receivables	0	0	0	0	0
Leasing	0	0	0	0	0
Loans to corporates or SMEs (treated as corporates)[1]	0	14,640	0	772	0
Consumer loans	0	0	0	0	0
Trade receivables	0	0	0	0	0
Covered Bonds	0	0	0	0	0
Other liabilities	0	0	0	0	0
Other assets	0	0	0	0	0
Total Outstanding Exposures Securitized[2]	488	14,640	7	772	0

[1] SMEs are small- or medium-sized entities.
[2] For a regulatory assessment of our exposure to credit risk in relation to securitization activity in the banking book see table “Banking Book Securitization Positions Retained or Purchased by Risk Weight Band”.

	Originator			Sponsor	
	Dec 31, 2014		2014	Dec 31, 2014	
in € m.	Traditional	Synthetic	Realized gains (losses) from sales/ liquidations	Traditional	Synthetic
Residential mortgages	0	0	0	0	0
Commercial mortgages	1,279	0	23	0	0
Credit card receivables	0	0	0	0	0
Leasing	89	0	0	43	0
Loans to corporates or SMEs (treated as corporates)[1]	0	7,594	0	689	0
Consumer loans	0	0	0	0	0
Trade receivables	0	0	0	547	0
Covered Bonds	0	0	0	0	0
Other liabilities	0	0	0	0	0
Other assets	0	0	0	0	0
Total Outstanding Exposures Securitized[2]	1,368	7,594	23	1,279	0

[1] SMEs are small- or medium-sized entities.
[2] For a regulatory assessment of our exposure to credit risk in relation to securitization activity in the banking book see table “Banking Book Securitization Positions Retained or Purchased by Risk Weight Band”.

The higher exposure originated via synthetic securitizations in 2015 compared to 2014 in the banking book is mainly driven by increased market activity within “Loans to corporate and SMEs” securitizations resulting from a general market recovery in this segment.

Securitization Activity – Total Outstanding Exposures Securitized by Exposure Type within the Trading Book

	Originator			Sponsor[1]	
	Dec 31, 2015		2015	Dec 31, 2015	
in € m.	Traditional	Synthetic	Realized gains (losses) from sales/ liquidations	Traditional	Synthetic
Residential mortgages	0	0	0	1,572	0
Commercial mortgages	8,287	0	73	15,106	0
Credit card receivables	0	0	0	0	0
Leasing	0	0	0	0	0
Loans to corporates or SMEs (treated as corporates)[2]	0	0	0	0	0
Consumer loans	0	0	0	0	0
Trade receivables	0	0	0	0	0
Covered Bonds	0	0	0	0	0
Other liabilities	0	0	0	0	0
Other assets	1,631	0	0	0	0
Total Outstanding Exposures Securitized[3]	9,918	0	73	16,678	0

[1] Included under sponsor is the amount € 15.1 billion exposures securitized, of which we originated € 6.3 billion, also included under originator.
[2] SMEs are small- or medium-sized entities.
[3] For a regulatory assessment of our exposure to credit risk in relation to securitization activity in the trading book see table “Trading Book Securitization Positions Retained or Purchased by Risk Weight Band subject to the MRSA”.

	Originator			Sponsor[1]	
	Dec 31, 2014		2014	Dec 31, 2014	
in € m.	Traditional	Synthetic	Realized gains (losses) from sales/ liquidations	Traditional	Synthetic
Residential mortgages	725	0	0	3,553	0
Commercial mortgages	12,179	0	174	20,049	0
Credit card receivables	0	0	0	0	0
Leasing	0	0	0	0	0
Loans to corporates or SMEs (treated as corporates)[2]	0	0	0	0	0
Consumer loans	0	0	0	0	0
Trade receivables	0	0	0	0	0
Covered Bonds	0	0	0	0	0
Other liabilities	0	0	0	0	0
Other assets	1,451	0	0	0	0
Total Outstanding Exposures Securitized[3]	14,354	0	174	23,601	0

[1] Included under sponsor is the amount € 19.3 billion exposures securitized, of which we originated € 7.4 billion, also included under originator.
[2] SMEs are small- or medium-sized entities.
[3] For a regulatory assessment of our exposure to credit risk in relation to securitization activity in the trading book see table “Trading Book Securitization Positions Retained or Purchased by Risk Weight Band subject to the MRSA”.

Market Risk Exposure

Allocation of Positions to the Regulatory Trading book

For European regulatory purposes all our positions must be assigned to either the trading book or the banking book. This classification of a position impacts its regulatory treatment, in particular the calculation of the regulatory capital charges for the position. We define the criteria for the allocation of positions to either the trading book or banking book in internal policy documents, which were based on the respective requirements applicable to the Group contained in Articles 102 to 106 of the CRR.

A central function in Finance is responsible for the policy guidance and is the centre of competence with regard to questions concerning its application. The Finance functions for the individual business areas are responsible for the classification of positions in line with the policy requirements.

We include positions in the trading book that are financial instruments or commodities which are held with trading intent or which are held for the purpose of hedging other trading book positions.

Positions included in the trading book must be free of any restrictive covenants regarding their transferability or able to be hedged.

Moreover, positions assigned to the trading book must be valued daily. Further information on the valuation methodology that we used is provided in Annual Report Note 14 “Financial Instruments carried at Fair Value”.

As part of the ongoing procedures to confirm that the inclusion of positions in the trading book continues to be in line with the above referenced internal policy guidance, the Finance functions for our trading businesses carry out a global review of the classification of positions on a quarterly basis. The results of the review are documented and presented to the Trading Book Review Forum with representatives from Finance and Legal.

Re-allocations of positions between the trading book and the banking book may only be carried out in line with the internal policy guidance. They must be documented and are subject to approval by the central function in Finance described above.

Balance Sheet and Trading Book Assets and Liabilities

The tables below present trading or banking book splits for assets and liabilities of our balance sheet from a regulatory point of view.

Regulatory Trading Book Assets and Liabilities as part of the Balance Sheet

	Dec 31, 2015			Dec 31, 2014		
in € m.	Balance Sheet	Trading Book	Banking Book[1]	Balance Sheet	Trading Book	Banking Book[1]
Assets						
Cash and central bank balances[2]	96,940	2,177	94,763	74,482	650	73,833
Interbank balances (w/o central banks)[2]	12,842	2,575	10,267	9,090	749	8,341
Central banks funds sold and securities purchased under resale agreements[3]	22,456	3,588	18,868	17,796	3,888	13,908
Securities borrowed	33,557	33,250	307	25,834	25,730	103
Financial assets at fair value through profit or loss	820,883	770,642	50,240	942,924	891,945	50,979
Trading Assets[4]	196,035	177,417	18,618	195,681	176,591	19,090
Positive market values from derivative financial instruments	515,594	512,344	3,251	629,958	625,595	4,363
Financial assets designated at fair value through profit or loss	109,253	80,882	28,371	117,285	89,759	27,527
Financial assets available for sale	73,583	47	73,536	64,297	110	64,187
Equity method investments	1,013	0	1,013	4,143	3	4,140
Loans	427,749	13,555	414,194	405,612	10,593	395,019
Property and equipment	2,846	0	2,846	2,909	0	2,909
Goodwill and other intangible assets	10,078	0	10,078	14,951	0	14,951
Other assets[5,6]	118,137	45,156	72,981	137,980	51,732	86,248
Assets for current tax	1,285	0	1,285	1,819	0	1,819
Deferred tax assets	7,762	0	7,762	6,865	0	6,865
Total Assets	**1,629,130**	**870,990**	**758,140**	**1,708,703**	**985,401**	**723,303**

[1] Includes exposure in relation to non regulatory consolidated entities.
[2] In 2015, comparatives have been restated. See Note 1 "Significant Accounting Policies and Critical Accounting Estimates – Significant Changes in Estimates and Changes in Presentation" for detailed information.
[3] Includes as of December 31, 2015 and as of December 31, 2014 only securities purchased under resale agreements.
[4] The regulatory banking book primarily includes debt securities as part of our liquidity portfolio as well as traded loans which do not fulfill the criteria for being allocated to the regulatory trading book.
[5] Regulatory trading book positions mainly include brokerage receivables and derivatives qualifying for hedge accounting.
[6] Comparatives have been restated increasing regulatory trading book figures by € 17.2 billion and decreasing regulatory banking book figures respectively.

	Dec 31, 2015			Dec 31, 2014		
in € m.	Balance Sheet	Trading Book	Banking Book	Balance Sheet	Trading Book	Banking Book
Financial liabilities at fair value through profit or loss	599,754	592,020	7,733	697,699	690,167	7,532
Trading liabilities	52,304	51,614	690	41,843	41,602	241
Negative market values from derivative financial instruments	494,076	491,574	2,502	610,202	607,376	2,826
Financial liabilities designated at fair value through profit or loss[1]	44,852	40,310	4,541	37,131	32,665	4,466
Investment contract liabilities	8,522	8,522	0	8,523	8,523	0
Remaining Liabilities[2]	961,752	199,085	762,667	937,782	202,507	735,274
Total Liabilities	**1,561,506**	**791,105**	**770,400**	**1,635,481**	**892,674**	**742,806**

[1] Comparatives have been restated decreasing regulatory trading book figures by € 4.4 billion and increasing regulatory banking book figures respectively.
[2] Comparatives have been restated increasing regulatory trading book figures by € 140.2 billion and decreasing regulatory banking book figures respectively.

The vast majority of our trading book assets on our balance sheet are financial assets at fair value through profit or loss. The total decrease in balance sheet assets of € 79.6 billion compared to year-end 2014 is mainly driven by an decrease in positive market values from derivative financial instruments, partially offset by an increase in cash and central bank balances and loans.

Within liabilities the vast majority of our trading book is comprised of financial liabilities at fair value through profit or loss. The total decrease in balance sheet liabilities of € 74.0 billion compared to year-end 2014 is mainly driven by an decrease in negative market values from derivative financial instruments, partially offset by an increase in remaining liabilities.

Value-at-Risk Results

Value-at-Risk Metrics of Trading Units of Deutsche Bank Group (excluding Postbank)

The table below presents the value-at-risk metrics calculated with a 99 % confidence level and a one-day holding period for our trading units. They exclude contributions from Postbank trading book which are calculated on a stand-alone basis.

Value-at-Risk of our Trading Units by Risk Type

	Total		Diversification effect		Interest rate risk		Credit spread risk		Equity price risk		Foreign exchange risk[1]		Commodity price risk	
in € m.	2015	2014	2015	2014	2015	2014	2015	2014	2015	2014	2015	2014	2015	2014
Average	43.3	51.6	(40.9)	(34.9)	20.3	25.1	30.9	31.2	16.6	14.8	15.0	13.2	1.3	2.2
Maximum	65.6	71.4	(59.2)	(61.9)	30.2	42.8	40.3	38.9	28.3	24.6	25.0	21.2	4.0	10.2
Minimum	28.7	35.4	(31.0)	(24.4)	16.2	15.7	24.0	25.9	9.2	9.9	6.0	6.9	0.5	0.7
Period-end	33.3	49.0	(38.8)	(36.0)	18.3	18.1	26.2	29.6	11.7	15.5	15.1	20.5	0.9	1.3

[1] Includes value-at-risk from gold and other precious metal positions.

The average value-at-risk over 2015 was € 43.3 million, which is a decrease of € 8.3 million compared with the full year 2014. The average interest rate value-at-risk decreased on average, and there were increases in the average Foreign Exchange and Equity value-at-risk. Foreign Exchange value at risk increased due to an increase in U.S. dollar exposure on average compared to the full year 2014. Equity value-at-risk increased resulting from an increase in exposure on individual equities. Additionally increases in market volatility within the one year time horizon used in VaR have also contributed to the increased Foreign Exchange and Equity value-at-risk numbers. The overall reduction in VaR is driven by the reduction in the Interest Rate value-at-risk and an improvement in the portfolio diversification.

Regulatory Trading Market Risk Measures (excluding Postbank)

The table below presents the stressed value-at-risk metrics calculated with a 99 % confidence level and a one-day holding period for our trading units. It excludes contributions from Postbank trading book which are calculated on a stand-alone basis

Average, Maximum and Minimum Stressed Value-at-Risk by Risk Type

	Total		Diversification effect		Interest rate risk		Credit spread risk		Equity price risk		Foreign exchange risk[1]		Commodity price risk	
in € m.	2015	2014	2015	2014	2015	2014	2015	2014	2015	2014	2015	2014	2015	2014
Average	105.1	109.6	(114.5)	(125.4)	60.7	64.4	106.7	124.0	22.8	11.5	26.7	29.7	2.5	5.4
Maximum	135.7	161.1	(186.7)	(168.0)	84.2	85.9	154.5	142.8	68.7	42.6	59.8	70.3	7.6	16.7
Minimum	82.4	81.6	(71.7)	(102.3)	45.1	48.8	82.6	100.7	0.1	0.0	5.7	13.7	0.7	1.4
Period-end	106.3	120.7	(98.0)	(139.3)	45.5	52.3	90.9	140.8	44.1	18.8	22.6	46.2	1.2	1.8

[1] Includes value-at-risk from gold and other precious metal positions.

The average stressed value-at-risk was € 105.1 million over 2015, a decrease of € 4.5 million compared with the full year 2014. There was a reduction in the credit spread stressed value-at-risk, partly offset by an increase in equity stressed value-at-risk. Equity stressed value-at-risk increased due to increased single name exposures and a reduction in loss protection on average compared to the full year 2014. The average and period end credit spread stressed value-at-risk decreases were driven by an improvement to the correlations approach used to aggregate certain components within credit spread value-at-risk.

For regulatory reporting purposes, the incremental risk charge for the respective reporting dates represents the higher of the spot value at the reporting dates, and their preceding 12-week average calculation. In contrast to this, the incremental risk charge amounts presented for the reporting dates and periods below are the spot values and the average, maximum and minimum values for the 12-week period preceding these reporting dates.

Average, Maximum and Minimum Incremental Risk Charge of Trading Units (with a 99.9 % confidence level and one-year capital horizon)[1,2,3]

	Total		Fixed Income & Currencies		Structured Finance		Emerging Markets - Debt		NCOU		Other	
in € m.	2015	2014	2015	2014	2015	2014	2015	2014	2015	2014	2015	2014
Average	974.9	811.9	520.3	532.8	298.4	152.2	235.2	164.1	17.6	(3.6)	(96.8)	(33.5)
Maximum	1,020.8	1,065.4	673.2	719.3	404.6	189.3	299.7	220.2	84.8	39.4	(56.6)	64.7
Minimum	843.8	647.9	448.2	381.8	203.4	106.3	144.2	119.5	(4.8)	(25.8)	(124.1)	(88.0)
Period-end	843.8	1,037.8	448.2	603.4	203.4	159.8	264.4	170.5	3.0	39.4	(75.2)	64.7

[1] Amounts show the bands within which the values fluctuated during the 12-week period preceding December 31, 2015 and December 31, 2014.
[2] All liquidity horizons are set to 12 months
[3] For year-end 2014, the spot IRC was calculated as the weekly spot plus the average unrated add-on calculated from the period 14-November to 31-December 2014 to reflect the time period from the date of the BaFin letter to the end of the year. For year-end 2015, the spot IRC was calculated as the weekly spot plus the spot unrated add-on.

The incremental risk charge as at the end of 2015 was € 844 million a decrease of € 194 million (19 %) compared with year end 2014. The 12-week average incremental risk charge as at the end of 2015 was € 975 million and thus € 163 million (20 %) higher compared with the average for the 12-week period ended December 31, 2014. The decrease in the year-end charge was driven by inventory reductions in Distressed Products and Credit Flow Trading. For the 2014 year-end calculation, the bank was requested by BaFin to include new add-ons for Defaulted Debt and Unrated positions. As these add-ons were included for the entire Q4 2015, the average charge was higher than during the same period in 2014.

For regulatory reporting purposes, the comprehensive risk measure for the respective reporting dates represents the higher of the internal spot value at the reporting dates, their preceding 12-week average calculation, and the floor, where the floor is equal to 8 % of the equivalent capital charge under the standardised approach securitization framework.

Average, Maximum and Minimum Comprehensive Risk Measure of Trading Units (with a 99.9 % confidence level and one-year capital horizon)[1,2,3]

in € m.	2015	2014
Average	188.4	246.9
Maximum	197.3	257.5
Minimum	180.3	223.0
Period-end	190.2	222.0

[1] Regulatory Comprehensive Risk Measure calculated for the 12-week period ending December 31.
[2] Period end is based on the internal model spot value.
[3] All liquidity horizons are set to 12 months.

The comprehensive risk measure as at the end of 2015 was € 190 million and decreased by € 32 million (14 %) compared with year end 2014. The 12-week average of our comprehensive risk measure as at the end of 2015 was € 188 million and thus € 59 million (24 %) lower compared with the average for the 12-week period ended December 31, 2014. The reduction was due to continued de-risking on this portfolio.

Market Risk Standardized Approach

As of December 31, 2015, the securitization positions, for which the specific interest rate risk is calculated using the market risk standardized approach, generated capital requirements of € 810.8 million corresponding to risk weighted-assets of € 10.1 billion. As of December 31, 2014 these positions generated capital requirements of € 1,682 million corresponding to risk weighted-assets of € 21.0 billion. The reduction is due to de-risking, which has been offset by an increase following the end of the transitional period granted by Article 337 (4) CRR as the calculation is now based on the sum of the weighted net long positions and the sum of the weighted net short positions rather than the larger of the two sums. Additionally there has been an increase from foreign exchange.

For nth-to-default credit default swaps the capital requirement increased to €6 million corresponding to risk weighted-assets of € 78 million compared with € 1 million and € 19 million as of December 31, 2014 caused by the aforementioned regulatory change.

Additionally, the capital requirement for investment funds under the market risk standardized approach was € 70 million corresponding to risk weighted-assets of € 873 million as of December 31, 2015, compared with € 91 million and € 1,139 million as of December 31, 2014.

The capital requirement for longevity risk under the market risk standardized approach was € 36 million for NCOU and PIRM corresponding to risk weighted-assets of € 451 million as of December 31, 2015, compared with € 26 million and € 326 million as of December 31, 2014.

Economic Capital Usage for our Trading Market Risk

The economic capital usage for trading market risk was € 4.6 billion at year-end 2015 compared with € 5.0 billion at year-end 2014, a reduction of € 397 million or 8 %. The decrease was mainly driven by reductions in the credit spread and foreign exchange components.

Postbank's contribution to the economic capital usage for our trading market risk was minimal.

Regulatory prudent valuation of assets carried at fair value

Pursuant to Article 34 CRR institutions shall apply the prudent valuation requirements of Article 105 CRR to all assets measured at fair value and shall deduct from CET1 capital the amount of any additional value adjustments necessary.

We determined the amount of the additional value adjustments based on the methodology defined in the EBA final draft Regulatory Technical Standard.

We agreed with the ECB to apply this standard in our regulatory capital calculation from 30 September 2015.

At 31 December 2015 the amount of the additional value adjustments was € 1.9 billion.

Based on Article 159 CRR the total amount of general and specific credit risk adjustments and additional value adjustments for exposures that are treated under the Internal Ratings Based Approach for credit risk and that are in scope of the expected loss calculation may be subtracted from the total expected loss amount related to these exposures. Any remaining positive difference must be deducted from CET1 capital pursuant to Article 36 (1) lit. d. CRR.

At 31 December 2015 the reduction of the expected loss from subtracting the additional value adjustments was € 0.6 billion, which partly mitigated the negative impact of the additional value adjustments on our CET1 capital.

Economic Capital Usage for our Nontrading Market Risk Portfolios per Business Area

Economic Capital Usage of Nontrading Portfolios by Business Division

			2015 increase (decrease) from 2014	
in € m.	Dec 31, 2015	Dec 31, 2014	in € m.	in %
Corporate Banking & Securities	1,241	382	859	225
Private & Business Clients	4,262	3,196	1,066	33
Global Transaction Banking	195	172	23	13
Deutsche Asset & Wealth Management	1,989	1,748	241	14
Non-Core Operations Unit	416	804	(388)	(48)
Consolidation & Adjustments	4,775	3,596	1,179	33
Total	**12,878**	9,898	2,980	30

Nontrading market risk economic capital usage totaled € 12,878 million as of December 31, 2015, which is € 2,980 million, or 30 %, above our economic capital usage at year-end 2014.

The increase in economic capital usage for CB&S was largely driven by methodology enhancements with regard to capturing spread risk of securities held as liquidity reserve managed by Treasury. The increase in economic capital usage for PBC was mainly driven by methodology enhancements with regard to equity investments in other companies. The increase in economic capital usage for Deutsche AWM was driven by changed diversification effects and methodology enhancements. The decrease for NCOU was mainly caused by further de-risking initiatives within the portfolio.

For Consolidation & Adjustments the increase in economic capital usage was largely caused by an increased structural FX risk exposure as well as methodology enhancements with regard to equity compensation risk.

Equity Investments

Accounting and Valuation of Equity Investments

Outside of trading, equity investments which are neither consolidated for regulatory purposes nor deducted from our regulatory capital are held as equity positions in the regulatory banking book. In our consolidated balance sheet, these equity investments are classified as “Financial assets available for sale (“AFS”)”, “Equity method investments” or “Financial assets designated at fair value through profit or loss” .

For details on our accounting and valuation policies related to AFS equity instruments and investments in associates and joint ventures please refer to Notes 1 “Significant Accounting Policies and Critical Accounting Estimates”, 14 “Financial Instruments carried at Fair Value” and 17 “Equity Method Investments” of our Annual Report 2015.

Equity Investments Held

The tables below present IFRS classifications and the gains (losses) for equity investments held. These equity investments principally constitute equity positions in the regulatory banking book or capital deductions according to CRR. However, the following aspects need to be considered when comparing the equity investments held – presented below – with the equity position in the regulatory banking book:

- Equity investments held by entities, which are consolidated for IFRS purposes but not consolidated for regulatory purposes, are included in the tables.
- Collective investment undertakings, which are shown as IFRS, are treated differently for regulatory purposes and are not included in the tables.
- Entities holding equity investments which are considered for regulatory purposes but not consolidated according to IFRS, do not provide IFRS balance sheet and profit or loss information, and are excluded from these tables. The regulatory exposure value ("EAD") of these excluded equity investments amounted to € 14 million as of December 31, 2015, and € 13 million as of December 31, 2014.
- Other positions like equity underlyings resulting from derivative transactions or certain subordinated bonds which from a regulatory point of view are also assigned to the exposure class "Equity in the banking book" are excluded from the tables. Their EAD amounted to € 233 million as of December 31, 2015, and € 304 million as of December 31, 2014.
- The regulatory equity position includes € 1.9 billion EAD as of December 31, 2015, and € 1.9 billion EAD as of December 31, 2014, in respect of equity investments which are Group-internal from an IFRS perspective.
- "Non-exchange-traded positions" combine private equity exposures in sufficiently diversified portfolios and other exposures according to Article 447 (c) CRR.

Equity Investments According to IFRS Classification

	Carrying value	
in € m.	Dec 31, 2015	Dec 31, 2014
Financial assets available for sale – equity instruments	**1,689**	1,928
Exchange-traded positions	293	291
Non-exchange-traded positions	1,396	1,637
Equity method investments	**1,010**	4,134
Exchange-traded positions	31	3,181
Non-exchange-traded positions	979	953
Financial assets designated at fair value through profit or loss – equity instruments	**1**	2
Exchange-traded positions	0	0
Non-exchange-traded positions	1	2
Total equity investments	**2,700**	6,064

Type and nature of these equity investments predominantly relate to investments as described in the "Investment Risk" section of the Risk Report in the Annual Report.

A slight difference between the carrying value of the investment positions and their fair value was only observable for the exchange-traded equity method investments, which had a carrying value of € 0.03 billion and a fair value of € 0.05 billion as of December 31, 2015 compared with € 3.2 billion and a fair value of € 3.2 billion as of December 31, 2014. The movement on the total equity investments mainly reflect the reclassification of Hua Xia Bank Co. Ltd. ("Hua Xia") from 'equity method investments' to 'assets held-for-sale', which is further explained under Note 26 "Non-Current Assets and Disposal Groups Held for Sale" of our Annual Report 2015.

Realized Gains (Losses) in the Reporting Period and Unrealized Gains (Losses) at Year-end from Equity Investments

in € m.	2015	2014
Gains and losses on disposal	171	202
Impairments	(611)	(54)
Pro-rata share of net income (loss)	708	569
Total realized gains (losses) from equity investments	**268**	716

	Dec 31, 2015	Dec 31, 2014
Unrealized revaluation gains (losses)	778	658
Difference between carrying value and fair value	19	46
Total unrealized gains (losses) from equity investments	**797**	704

For AFS equity investments, the components considered are realized gains and losses from sales and liquidations as well as unrealized revaluation gains and losses and impairments. For equity method investments, the gain and loss elements consist of realized gains and losses from sales and liquidations, pro-rata share of net income (loss), impairments and unrealized revaluation gains (losses) in form of the differences between carrying amounts and fair values. In this respect, the realized gains (losses) on disposals, the impairments and the pro-rata share of net income (loss) are referring to the reporting period 2015 and 2014 whereas the unrealized revaluation gains (losses) as well as the difference between the carrying values and the fair values for the at equity investments represent the amounts as of December 31, 2015, and December 31, 2014.

Operational Risk Exposure

Operational Risk – Risk Profile

Operational Risk Losses by Event Type (Profit and Loss view)

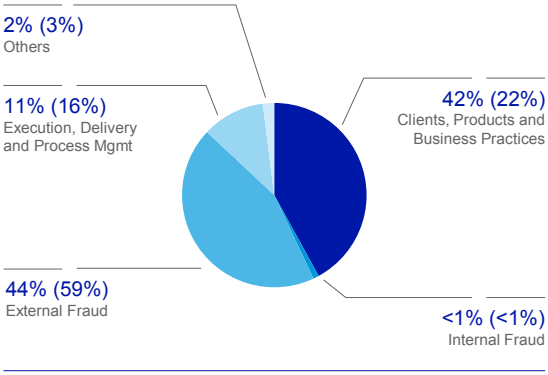
in € m.	2015	2014[1]
Clients, Products and Business Practices	3,667	1,806
Internal Fraud	1,338	523
External Fraud	475	20
Execution, Delivery and Process Management	280	70
Others	22	61
Group	**5,782**	2,480

[1] Changed 2014 loss figures due to subsequent capture of losses and reclassification.

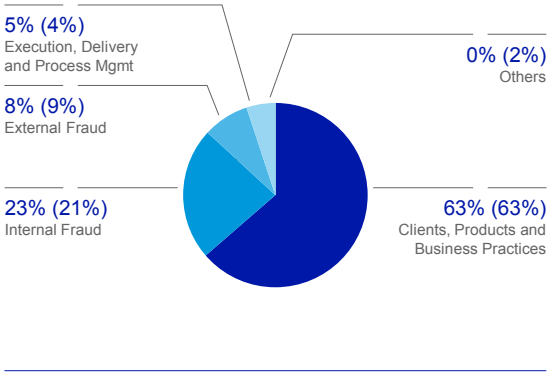
Profit and loss based operational losses increased by € 3.3 billion or 133 % compared to year-end 2014. The increase was predominantly driven by the event types “Clients, Products and Business Practices” and “Internal Fraud”, due to settlements reached and increased litigation reserves for unsettled cases. The increase in the event type “External Fraud” is driven by a provision for equity trading fraud. The event type “Execution, Delivery and Process Management” increased, other event types decreased slightly.

Operational Losses by Event Type occurred in the period 2015 (2010-2014)(1)

Frequency of Operational Losses (first posting date)



Distribution of Operational Losses (posting date)



[1] Percentages in brackets correspond to loss frequency respectively to loss amount for losses occurred in 2010-2014 period. Frequency and amounts can change subsequently.

The above left pie chart “Frequency of Operational Losses” summarizes operational risk events which occurred in 2015 compared to the five-year period 2010-2014 in brackets based on the period in which a loss was first recognized for that event. For example, for a loss event that was first recognized in 2002 with an additional profit/loss event recognized in 2015, the frequency chart would not include the loss event, but the loss distribution chart would include the profit/loss recognized in the respective period.

Frequencies are dominated by the event type “External Fraud” with a frequency of 44 % of all observed loss events. The event types “Execution, Delivery and Process Management” contribute 11 % of the events and “Clients, Product and Business Practices” 42%. Others are stable at 2 %. The event type “Internal Fraud” has a low frequency, resulting in 1 % of the loss events in the period 2015. This is unchanged compared to 2010-2014.

The above right pie chart “Distribution of Operational Losses” summarizes operational risk loss postings recognized in the profit/loss in 2015 compared to the five-year period 2010-2014. The event type “Clients, Product and Business Practices” dominates the operational loss distribution with a share of 63 % and is determined by outflows related to litigation, investigations and enforcement actions. “Internal Fraud” has the second highest share (23 %) which is related to regulatory events we have experienced in recent years. Finally, the event types “External Fraud” (8 %) and “Execution, Delivery and Process Management” (5 %) can be considered minor, compared to other event types.

Economic Capital usage for Operational Risks

Economic Capital Usage for Operational Risk by Business Division

			2015 increase (decrease) from 2014	
in € m.	Dec 31, 2015	Dec 31, 2014	in € m.	in %
Corporate Banking & Securities	6,778	3,569	3,209	1
Private & Business Clients	871	1,088	(217)	(0)
Global Transaction Banking	1,077	150	927	6
Deutsche Asset & Wealth Management	1,054	722	332	0
Non-Core Operations Unit	463	2,070	(1,607)	(1)
Total economic capital usage for operational risk	**10,243**	7,598	2,645	0

The economic capital usage for operational risk as of December 31, 2015 was € 10.2 billion, € 2.6 billion or 35 % higher compared to year-end 2014. The increase was mainly driven by an early recognition of the impact of model enhancements to our Advanced Measurement Approach (AMA) model that were implemented in the second quarter of 2014 and which initially led to additional economic capital of € 1.1 billion. These model enhancements reflected materialized operational risk losses, which are largely due to outflows related to litigation, investigations and enforcement actions. The increase in economic capital is spread across all business divisions.

The economic capital continues to include the safety margin applied in our AMA model. It was implemented in 2011 to cover unforeseen legal risks from the recent financial crisis. The model enhancements mentioned above are intended to replace the safety margin by a more risk sensitive measure. Therefore the impact of the model change above the safety margin is recognized in the economic capital. This will result in higher economic capital even after we remove the safety margin.

Role of Corporate Insurance/Deukona

The definition of our insurance strategy and supporting insurance policy and guidelines is the responsibility of our specialized unit Corporate Insurance/Deukona (CI/D). CI/D is responsible for our global corporate insurance policy which is approved by our Management Board.

CI/D is responsible for acquiring insurance coverage and for negotiating contract terms and premiums. CI/D also has a role in the allocation of insurance premiums to the businesses. CI/D specialists assist in devising the method for reflecting insurance in the capital calculations and in arriving at parameters to reflect the regulatory requirements. They validate the settings of insurance parameters used in the AMA model and provide respective updates. CI/D is actively involved in industry efforts to reflect the effect of insurance in the results of the capital calculations.

We buy insurance in order to protect ourselves against unexpected and substantial unforeseeable losses. The identification, definition of magnitude and estimation procedures used are based on the recognized insurance principles and methods. The maximum limit per insured risk takes into account the reliability of the insurer and a cost/benefit ratio, especially in cases in which the insurance market tries to reduce coverage by restricted/limited policy wordings and specific exclusions.

We maintain a number of captive insurance companies, both primary and re-insurance companies. However, insurance contracts provided are only considered in the modeling/calculation of insurance-related reductions of operational risk capital requirements where the risk is re-insured in the external insurance market.

The regulatory capital figure includes a deduction for insurance coverage amounting to € 281 million as of December 31, 2015 compared with € 564 million as of December 31, 2014. Currently, no other risk transfer techniques beyond insurance are recognized in the AMA model.

CI/D selects insurance partners in strict compliance with the regulatory requirements specified in the CRR and based on recommendations of the respective subject matter experts on the recognition of insurance in advanced measurement approaches. The insurance portfolio, as well as CI/D activities, is audited by Group Audit on a risk-based approach.

Business Risk Exposure

Economic capital for business risk captures strategic risk, which also implicitly includes elements of refinancing and reputational risk, and a tax risk component.

Economic Capital Usage for Business Risk by Business Division

			2015 increase (decrease) from 2014	
in € m.	Dec 31, 2015	Dec 31, 2014	in € m.	in %
Corporate Banking & Securities	5,662	2,581	3,082	119
Private & Business Clients	0	0	0	0
Global Transaction Banking	7	4	2	56
Deutsche Asset & Wealth Management	1	1	0	51
Non-Core Operations Unit	261	499	(238)	(48)
Total	**5,931**	3,084	2,846	92

Economic capital usage for business risk as of December 31, 2015 was € 5.93 billion, representing a € 2.85 billion (92 %) increase compared to year-end 2014. It principally comprises strategic risk economic capital of € 5.67 billion, with tax risk accounting for the remaining € 260 million. The increase in 2015 was driven by strategic risk and resulted from a combination of planned restructuring costs and lower earnings expectations for 2016. In line with earnings growth as per Deutsche Bank's Strategy 2020, future strategic risk economic capital is broadly expected to decrease.

The strategic risk economic capital model calculates potential unexpected operating losses under severe stress assumptions due to decreases in operating revenues that cannot be compensated by cost reductions. To avoid double-counting, revenue or cost fluctuations related to market risk, credit risk or operational risk are not considered. The model reflects business-specific, historical revenue volatilities as well as the outlook for key underlying macroeconomic or financial revenue drivers. As of December 31, 2015, strategic risk economic capital of € 5.67 billion (excluding tax risk) was almost entirely allocated to Corporate Banking & Securities (€ 5.66 billion), while the tax risk component was allocated to Non-Core Operations Unit (€ 260 million).

Liquidity Risk Exposure

Liquidity Requirements under CRR

As part of the Basel 3 rules, the Basel Committee on Banking Supervision specified two minimum liquidity standards for banks:

The Liquidity Coverage Ratio (LCR): Finalized by the Basel Committee in January 2013, the LCR is intended to promote the short-term resilience of a bank's liquidity risk profile over a 30 day stress scenario. The ratio is defined as the amount of High Quality Liquid Assets ("HQLA") that could be used to raise liquidity, measured against the total volume of net cash outflows, arising from both actual and contingent exposures, in a stressed scenario.

This requirement has been implemented into European law, via the Commission Delegated Regulation (EU) 2015/61, adopted in October 2014. Compliance with the LCR, was required in Europe from October 1, 2015. The Liquidity Coverage Ratio is subject to a transitional phase-in period, which started at 60 % on 1 October 2015, rising to 70 % from 1 January 2016, 80 % in 2017 and 100 % in 2018.

Our LCR of 119 % as of December 31, 2015 has been calculated in accordance with the Commission Delegated Regulation (EU) 2015/61, (calculated in accordance with the EBA's Implementing Technical Standard on Supervisory Reporting with regard to the LCR).

LCR components

in € bn.	Dec 31, 2015 Liquidity Value (weighted)
High quality liquid assets	**192**
Gross inflows	111
Gross outflows	272
Net outflows	**161**
LCR ratio in %	119

The Net Stable Funding Ratio (NSFR): Basel 3 also contains a proposal to introduce a net stable funding ratio (NSFR) to reduce medium to long-term funding risks by requiring banks to fund their activities with sufficiently stable sources of funding. The NSFR requires banks to maintain a stable funding profile in relation to their on- and off-balance sheet activities. The ratio is defined as the amount of Available Stable Funding (the portion of capital and liabilities expected to be a stable source of funding), relative to the amount of Required Stable Funding (a function of the liquidity characteristics of various assets held).

Although the NSFR is scheduled to become a minimum standard internationally, by January 1, 2018, the ratio is subject to national implementation. In Europe, rules on the NSFR are due to be finalized by the European Commission, in the form of a Legislative Proposal due at the end of 2016. Therefore, for European banks, the final format of the ratio and associated implementation timeframe has not yet been confirmed.

Asset Encumbrance

On June 27, 2014 the EBA published guidelines on the disclosure of encumbered and unencumbered assets as mandated by Article 443 CRR. They represent a first step in determining a framework for asset encumbrance and will form the basis of the binding technical standards that the EBA will develop by 2016. We have used these guidelines to complete the following section.

Institutions are instructed to use median values of at least quarterly data on a rolling basis however for the first reporting period spot values may be used subject to regulatory approval which was received. Therefore we present 2014 data as of 31 December 2014 and 2015 data based on the median values of the four quarters of 2015.

Encumbered assets primarily comprise those on- and off-balance sheet assets that are pledged as collateral against secured funding, collateral swaps, and other collateralized obligations. Additionally, in line with the EBA technical standards on regulatory asset encumbrance reporting, we consider assets placed with settlement systems, including default funds and initial margins as encumbered, as well as other assets pledged which cannot be freely withdrawn such as mandatory minimum reserves at central banks. We also include derivative margin receivable assets as encumbered under these EBA guidelines.

This section refers to asset encumbrance in the group of institutions consolidated for banking regulatory purposes pursuant to the German Banking Act. Thereunder not included are insurance companies or companies outside the finance sector. Assets pledged by our insurance subsidiaries are included in Note 22 “Assets Pledged and Received as Collateral” of the Consolidated Financial Statements, and restricted assets held to satisfy obligations to insurance companies’ policy holders are included within Note 39 “Information on Subsidiaries” of the Consolidated Financial Statements.

Encumbered and unencumbered assets

Assets

			Dec 31, 2015	
			Unencumbered assets	
in € bn. On-balance sheet	Carrying amount of encumbered assets	Fair value of encumbered assets	Carrying amount of unencumbered assets	Fair value of unencumbered assets
Debt securities	65.6	65.6	144.6	144.6
Equity instruments	50.9	50.9	23.2	23.2
Other assets:	113.4		1,302.9	
Total	229.8		1,470.7	

			Dec 31, 2014	
			Unencumbered assets	
in € bn. On-balance sheet	Carrying amount of encumbered assets	Fair value of encumbered assets	Carrying amount of unencumbered assets	Fair value of unencumbered assets
Debt securities	42.4	42.4	141.8	141.8
Equity instruments	49.7	49.7	19.8	19.8
Other assets:	114.7		1,312.5	
Total	206.7		1,474.1	

Collateral received

in € bn. Off-balance sheet	Dec 31, 2015 Fair value of collateral received Encumbered	 Available for encumbrance
Collateral received:	245.7	47.5
Debt securities	148.8	45.4
Equity instruments	96.9	1.1
Other collateral received	0	1.0
Own debt securities issued other than covered bonds and asset backed securities	0	0

in € bn. Off-balance sheet	Dec 31, 2014 Fair value of collateral received Encumbered	 Available for encumbrance
Collateral received:	201.9	51.2
Debt securities	127.0	48.4
Equity instruments	74.9	1.4
Other collateral received	0	1.5
Own debt securities issued other than covered bonds and asset backed securities	0	0

The above tables set out a breakdown of on- and off-balance sheet items, broken down between encumbered and unencumbered. Any securities borrowed or purchased under resale agreements are shown based on the fair value of collateral received.

For December 2015, on median basis, € 229.8 billion of the Group's on-balance sheet assets were encumbered. These assets primarily related to firm financing of trading inventory and other securities, to funding (i.e., Pfandbriefe and covered bonds) secured against loan collateral and to cash collateral for derivative margin requirements.

For December 2015, on a median basis, the Group had received securities as collateral with a fair value of € 293.2 billion, of which € 245.7 billion were sold or on pledged. These pledges typically relate to trades to facilitate client activity, including prime brokerage, collateral posted in respect of Exchange Traded Funds and derivative margin requirements.

The above tables of encumbered assets include assets that are not encumbered at an individual entity level, but which may be subject to restrictions in terms of their transferability within the group. Such restrictions may be due to local connected lending requirements or similar regulatory restrictions. In this situation it is not feasible to identify individual balance sheet items that cannot be transferred. ‘Own debt securities issued other than covered bonds and asset backed securities’ refers to those own bond holdings that are not derecognized from the balance sheet by a non-IFRS institution. This is not applicable for Deutsche Bank AG.

Encumbered assets/collateral received and associated liabilities

	Dec 31, 2015	
in € bn.	Matching liabilities, contingent liabilities, securities lent	Carrying value of encumbered assets, fair value of encumbered collateral received and own debt securities issued
On-balance/off-balance sheet amount of selected financial liabilities and financial assets	429.6	472.5

	Dec 31, 2014	
in € bn.	Matching liabilities, contingent liabilities, securities lent	Carrying value of encumbered assets, fair value of encumbered collateral received and own debt securities issued
On-balance/off-balance sheet amount of selected financial liabilities and financial assets	382.5	408.7

The above table shows the total amount of encumbered on- and off-balance sheet assets against the corresponding liabilities, contingent liabilities or securities lent that have given rise to the encumbrance.