Genossenschaftliche FinanzGruppe
Volksbanken Raiffeisenbanken

Regulatory Risk Report of the DZ BANK Banking Group as of December 31, 2017

DZ BANK Gruppe

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1 Basis of regulatory risk reporting

DZ BANK AG Deutsche Zentral-Genossenschaftsbank, Frankfurt am Main, (DZ BANK) is the parent credit institution of the DZ BANK banking group pursuant to section 10a (1) of the German Banking Act (KWG). In accordance with article 13 of Regulation (EU) No. 575/2013 (**Capital Requirements Regulation, CRR**), the information provided below by DZ BANK as the highest-level EU parent entity within the meaning of article 4 (1) no. 15 CRR is disclosed in aggregated form at the level of the regulatory banking group.

This report focuses on the regulatory **requirements in the CRR regarding disclosure**, whereas the combined opportunity and risk report ('opportunity and risk report') contained in the DZ BANK Annual Report is oriented to national and international accounting law.

1.1 Legal basis

In December 2010, the Basel Committee on Banking Supervision (BCBS) adopted a global regulatory framework for solvency, leverage, and liquidity (Basel III). Alongside the minimum capital requirements (**Pillar 1**) and the supervisory review process (**Pillar 2**), this framework also sets out the disclosure requirements that form **Pillar 3**. In the European Union, these requirements are implemented in the CRR, which has to be applied directly in the member states, and through Directive 2013/36/EU of the European Parliament and of the Council of June 26, 2013 on access to the activity of credit institutions and the prudential supervision of credit institutions and investment firms, amending Directive 2002/87/EC and repealing Directives 2006/48/EC and 2006/49/EC (**Capital Requirements Directive IV, CRD IV**), which first had to be transposed into national law.

With the publication of this regulatory risk report, DZ BANK is complying with the currently applicable Pillar 3 disclosure requirements pursuant to **Part 8 CRR (articles 431 to 455 CRR)** and the implementation and regulation standards of the European Banking Authority (EBA) that are relevant to disclosure as of December 31, 2017. As of this reporting date, the **Guidelines on disclosure requirements under Part 8 of Regulation (EU) No. 575/2013 (EBA/GL/2016/11)** published by the EBA on July 7, 2017 and the **Guidelines on LCR disclosure to complement the disclosure of liquidity risk management under article 435 of Regulation (EU) No. 575/2013 (EBA/GL/2017/01) dated March 8, 2017** have also been applied for the first time. These guidelines set out the CRR disclosure requirements in more detail by providing specific requirements and formats, in particular by stipulating the tables and templates to be used. **Circular 05/2015 (BA)** dated June 8, 2015 also continues to apply in relation to implementation of the EBA's guidelines on the disclosure of material, proprietary, and confidential information and on disclosure frequency (EBA/GL/2014/14 dated December 23, 2014).

In addition to information on own funds and capital requirements, this regulatory risk report contains details on the risk types specified by the CRR (credit risk, counterparty credit risk, market risk, operational risk, securitizations, and long-term equity investments in the banking book). Information is also included on matters such as the countercyclical capital buffer, unencumbered assets, liquidity ratios, the leverage ratio, and the remuneration policy.

Under the transitional rule in section 4.1 no. 20 of EBA/GL/2016/11, comparative information for previous reporting periods does not have to be presented when these guidelines are applied for the first time. This report makes use of this exemption.

The **country-by-country reporting** information pursuant to the disclosure requirements defined in section 26a (1) sentence 2 et seq. KWG is not contained in this report. This information is available on DZ BANK's website in the Investor Relations section under Reports.

The disclosure of the **return on assets** required by section 26a (1) sentence 4 KWG can be found in the 2017 Annual Financial Statements and Management Report of DZ BANK AG in the Management Report, chapter II 'Business report', section 4 'Net assets' (page 27).

The disclosures required pursuant to **section 35 of the German Bank Recovery and Resolution Act (SAG)** are presented in section 3.1 (page 69) of the opportunity and risk report.

There is no statutory requirement for this regulatory risk report to contain an independent auditor's report, so no such report is included.

Pursuant to article 434 CRR, DZ BANK publishes the Regulatory Risk Report on its website in the Investor Relations section under Reports. Details of the DZ BANK banking group's capital instruments pursuant to article 437 (1) letters b and c CRR can also be found on this website.

1.2 Implementation in the DZ BANK banking group

This regulatory risk report comprehensively describes the risk profile of the DZ BANK banking group as of the reporting date by presenting all disclosures relevant to the banking group that are required by the CRR, while taking account of the principle of materiality pursuant to article 432 (1) CRR. The exemptions pursuant to article 432 (1) CRR are not used.

The report therefore contains the information required by the CRR, provided it has not already been published in the opportunity and risk report. Where this is the case, the regulatory risk report makes reference to the opportunity and risk report.

The basis for regulatory risk reporting is the **disclosure policy** approved by the Board of Managing Directors. This policy sets out the principles and fundamental decisions for the methods, organizational structure, and IT systems to be used for disclosure in the DZ BANK banking group. The disclosure policy also governs the integration of risk disclosure into general financial disclosure and provides the link to internal risk reporting. By adopting the policy, the Board of Managing Directors also established the key elements of the risk-related disclosure procedures and communicated them throughout the DZ BANK banking group. Therefore with this policy, DZ BANK has implemented a formal process in which the operational steps – from preparing the report to obtaining the adoption of a resolution by the Board of Managing Directors and publishing the report – are defined, along with the required monitoring. This process also sets out all roles and responsibilities. The policy is audited regularly to assess whether it remains appropriate and is amended in line with changes to internal and external circumstances, thereby complying with the requirements of article 431 (3) CRR.

The requirements regarding the **adequacy declarations** to be made by the Board of Managing Directors pursuant to article 435 (1) letter e CRR are met in the opportunity and risk report, section 2.1 'Statements from the Board of Managing Directors' (page 65). The whole of section 2 (pages 65 to 69) of the opportunity and risk report forms the **risk statement** by the Board of Managing Directors specified in article 435 (1) letter f CRR. These declarations and statements are approved in the DZ BANK 2017 Annual Report by means of the signatures of the Board of Managing Directors in the 'Responsibility statement' section.

Section 3 'Management of the DZ BANK Group' (pages 15 to 19) in the group management report, chapter I 'DZ BANK Group fundamentals', in conjunction with section 3.4 (pages 73 to 78) of the opportunity and risk report, describes the **information flow** within the DZ BANK banking group to the management body pursuant to article 435 (2) letters d and e CRR and section 26a KWG.

The **frequency** and **scope** (article 433 CRR) of the regulatory risk report are assessed by using the criteria for the frequency of disclosure pursuant to circular 05/2015 (BA) of the Bundesanstalt für Finanzdienstleistungsaufsicht (BaFin) [Federal Financial Supervisory Authority]. Among the assessment criteria are the DZ BANK Group's total assets and the consolidated exposures (pursuant to article 429 CRR). This assessment reveals that, in the financial year, the DZ BANK banking group is still obliged to disclose some of the information required in this risk report on a quarterly and half-year basis.

Unless indicated otherwise, all information in this report relates to the entities consolidated for regulatory purposes in the **DZ BANK banking group** as of the reporting date pursuant to articles 11 to 22 CRR.

Significant subsidiaries and those of material significance for their local market are required to disclose information on own funds, capital requirements, the capital buffer, credit risk adjustments, the remuneration policy, leverage, and the use of methods to mitigate credit risk on either an individual or a sub-consolidated basis in accordance with article 13 (1) CRR. To identify and categorize subsidiaries as material, DZ BANK applies the materiality criteria to those subsidiaries classified as a credit institution or investment firm under the CRR that are significant for internal management purposes. On this basis, the subsidiaries listed in section 3.1 of this report are included as significant subsidiaries in the risk inventory. The subsidiaries must comply with the requirements in **article 13 CRR** unless they are covered by the **waiver** pursuant to section 2a KWG in conjunction with article 7 CRR. The disclosures required for these subsidiaries on the basis of article 13 CRR can be found in the regulatory risk reports on their websites. The additional disclosure requirements for significant subsidiaries pursuant to article 13 (1) CRR are presented in section 3.1 of this report.

To calculate the **regulatory capital requirements** pursuant to the CRR, the DZ BANK banking group mainly applies the foundation internal ratings-based approach (IRB approach or IRBA) for credit risk.

The regulatory credit risk measurement methods used by DVB Bank SE, Frankfurt am Main, (DVB Bank; subgroup abbreviated to DVB) are based on the advanced IRB approach.

The IRB approach is used to calculate the credit risk of the retail businesses of Bausparkasse Schwäbisch Hall AG, Schwäbisch Hall, (Bausparkasse Schwäbisch Hall; subgroup abbreviated to BSH), Deutsche Genossenschafts-Hypothekenbank AG, Hamburg, (DG HYP), TeamBank AG Nürnberg, Nuremberg, (TeamBank), and WL BANK AG Westfälische Landschaft Bodenkreditbank, Münster, (WL BANK), although the probability of default (PD) and the loss given default (LGD) are based on own accounting estimates.

Capital requirements for market risk are predominantly measured using internal calculation models and, to a minor extent, the regulatory Standardized Approaches. The Standardized Approach is used at the DZ BANK banking group level to determine operational risk in accordance with regulatory requirements. The individual institutions are responsible for their own calculations and reporting (basically using the Standardized Approach, although the Basic Indicator Approach is possible in exceptional cases) in accordance with article 315 et seq. CRR.

Significant components of the **qualitative regulatory risk reporting** requirements are covered in the opportunity and risk report. The DZ BANK banking group predominantly utilizes the option available under article 434 (1) CRR to make reference to the opportunity and risk report for the qualitative disclosures. The section references for each topic are included in this report.

The index (Fig. 1) shows the different sources and publication media to which reference is made in this regulatory risk report.

Fig. 1 – INDEX/REFERENCES IN THE REGULATORY RISK REPORT

Source	Publication medium
DZ BANK Annual Report	https://www.dzbank.de/content/dzbank_de/de/home/unser_profil/investorrelations/berichte/2017.html
Annual Financial Statements and Management Report of DZ BANK AG	
Country-by-country reporting	
Results of the collection of data to identify global systemically important institutions	
Regulatory risk report, including the capital instruments annex	
Remuneration policy disclosures	
Full contractual terms and conditions for capital instruments, pursuant to article 437 (1) letter c CRR	https://www.dzbank.de/content/dzbank_de/de/home/unser_profil/investorrelations/info_fuer_fremdkapitalgeber/kapitalinstrumente.disclaimer.disclaimer_kapitalinstrumente.html

Disclosures of relevance for regulatory purposes are only published in the regulatory risk report. This also applies to information that is fundamentally integral to the internal risk management system but, because of the detailed level of disclosure required, is not included in the opportunity and risk report so as not to impair the report's usefulness in the decision-making process. In particular, this concerns the detailed information on the internal rating systems and the disclosures about the risk models approved by the European Central Bank (ECB) for calculating the regulatory capital requirements for general and specific market risk. The same applies to the accounting-related disclosures on long-term equity investments and securitizations, which are also included in this regulatory risk report.

As in the procedure adopted for qualitative disclosures, however, the quantitative disclosures required in regulatory risk reporting, which are derived from the internal risk management system, are included in the opportunity and risk report not in the regulatory risk report.

In its Pillar 3 reporting, DZ BANK aims to ensure the **consistency and comparability of disclosures** over time at the level of the DZ BANK banking group and to contribute to consistency and comparability across the industry. The quantitative disclosures in this report are therefore based, in particular, on the requirements in EBA/GL/2016/11. Some of them are still based on the table formats (referred to as 'use cases') recommended by the specialist disclosure subcommittee (as of September 2012) and the applicable (EU) implementing regulations in order to fully comply with the disclosure requirements of Part 8 CRR.

Quantitative disclosures relate to the year under review. Comparative figures as of a previous reporting date or relating to a previous period are also disclosed in accordance with the requirements. The comparative figures provided relate to the DZ BANK banking group as of the applicable previous reporting date required in the tables or the prior period. As permitted under EBA/GL/2016/11, comparative figures are not included as of this reporting date for the new tables that have been added to the report on the basis of these guidelines. Distinctive features and significant discrepancies in the quantitative disclosures are generally explained in the text.

The quantitative disclosures in this risk report are rounded to the nearest whole million euros. This may give rise to small discrepancies between the totals shown in the tables and diagrams and totals calculated from the individual values shown. Table cells with a gray background are not relevant for disclosure purposes. The symbol – is used to indicate that a line item in a table has no value. If a line item (after rounding) amounts to less than €1 million, a value of 0 is disclosed.

In general, all disclosure requirements pursuant to Part 8 of the CRR are met. The following requirements are currently **not relevant** to the DZ BANK banking group, and the corresponding data has therefore not been included in this regulatory risk report:

- Disclosure of the alpha factor pursuant to article 439 sentence 1 letter i CRR is not necessary since no internal DZ BANK banking group models approved by the supervisory authority were used in 2017 to calculate capital requirements for derivative counterparty risk exposure.

- The same applies to securitizations under the early amortization approach pursuant to article 449 sentence 1 letter n (iv) CRR. Such securitizations were neither carried out by entities in the DZ BANK banking group during the reporting year, nor are they part of any existing business.

- In the case of risk in connection with fair value changes in the correlation trading portfolio (CTP, article 455 sentence 1 letter a (ii) CRR), no internal model approved by the supervisory authority is currently available, so the capital requirements for these exposures are calculated using the Standardized Approach.

- Information about the impact on risk-weighted assets (RWAs) resulting from the long-term equity investment in R+V Versicherung AG, Wiesbaden, (R+V Versicherung; subgroup abbreviated to R+V), the carrying amount of which is not deducted from DZ BANK's own funds, will only be included (using template EU INS1) in this report when CRR II comes into force.

- As the operational risks are calculated in accordance with the Standardized Approach, there are no disclosures about the use of Advanced Measurement Approaches for operational risk (article 454 CRR).

1.3 Risks covered in the regulatory risk report

The regulatory risk report includes the **subsidiaries** that must be consolidated as part of the DZ BANK banking group for regulatory purposes in accordance with article 4 (1) no. 16 CRR and section 10a (4) and (5) KWG. Further risks arising at subsidiaries that are not consolidated for regulatory purposes are disclosed in the opportunity and risk report at the DZ BANK Group level. This especially applies to the risks of R+V Versicherung AG, Wiesbaden, (R+V Versicherung; subgroup abbreviated to R+V).

Regulatory capital requirements relate to the following **risk types**: credit risk (including equity investment risk), market risk, and operational risk. In addition to these risk types, the technical risk of a home savings and loan company, actuarial risk, and business risk are also backed by economic risk capital as part of the internal economic capital management process (Pillar 2 of Basel III). Liquidity risk is also taken into account in a separate liquidity-related analysis of risk-bearing capacity.

There are also **differences between economic and regulatory risk coverage**, in particular:

- When the **regulatory capital requirements** and the related disclosures **are being determined**, risk-bearing exposures are treated differently in terms of quantification of their risk depending on whether they are allocated to the trading book or banking book. For example, on-balance-sheet and

off-balance-sheet exposures in the banking book and counterparty risk arising from derivatives exposure in the banking book and trading book are classified under credit risk. The issuer-related exposures in the trading book are treated as market risk exposures and therefore are backed with regulatory own funds, whereas for internal management purposes they are treated as issuer risks and classified under credit risk.
- As a result of this approach, the **credit risk exposures** presented in this risk report are based on regulatory bases of assessment and therefore differ from the lending volume presented in the opportunity and risk report, which is based on figures in the internal management accounts.

Furthermore, **equity investment risk** is recognized as a separate type of risk in the internal management accounts. Credit risk and equity investment risk are determined in the internal management accounts using their own portfolio models.

- The **market risk** disclosed using the methods in Pillar 1 essentially corresponds to the market risk managed on the basis of the rules of Pillar 2. In the context of the economic management of market risk, interest-rate risk also includes interest-rate risk in the banking book for which no backing with own funds is required for regulatory purposes under Pillar 1.
- In the DZ BANK banking group, the Standardized Approach was used as of December 31, 2017 to calculate the regulatory own funds (as described in section 1.2 above) for operational risk in accordance with article 317 et seq. CRR. In respect of the economic capital requirements, however, a statistical model is used for the management units that satisfies the criteria for an Advanced Measurement Approach (AMA). The results from this portfolio model, combined with the materiality limits for collation of loss data, scenario-based risk self-assessments, and risk indicators, are used to manage operational risk.

1.4 Developments in relation to transparency rules in banking regulation

In March 2017, the BCBS finalized phase II of the revision of the Pillar 3 banking supervision disclosure requirements at international level when it published BCBS 400 'Pillar 3 disclosure requirements – consolidated and enhanced framework'. The primary additions to the existing framework are a regulatory dashboard, which provides an overview of regulatory key figures, and a granular breakdown of the aggregated prudent valuation adjustment (where such valuation adjustments are carried out). It is also planned to extend the table-based disclosures to include a full and detailed reconciliation of accounting data to the data required under supervisory law. Implementation at European level is expected to be the same as for implementation of phase I of BCBS 309, which was done through EBA/GL/2016/11. The initial application of phase II is expected to coincide with the introduction of CRR II, which is likely to come into force on December 31, 2019 at the earliest. The Basel Committee plans to further revise the disclosure requirements in a potential phase III.

2 Risk management, objectives, and rules

2.1 Risk management objectives and policies

The principles and objectives of risk management and the methods used to manage risk are covered in the qualitative reporting, which – as stated in section 1.2 of this report – is based on the information in the opportunity and risk report. The governance structure of risk management in the DZ BANK Group is presented as a schematic diagram in figure 9 (page 74) in the opportunity and risk report. Supplementary disclosures relating to the DZ BANK Group and its management are described in chapter I 'DZ BANK Group fundamentals' in the group management report for the DZ BANK Group. The information required according to article 435 (2) CRR that is not presented in the DZ BANK Group's annual financial report is set out in the following sections of this regulatory risk report.

(ARTICLE 435 (1) CRR)

This section of the regulatory risk report contains general information that is related to article 435 CRR:

- The **risk management objectives and policies** for each individual risk category pursuant to article 435 sentence 1 CRR in section 3.1 (page 69) of the opportunity and risk report
- **Strategies and processes** for the management of risk pursuant to article 435 sentence 1 letter a CRR in sections 3.2 and 3.3 (pages 69 to 73) of the opportunity and risk report
- The **description of the structure and organization of the risk management function**, including **information on its authority and status or other appropriate arrangements**, as required in article 435 sentence 1 letter b CRR (article 439 sentence 1 letter a CRR in respect of central counterparty risk), in section 3.4 (pages 73 to 78) of the opportunity and risk report
- Information pursuant to article 435 sentence 1 letter c CRR regarding the **scope and nature of risk measurement systems** in sections 3.4 and 3.5 (pages 73 to 84) of the opportunity and risk report.

For the definitions of the individual risks, please see the relevant sections of the opportunity and risk report.

In accordance with article 435 (1) letter d CRR (article 439 sentence 1 letter b CRR in respect of central counterparty risk), the **guidelines for hedging and mitigating risk** as well as **strategies and processes for monitoring the ongoing effectiveness of the measures taken to hedge and mitigate risk** are contained in sections 3.5.5, 6.2.4, 8.4.7, 10.4.4, 14.4.4, 16.4, 17.2.2, 18.2.2, and 19.2 of the opportunity and risk report (pages 82, 93 to 95, 113 to 115, 136 to 137, 146, 156 to 158, 160 to 161, 166 to 167, and 167 to 168).

For the **declaration on the appropriateness of the risk management agreements**, which has to be made by the Board of Managing Directors and ensures that the risk management systems in place are appropriate to the profile and strategy, please see section 3.5.7 (page 83) of the opportunity and risk report. Furthermore, sections 2 and 2.1 (page 65) contain the **concise risk declaration statement** approved by the Board of Managing Directors, which contains a description of the DZ BANK Group's **general risk profile associated with the business strategy** and significant key figures that ensure the Group has an **overview of the interaction between the risk profile and risk tolerance**.

2.2 Corporate governance arrangements

2.2.1 Number of executive or supervisory directorships held by members of the management body

(ARTICLE 435 (2) LETTER A CRR)

Fig. 2 provides an overview of the number of executive or supervisory directorships held by members of the Board of Managing Directors and Supervisory Board, counted in accordance with article 91 (3) and (4) CRD IV.

Fig. 2 – NUMBER OF EXECUTIVE OR SUPERVISORY DIRECTORSHIPS HELD BY MEMBERS OF THE BOARD OF MANAGING DIRECTORS AND SUPERVISORY BOARD

Number of executive or supervisory directorships held by members of the Board of Managing Directors

	Number of executive directorships		Number of supervisory directorships		Number of other posts
	Dec. 31, 2017[1]	Dec. 31, 2016[1]	Dec. 31, 2017[1]	Dec. 31, 2016[1]	Dec. 31, 2017[1]
Wolfgang Kirsch, Chief Executive Officer	1	1	4	5	10
Hans-Bernd Wolberg, Deputy Chief Executive Officer (until December 31, 2017)	1	1	1	1	1
Uwe Berghaus	1	1	1	3	-
Dr. Christian Brauckmann	1	1	5	4	1
Lars Hille (until October 14, 2017)	-	1	-	6	-
Wolfgang Köhler	1	1	3	3	3
Karl-Heinz Moll (until June 30, 2017)	-	1	-	7	-
Dr. Cornelius Riese	1	1	5	5	2
Michael Speth	1	1	9	5	-
Thomas Ullrich	1	1	4	2	3
Frank Westhoff (until April 30, 2017)	-	1	-	6	-
Stefan Zeidler (until December 31, 2017)	1	1	3	6	1

Number of executive or supervisory directorships held by General Executive Managers

	Number of executive directorships		Number of supervisory directorships		Number of other posts
	Dec. 31, 2017[1]	Dec. 31, 2016[1]	Dec. 31, 2017[1]	Dec. 31, 2016[1]	Dec. 31, 2017[1]
Uwe Fröhlich (from November 1, 2017)	1	-	3	-	1

Number of executive or supervisory directorships held by members of the Supervisory Board

	Number of executive directorships		Number of supervisory directorships		Number of other posts
	Dec. 31, 2017[1]	Dec. 31, 2016[1]	Dec. 31, 2017[1]	Dec. 31, 2016[1]	Dec. 31, 2017[1]
Helmut Gottschalk	-	1	1	1	-
Heiner Beckmann	-	-	1	1	-
Werner Böhnke	2	-	3	3	3
Ulrich Birkenstock	-	-	2	2	2
Hermann Buerstedde	-	-	2	2	-
Henning Deneke-Jöhrens	1	1	2	2	9
Martin Eul	1	-	3	3	4
Uwe Fröhlich (until October 31, 2017)	-	-	-	7	-
Uwe Goldstein	1	-	1	1	-
Dr. Peter Hanker	1	-	1	2	9
Andrea Hartmann	-	-	2	2	-
Pilar Herrero Lerma	-	-	1	1	-
Gerhard Hofmann (since November 1, 2017)	1	-	2	-	1
Dr. Dierk Hirschel	-	-	2	2	-
Renate Mack	-	-	1	1	-
Rainer Mangels	-	-	1	1	-
Stephan Schack	1	1	1	1	2
Gregor Scheller	1	1	2	2	3
Uwe Spitzbarth	-	-	2	2	-
Sigrid Stenzel	-	-	2	2	-
Dr. Wolfgang Thomasberger	1	1	2	1	4

[1] 'Other posts' has been added as a category for the disclosure of directorships due to initial application of EBA/GL/2016/11 (clause 57).

2.2.2 Recruitment policy for the selection of members of the management body and their actual knowledge, skills and expertise

(ARTICLE 435 (2) LETTER B CRR)

Supervisory Board

The Articles of Association of DZ BANK state that the Supervisory Board consists of 20 members, 9 of whom are elected by the Annual General Meeting and 10 of whom are elected by employees pursuant to the provisions of the German Codetermination Act of 1976(MitbestG). The Bundesverband der Deutschen Volksbanken und Raiffeisenbanken e.V., Berlin, (BVR) [National Association of German Cooperative Banks], has the right to delegate one member of its Board of Managing Directors to the Supervisory Board. Only members of the managing body of a cooperative enterprise that is a shareholder of DZ BANK may be elected as shareholder representatives on the Supervisory Board. The term of appointment of a Supervisory Board member is terminated prematurely

a) at the end of the next ordinary Annual General Meeting if the member no longer meets the above requirements, or
b) at the end of the ordinary Annual General Meeting in the calendar year in which the member reaches the age of 67.

In accordance with section 25d (11) sentence 2 no. 1 KWG, the Supervisory Board has adopted a process for preparing nominations for the election of members of the DZ BANK Supervisory Board that includes job descriptions and candidate profiles. This process is regularly put into practice when new Supervisory Board members are nominated.

In accordance with section 25d (11) sentence 2 nos. 3 and 4 KWG, a process has also been implemented by the Supervisory Board for regularly evaluating the Supervisory Board and its members. The self-evaluation conducted by the Supervisory Board in February 2017 found that the structure, size, composition, and performance of the Supervisory Board and the knowledge, skills, and experience of the individual Supervisory Board members and the Supervisory Board as a whole met the legal requirements and the Articles of Association.

Regardless of their period of time as board members, DZ BANK also offers members of the Supervisory Board various training courses. These include an inhouse course on reporting and management processes at DZ BANK and a modular training program that is run by an external provider and specifically tailored to the needs of members of supervisory boards. The modular concept enables each member of the Supervisory Board to choose a program based on his or her own training needs that consists of various basic or specialist seminars dealing with the work of a supervisory board. DZ BANK provides the necessary financial resources.

Board of Managing Directors

The Articles of Association of DZ BANK state that the Board of Managing Directors consists of a minimum of 3 members. The number of members is determined by the Supervisory Board, which also appoints and removes members. The Supervisory Board can appoint one Chief Executive Officer and up to two Deputy Chief Executive Officers. As of the reporting date, the Board of Managing Directors of DZ BANK consisted of 9 full members of the Board of Managing Directors including one Chief Executive Officer and one Deputy Chief Executive Officer. Detailed career histories of the members of the Board of Managing Directors are presented on the DZ BANK website.

Only persons who have the professional qualifications specified in section 25c KWG and comply with other regulatory and stock corporation law requirements can be appointed to the Board of Managing Directors. In accordance with the rules of procedure for the Supervisory Board, the Nominations Committee assists the Supervisory Board in determining suitable candidates for appointment to the Board of Managing Directors. For this purpose, the Supervisory Board has approved principles for the selection and appointment of managing directors, including job descriptions and candidate profiles as required by section 25d (11) nos. 1 and 2 KWG. When selecting suitable candidates, the Nominations Committee takes into account the balance and diversity of the knowledge, skills, and experience of all the members of the Board of Managing Directors.

In accordance with section 25d (11) sentence 2 nos. 3 and 4 KWG, a process has also been implemented for regularly evaluating the Board of Managing Directors as a whole. The evaluation conducted by the Supervisory Board in February 2017 found that the structure, size, composition, and performance of the Board of Managing Directors, and the knowledge, skills, and experience of the individual members and the Board of Managing Directors as a whole met the legal requirements and the Articles of Association.

Regardless of the period of time that they have been board members, DZ BANK also offers members of the Board of Managing Directors various training courses. For example, they can utilize training through DZ BANK's Corporate Campus for Management & Strategy. It is an interactive platform with the objective of facilitating the development of new perspectives and ideas of top-management level, thereby reinforcing the sustainability of the DZ BANK Group and the Volksbanken Raiffeisenbanken cooperative financial network.

2.2.3 Diversity policy for selecting members of the management body, its objectives, relevant targets and achievement of targets

(ARTICLE 435 (2) LETTER C CRR)

2.2.3.1 Supervisory Board

In accordance with section 25d (11) sentence 2 no. 2 KWG, the Supervisory Board has adopted a strategy aimed at promoting the nomination of women, who are currently under-represented on the DZ BANK Supervisory Board. In a resolution passed on February 22, 2017, the Supervisory Board modified this strategy and reconfirmed the target. Under this strategy, the Supervisory Board's objective for 2021 is, to stabilize the number of female members of the Supervisory Board at the current level as a minimum (on the date of the adopted resolution and as of December 31, 2017: 4 members or 20 percent). This quota was met throughout 2017.

2.2.3.2 Board of Managing Directors

In a resolution passed on February 22, 2017, the Supervisory Board again set a target of zero for the proportion of women on the Board of Managing Directors of DZ BANK for the period up to December 31, 2018. At the time the resolution was adopted, the reduction of the number of posts on the Board of Managing Directors was imminent with no immediate prospect of an increase.

2.3 Disclosures regarding the formation of a risk committee and the number of times it has met

(ARTICLE 435 (2) LETTER D CRR)

The Supervisory Board was assisted in fulfilling its responsibilities through various committees, including a Risk Committee – consisting of 9 Supervisory Board members – that met 5 times in 2017.

2.4 Information flow to the Supervisory Board

(ARTICLE 435 (2) LETTER E CRR)

In 2017, the Board of Managing Directors provided the Supervisory Board with regular, timely, and comprehensive written and oral reports on the position and performance of the bank and the banking group as well as on general business developments. The Board of Managing Directors also informed the Supervisory Board about the ongoing implementation of the strategy as a network-oriented central institution and financial conglomerate, the capital situation, and the strategic and operational planning of both the bank and the banking group. Once a year, the Board of Managing Directors informs the Supervisory Board of the DZ BANK Group's strategic plan, including any adjustments, and they hold joint in-depth discussions about it. In addition to future corporate strategy, the strategic plan includes financial and capital planning as well as key strategic issues. During the reporting period, the Supervisory Board was also constantly updated about the profitability of the bank and the banking group. Furthermore, the Board of Managing Directors provided the Supervisory Board with regular reports about significant loan and investment exposures. The Supervisory Board discussed these issues with the Board of Managing Directors, advised it, and monitored its management activities.

The Supervisory Board's Risk Committee also thoroughly examined the risk position of the bank and the banking group, the development of systems and procedures used to manage market, counterparty, and operational risks, and other material banking-specific risks. The risk strategies were discussed in detail with the Risk Committee. The chairman of the Risk Committee provided the Supervisory Board with regular and timely reports on material changes. The Supervisory Board was always involved in decisions of fundamental importance. In the quarterly written information about the risk situation in the banking group, the Board of Managing Directors provides the members of the Risk Committee and the other members of the Supervisory Board with the quarterly aggregate risk report. The Risk Committee also receives the credit risk report, the report on the economic stress tests, and the report on the indicators in accordance with the German Minimum Requirements for the Design of Recovery Plans (MaSan indicators) on a quarterly basis. The chairman of the Risk Committee informs the Supervisory Board about these matters no later than at its next meeting. The minutes of Risk Committee meetings are sent to all members of the Supervisory Board on a regular basis.

3 Scope of application

The terms DZ BANK Group and DZ BANK financial conglomerate are synonymous and refer to the management as a whole. The context dictates the choice of term. For example, in the case of disclosures relating to economic management, the focus is on the DZ BANK Group, whereas in the case of regulatory issues relating to all the management units in the DZ BANK Group, the appropriate term is DZ BANK financial conglomerate.

The DZ BANK financial conglomerate basically comprises the DZ BANK banking group and R+V. DZ BANK acts as the financial conglomerate's parent company.

As part of the DZ BANK financial conglomerate, the DZ BANK banking group and R+V are subject to the provisions of the German Supervision of Financial Conglomerates Act (FKAG). In conjunction with article 49 (1) CRR on the requirements for waiving capital deductions for long-term equity investments in insurance companies and the regulatory technical standards for the application of the calculation methods of capital adequacy requirements for financial conglomerates (Delegated Regulation (EU) No. 342/2014 dated January 21, 2014) published in April 2014, the FKAG governs the capital adequacy requirements for the DZ BANK financial conglomerate. The additional regulation of financial conglomerates applies to groups of financial institutions that operate to a large degree across both the banking and the insurance sectors and includes requirements for capital adequacy, for recording and monitoring material risk concentrations and transactions within the conglomerate, and for cross-sectoral risk management. In this regard, it has to meet the relevant requirements with respect to **financial conglomerates' solvency** and the establishment of an overall risk management structure.

All entities in the financial conglomerate are integrated into the central risk management system, subject to the principle of materiality pursuant to article 432 (1) CRR. Materiality is determined on the basis of a concept that is also relevant to opportunity and risk reporting pursuant to commercial law. The concept considers the usefulness of disclosures in the decision-making process and the economic viability of preparing reports. It is based on risk management procedures that meet the requirement for a groupwide risk monitoring system as specified in section 91 (2) of the German Stock Corporation Act (AktG) and section 25a (1) KWG.

The disclosures in this risk report relate to significant entities in the DZ BANK banking group pursuant to article 432 (1) CRR. The materiality concept does not cover the disclosures on the structure of own funds, capital requirements, capital ratios, leverage, (un)encumbered assets, countercyclical capital buffers, and liquidity ratios. All entities consolidated for regulatory purposes are included in these disclosures to ensure that the key regulatory figures are consistent with the figures reported.

3.1 Differences between the scope of consolidation for accounting purposes and the scope of consolidation for regulatory purposes

(ARTICLE 436 SENTENCE 1 LETTER B CRR)

Pursuant to article 436 sentence 1 letter b CRR, the entities that are significant for internal risk management purposes and the companies that are consolidated for regulatory purposes – limited to direct long-term equity investments – are classified in Fig. 3 according to the nature of their business, the nature of their treatment for regulatory purposes, and the nature of their consolidation for commercial-law purposes.

Fig. 3 – EU LI3 – DIFFERENCES IN THE SCOPES OF CONSOLIDATION (ENTITY BY ENTITY) – CONSOLIDATION MATRIX

	a	b	c	d	e	e	f
Name of the entity	Method of accounting consolidation	Method of regulatory consolidation					Description of the entity
		Full consolidation	Proportional consolidation	Equity method	Neither consolidated nor deducted	Deducted	
DZ BANK AG Deutsche Zentral-Genossenschaftsbank, Frankfurt am Main, (DZ BANK)	Full consolidation	•					Credit institution
AGIMA Aktiengesellschaft für Immobilien-Anlage, Frankfurt am Main	Full consolidation	•					Rental and leasing of land and buildings
Bausparkasse Schwäbisch Hall AG, Schwäbisch Hall, (BSH)	Full consolidation	•					Credit institution
Beteiligungsgesellschaft Westend 1 mbH & Co. KG, Frankfurt am Main	Full consolidation	•					Management of long-term equity investments
Deutsche Genossenschafts-Hypothekenbank AG, Hamburg, (DG HYP)	Full consolidation	•					Credit institution
Deutsche WertpapierService Bank AG, Frankfurt am Main, (dwpbank)	Equity method		•				Credit institution
DG Funding LLC, New York, USA	Full consolidation	•					Other activities linked to financial services
DG Holding Trust, New York, USA	Full consolidation	•					Other activities linked to financial services
DVB Bank SE, Frankfurt am Main, (DVB)	Full consolidation	•					Credit institution
DZ BANK Capital Funding LLC I, Wilmington, USA	Full consolidation	•					Other activities linked to financial services
DZ BANK Capital Funding LLC II, Wilmington, USA	Full consolidation	•					Other activities linked to financial services
DZ BANK Capital Funding LLC III, Wilmington, USA	Full consolidation	•					Other activities linked to financial services
DZ BANK Capital Funding Trust I, Wilmington, USA	Full consolidation	•					Other activities linked to financial services
DZ BANK Capital Funding Trust II, Wilmington, USA	Full consolidation	•					Other activities linked to financial services
DZ BANK Capital Funding Trust III, Wilmington, USA	Full consolidation	•					Other activities linked to financial services
DZ BANK Perpetual Funding (Jersey) Limited, St. Helier, Jersey	Full consolidation	•					Other activities linked to financial services
DZ BANK Perpetual Funding Issuer (Jersey) Limited, St. Helier, Jersey	Full consolidation				•		Other activities linked to financial services
DZ Beteiligungsgesellschaft mbH Nr. 18, Frankfurt am Main	Full consolidation	•					Management of long-term equity investments
DZ PRIVATBANK (Schweiz) AG, Zurich, Switzerland	Full consolidation	•					Credit institution
DZ PRIVATBANK S.A., Strassen, Luxembourg (DZ PRIVATBANK)	Full consolidation	•					Credit institution

	a	b	c	d	e	e	f
Name of the entity	Method of accounting consolidation	Method of regulatory consolidation					Description of the entity
		Full consolidation	Proportional consolidation	Equity method	Neither consolidated nor deducted	Deducted	
DZ Vierte Beteiligungsgesellschaft mbH, Frankfurt am Main	Full consolidation	•					Management of long-term equity investments
GAF Active Life 1 Renditebeteiligungs-GmbH & Co. KG, Nidderau	Not consolidated	•					Other financial services
GAF Active Life 2 Renditebeteiligungs-GmbH & Co. KG, Nidderau	Not consolidated	•					Other financial services
Immobilien-Gesellschaft ‘DG Bank-Turm, Frankfurt am Main, Westend’ mbH & Co. KG des genossenschaftlichen Verbundes, Frankfurt am Main	Full consolidation	•					Rental and leasing of land and buildings
IMPETUS Bietergesellschaft mbH, Düsseldorf	Full consolidation	•					Management of long-term equity investments
IPConcept (Luxemburg) S.A., Strassen, Luxembourg	Full consolidation	•					Other financial services
IPConcept (Schweiz) AG, Zurich, Switzerland	Full consolidation	•					Other financial services
KBIH Beteiligungsgesellschaft für Industrie und Handel mbH, Frankfurt am Main	Full consolidation	•					Management of long-term equity investments
Phoenix Beteiligungsgesellschaft mbH, Düsseldorf	Full consolidation	•					Management of long-term equity investments
R+V Versicherung AG, Wiesbaden, (R+V)	Full consolidation			•			Insurance company
ReiseBank Aktiengesellschaft, Frankfurt am Main	Full consolidation	•					Credit institution
TeamBank AG Nürnberg, Nuremberg, (TeamBank)	Full consolidation	•					Credit institution
Union Asset Management Holding AG, Frankfurt am Main, (UMH)	Full consolidation	•					Financial services
VR Equitypartner GmbH, Frankfurt am Main	Full consolidation	•					Management of long-term equity investments
VR GbR, Frankfurt am Main	Full consolidation	•					Management of long-term equity investments
VR-LEASING Aktiengesellschaft, Eschborn, (VR LEASING)	Full consolidation	•					Financial services
WL BANK AG Westfälische Landschaft Bodenkreditbank, Münster, (WL BANK)	Full consolidation	•					Credit institution

The significant entities are consolidated for both regulatory and commercial-law purposes. Insurance companies and non-financial companies are not required to be consolidated in the banking group for regulatory purposes. In this context, R+V is fully consolidated for commercial-law purposes but is not directly subject to banking regulation. Instead, it is factored into the procedure used to determine the DZ BANK banking group’s capital requirements and disclosures using the risk-weighted carrying amount of DZ BANK’s investment in R+V. Furthermore, R+V is included in the cross-sectoral surveillance by the banking supervisory authority of the DZ BANK financial conglomerate at consolidated level in the legal framework applicable to financial conglomerates.

The following entities were **fully consolidated for regulatory purposes** pursuant to articles 11 to 22 CRR on December 31, 2017, including the entities listed in Fig. 3:

– 16 banks
  (December 31, 2016: 17)
– 10 financial services institutions
  (December 31, 2016: 9)
– 9 investment management companies
  (December 31, 2016: 10)
– 361 finance companies
  (December 31, 2016: 398)
  – of which 327 project companies belonging to VR-IMMOBILIEN-LEASING GmbH, Eschborn,
  (December 31, 2016: 360), and
– 6 providers of related services
  (December 31, 2016: 8).

In addition, the following entities were consolidated on a pro-rata basis:

– 4 banks
  (December 31, 2016: 4)
– 1 finance company
  (December 31, 2016: 2), and
– 1 asset management company
  (December 31, 2016: 1).

DZ BANK is either directly or indirectly the major shareholder in the long-term equity investments consolidated for regulatory purposes. Most of the companies are based either in Germany or elsewhere in the European Union. On the reporting date there were no **restrictions on the transfer of cash or own funds** as defined in article 436 sentence 1 letter c CRR within the DZ BANK banking group imposed by third-party individuals, private or public-sector companies, supranational organizations, or sovereign states.

As at the end of 2016, there were no subsidiaries in the DZ BANK banking group that had a **capital deficiency** as of December 31, 2017. Therefore, no disclosure has been made pursuant to article 436 sentence 1 letter d CRR.

The **waiver** available under section 2a (1), (2), and (5) KWG in conjunction with article 6 (1) and (5) CRR and article 7 CRR, which states that – provided certain conditions are met – the regulatory supervision of individual Germany-based institutions within a banking group may be replaced by supervision of the entire banking group, was used in the DZ BANK banking group for DG HYP and WL BANK (group waiver pursuant to article 7 (1) CRR).

The group waiver can only be used if the subordinate entity is closely integrated into the group structure. This is particularly assumed if the parent company is able to exercise control over the subordinated entity because it holds the majority of its voting rights and it has issued an unrestricted letter of comfort in relation to the subordinated entity. Furthermore, the regulatory management of the subordinated institution by the parent company must meet ECB requirements. The entity that is the subject of the waiver must be included in the strategy, risk-bearing capacity, and risk management processes of the parent institution. The parent company must also be able to issue direct instructions within the group in order to ensure the integration of the subordinated entity. DG HYP and WL BANK are fully integrated into the internal processes and risk management of DZ BANK as the parent company of the banking group. In addition to legal, organizational, and structural integration, this particularly applies to the structure of its decision-making bodies, integrated risk and capital management, the strategic planning process, business and risk strategies, and the reporting and disclosure system. There are no current or foreseeable legal or existing material obstacles to the immediate transfer of own funds from DZ BANK to DG HYP or WL BANK or to the repayment of liabilities to DG HYP or WL BANK by DZ BANK.

In November 2012, DG HYP reported this to the banking supervisory authority together with evidence that the application criteria had been met (article 436 sentence 1 letter e CRR). WL BANK did the same in December 2013. In the context of the merger of the former WGZ BANK with DZ BANK, the ECB was notified that the waiver would continue to be used for WL BANK.

Fig. 4 shows how the integration of the entities in the DZ BANK banking group d into the quantitative regulatory disclosures of the DZ BANK banking group. Entities identified as significant are directly incorporated into the DZ BANK Group's risk management system as management units. The disclosures consider the effects of intragroup consolidation.

The disclosures for the management units on gross lending volume, allowances for losses on loans and advances, and interest-rate risk in the banking book are based on economic risk management criteria, whereas other disclosures are based on the entities consolidated for regulatory purposes.

Fig. 4 – INCLUSION OF ENTITIES IN THE DZ BANK BANKING GROUP IN QUANTITATIVE REGULATORY DISCLOSURES

Entity	Structure of own funds	Capital requirements	Capital ratios	Indicators of global systemic importance	Gross lending volume & allowances for losses on loans and advances	Standardized Approach exposure	IRBA exposure	Collateralized lending volume	Derivative counterparty risk exposures	Asset encumbrance	Long-term equity investments in banking book	Interest-rate risk in banking book	Value-at-risk in trading book	Securitization exposure and capital requirements	Leverage ratio	Liquidity ratios	Countercyclical capital buffer
DZ BANK	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
BSH	●	●	●		●	●	●	●	●	●	●	●			●	●	●
DG HYP	●	●	●		●	●	●	●	●	●	●	●		●	●	●	●
DVB	●	●	●		●	●	●	●	●	●	●	●			●	●	●
DZ PRIVATBANK	●	●	●		●	●	●	●	●	●	●	●			●	●	●
TeamBank	●	●	●		●	●	●			●	●	●			●	●	●
UMH	●	●	●		●	●				●	●	●[1]			●		●
VR LEASING	●	●	●		●	●			●	●	●	●			●	●	●
WL BANK	●	●	●		●	●	●	●	●	●	●	●			●	●	●
Other companies of relevance for regulatory purposes	●	●	●		●	●	●			●					●	●	●

[1] Interest-rate risk results from reviewing the funds held in own-account investments.

3.2 Differences in the basis of consolidation for accounting and regulatory purposes

(ARTICLE 436 SENTENCE 1 LETTER B CRR)

Fig. 5 compares the carrying amounts – as published in the DZ BANK Group's consolidated financial statements on the basis of the scope of consolidation for accounting purposes (column a) – with the carrying amounts resulting from application of the scope of consolidation for regulatory purposes (column b). Furthermore, the amounts stated in the consolidated financial statements and applied to the scope of consolidation for regulatory purposes are presented in detail by the risk categories described in Part 3, Title II CRR (columns c to g). The breakdown for columns c to f in the following table EU LI1 thus follows the frameworks for

– credit risk (column c),
– counterparty credit risk (column d),
– securitizations (column e), and
– market risk (column f).

Column g shows amounts that are subject to direct deduction or are not subject to capital requirements.

Please note that the amounts in columns c to g do not necessarily match the carrying amounts disclosed in column b. This is due to the fact that, in the context of capital requirements, individual asset and liability items on the balance sheet are subject to more than one of the risk types described in Fig. 5. For reasons of consistency, securities financing transactions are assigned to the credit risk category. Consequently, securities subject to sale and repurchase agreements classed as investments are recognized twice in the credit risk category because not only the credit risk but also an existing counterparty risk is recognized for the underlying securities.

Equity components are reconciled separately, so they are not shown in Fig. 5. There is therefore no reconciliation of total assets to total equity and liabilities. For the reconciliation of equity instruments to the corresponding regulatory key figures, please see Fig. 13.

Fig. 5 – EU LI1 – DIFFERENCES BETWEEN ACCOUNTING AND REGULATORY SCOPES OF CONSOLIDATION AND RECONCILIATION OF FINANCIAL STATEMENTS CATEGORIES TO REGULATORY RISK CATEGORIES

	a	b	c	d	e	f	g
			Carrying amounts of items				
€ million	Carrying amounts as reported in published consolidated financial statements	Carrying amounts under scope of regulatory consolidation	Subject to the credit risk framework	Subject to the CCR framework	Subject to the securitization framework	Subject to the market risk framework	Subject to deduction from capital or not subject to capital requirements
Assets							
Cash and cash equivalents	12,835	13,423	13,423	-	-	105	-
Loans and advances to banks	120,489	120,968	119,652	-	-	142	1,316
Loans and advances to customers	174,376	178,826	177,518	-	1,209	18,644	99
Allowances for losses on loans and advances	-2,794	-2,961	-2,961	-	-	-960	-
Derivatives used for hedging (positive fair values)	1,096	1,095	-	1,095	-	8	-
Financial assets held for trading	38,709	38,437	10,640	17,113	151	11,354	-
Investments	57,486	63,402	68,578	-	2,165	1,756	-
Investments held by insurance companies	96,416	-	-	-	-	-	-
Property, plant and equipment, and investment property	1,498	1,397	1,381	-	-	2	14
Income tax assets	1,127	796	790	-	-	-	6
Other assets	4,546	1,833	1,153	-	-	8	680
Non-current assets and disposal groups classified as held for sale	84	34	34	-	-	5	-
Fair value changes of the hedged items in portfolio hedges of interest-rate risk	-274	-274	117	-	-	-	-391
Total assets	**505,594**	**416,976**	**390,325**	**18,208**	**3,525**	**31,064**	**1,724**
Liabilities							
Deposits from banks	136,122	136,755	-	-	-	61	136,694
Deposits from customers	126,319	133,033	-	-	-	651	132,382
Debt certificates issued including bonds	67,327	67,630	-	-	-	891	66,739
Derivatives used for hedging (negative fair values)	2,962	2,964	-	2,833	-	3	131
Financial liabilities held for trading	44,280	44,290	5,134	16,789	-	526	22,365
Provisions	3,372	3,447	6	-	-	32	3,409
Insurance liabilities	89,324	-	-	-	-	-	-
Income tax liabilities	848	304	-	-	-	2	302
Other liabilities	7,523	2,072	-	-	-	84	1,988
Subordinated capital	3,899	3,964	-	-	-	-	3,964
Liabilities included in disposal groups classified as held for sale	-	-	-	-	-	-	-
Fair value changes of the hedged items in portfolio hedges of interest-rate risk	113	113	-	-	-	-	113
Total liabilities	**482,089**	**394,572**	**5,140**	**19,622**	**-**	**2,250**	**368,087**

The difference of €88,618 million between the total assets in columns a and b mainly results from the deconsolidation of R+V (€103,418 million) and the recognition of this entity in the scope of consolidation for regulatory purposes at its carrying amount of €5,524 million calculated using the equity method. There are also differences totaling €4,895 million in the scopes of consolidation of the subgroups, mainly BSH and VR LEASING. The discrepancies between the scopes of consolidation also give rise to differences of €4,381 million in the consolidation of intragroup transactions.

3.3 Differences between the carrying amounts in the consolidated financial statements and the exposures recognized for regulatory purposes

(ARTICLE 436 SENTENCE 1 LETTER B CRR)

Fig. 6 shows the differences between the carrying amounts in the consolidated financial statements and the exposures used for regulatory purposes, unless already included in Fig. 5.

Fig. 6 – EU LI2 – MAIN SOURCES OF DIFFERENCES BETWEEN REGULATORY EXPOSURE AMOUNTS AND CARRYING AMOUNTS IN FINANCIAL STATEMENTS

		a	b	c	d	e
		Total	Items subject to			
	€ million		Credit risk framework	CCR framework	Securitization framework	Market risk framework
1	Carrying amount of assets under the scope of regulatory consolidation (as per template EU LI1)	415,252	390,325	18,208	3,525	31,064
2	Carrying amount of liabilities under the scope of regulatory consolidation (as per template EU LI1)	26,485	5,140	19,622	-	2,250
3	Total net amount under the regulatory scope of consolidation	388,767	385,185	-1,414	3,525	28,814
4	Off-balance-sheet amounts	63,345	27,644	-	3,019	1
5	Adjustment due to use of conversion factors (off-balance-sheet transactions)	-	32,681	-	-	-
6	Adjustment for multiple recognition (SFTs[1], market risk)	27,343	-	-	-	-
7	Adjustment of exposures in the internal model (market risk)	-10,603	-	-	-	-10,603
8	Differences in valuations	-9,111	357	8,980	-	-18,448
9	Differences due to different netting rules, other than those already included in row 2	1,870	-8,202	7,832	-	2,240
10	Differences due to consideration of provisions	3,251	3,248	-	3	-
11	Adjustment due to foreign currency exposures	133	-3	-	-	136
12	Other reconciliation items	1,524	-	-	-	-
13	**Exposure amounts considered for regulatory purposes**	**466,519**	**441,097**	**16,667**	**6,552**	**2,203**

[1] SFTs = securities financing transactions.

Rows 1 and 2 are attributable to the carrying amounts of the assets and liabilities under the regulatory scope of consolidation and are transferred from Fig. 5 to Fig. 6 without the exposures that are subject to direct deduction or are not subject to capital requirements (Fig. 5, column g).

Row 3 therefore shows the total net amount for these items under the regulatory scope of consolidation. In respect of the off-balance-sheet amounts (row 4), please note that the off-balance-sheet exposures in column a are recognized before application of the credit conversion factors (CCFs), whereas the CCFs have been applied in columns b to e. Consequently, an adjustment to the reconciliation is necessary in row 5 because the exposures recognized for regulatory purposes include off-balance-sheet exposures to which CCFs have not been applied.

To ensure consistency between column a and columns b to e, the carrying amounts of exposures are shown in column a that are assigned to multiple risk categories (row 6), for example credit risk exposures denominated in a foreign currency.

Further differences between the regulatory and accounting amounts arise due to the disclosure of market risk exposures in the internal model in Fig. 5, because these exposures are not included in the regulatory basis of assessment for the market risk category. The related adjustment is made in row 7.

The reconciliation of the carrying amounts under the regulatory scope of consolidation to the total of the regulatory bases of assessment is continued with the determination of the valuation differences. Among other items, the add-on for derivative exposures is included in row 8. After the total net amount has been calculated in row 3 of Fig. 6, it has to be adjusted to reflect the actual regulatory netting (row 9). In the liquidation netting of derivatives, for example, a netting rule is used that differs from the simple calculation of the net amount in row 3.

Another difference affects the recognition of loan loss allowances and provisions in the IRB approach that are not part of the regulatory basis of assessment and are adjusted through row 10. Row 11 contains adjustments resulting, in particular, from foreign currency exposures for which different exchange rates are used in the accounts and for regulatory purposes.

The other reconciliation items in row 12 include brokerage business not recognized on the balance sheet and regulatory risk adjustments to exposures in internal models.

4 Liquidity adequacy

Liquidity risk is defined in section 2.3.2, fig. 7 (page 70) of the opportunity and risk report.

4.1 Management of liquidity adequacy

(ARTICLE 435 (1) CRR)

The principles for the management of liquidity adequacy and the risk management strategies and processes in respect of liquidity risk are presented in sections 6.1, 6.2.2, and 6.2.5 (pages 92, 93, and 95) of the opportunity and risk report. The structure and organization of the liquidity risk management function are described in sections 6.2.3 and 6.3.2 (pages 93 and 98) of the opportunity and risk report. Further details of the scope and nature of the liquidity risk measurement systems are provided in sections 6.2.3, 6.2.4, and 6.3.2 (pages 93 to 95 and 98) of the opportunity and risk report. Sections 6.2.2, 6.2.4, and 6.2.5 (pages 92 to 95) of the opportunity and risk report set out the strategies for hedging and mitigating liquidity risk and strategies and processes for monitoring the ongoing effectiveness of the measures taken to hedge liquidity risk. A declaration approved by the Board of Managing Directors on the appropriateness of the liquidity risk management agreements can be found in section 2.1 (page 65) of the opportunity and risk report. Section 2 in conjunction with section 6.2.7 (page 97) contains the liquidity risk statement approved by the Board of Managing Directors, which describes the institution's entire liquidity risk profile relating to the business strategy.

4.2 Liquidity coverage ratio (LCR)

The **liquidity coverage ratio (LCR)** is used to measure whether an institution has an adequate buffer in form of liquid assets that enables it to compensate for a possible imbalance between inflows and outflows of cash in a 30-day stress scenario. The LCR is the ratio of liquid assets held ('liquidity buffer') to net cash outflows. From January 1, 2017, a minimum LCR of 80 percent had to be maintained. From January 1, 2018 onward, the ratio to be maintained is 100 percent. DZ BANK reports the LCR of the banking group, calculated in accordance with the CRR in conjunction with Delegated Regulation (EU) No. 2015/61 dated October 10, 2014, to the supervisory authority on a monthly basis (Fig. 9).

The liquidity coverage ratio shown for the DZ BANK banking group in Fig. 8 is based on EBA/GL/2017/01 dated June 21, 2017, which has had to be applied since December 31, 2017. The LCR is disclosed quarterly at consolidated level. Owing to a transitional provision, the disclosure as of the reporting date only contains information about the LCR in the third and fourth quarters of 2017. The disclosed line items were each calculated as the average of the month-end values for the previous twelve months. For example, the LCR values from January 2017 to December 2017 provided the basis for the disclosure for the fourth quarter of 2017 and the values from October 2016 to September 2017 were used for the disclosure for the third quarter of 2017.

The average **LCR** for the DZ BANK banking group as of December 31, 2017 calculated in accordance with this method was 146.2 percent (September 30, 2017: 146.9 percent), based on average liquid assets of €80,621 million (September 30, 2017: €78,194 million) and net liquidity outflows of €55,247 million (September 30, 2017: €53,347 million) (Fig. 7 and Fig. 8).

Fig. 7 – LEVELS AND COMPONENTS OF THE LCR OF THE BANKING GROUP

Consolidated € million		Total unweighted value (average)				Total weighted value (average)			
Quarter ending on		**Mar. 31, 2017**	**Jun. 30, 2017**	**Sep. 30, 2017**	**Dec. 31, 2017**	**Mar. 31, 2017**	**Jun. 30, 2017**	**Sep. 30, 2017**	**Dec. 31, 2017**
Number of data points used in the calculation of the averages				12	12			12	12
High-quality liquid assets									
1	Total high-quality liquid assets (HQLA)							78,194	80,621
Cash outflows									
2	Retail deposits and deposits from small business customers, of which:			1,666	1,652			326	296
3	stable deposits			634	650			32	32
4	less stable deposits			835	840			97	100
5	Unsecured wholesale funding			79,771	82,057			49,777	51,225
6	Operational deposits (all counterparties) and deposits in networks of cooperative banks			30,478	31,423			7,619	7,856
7	Non-operational deposits (all counterparties)			41,735	43,521			34,599	36,256
8	Unsecured debt			7,558	7,113			7,558	7,113
9	Secured wholesale funding							138	141
10	Additional requirements			32,478	31,843			12,178	11,765
11	Outflows related to derivative exposures and other collateral requirements			6,191	5,805			5,379	5,046
12	Outflows related to loss of funding on debt products			131	150			131	150
13	Credit and liquidity facilities			26,155	25,888			6,668	6,570
14	Other contractual funding obligations			1,570	1,701			1,318	1,453
15	Other contingent funding obligations			38,903	42,968			72	76
16	**Total cash outflows**							**63,808**	**64,957**
Cash inflows									
17	Secured lending (e.g. reverse repos)			6,507	6,235			811	673
18	Inflows from fully performing exposures			10,549	9,599			7,532	6,909
19	Other cash inflows			2,897	2,879			2,118	2,127
EU-19a	(Difference between total weighted inflows and total weighted outflows arising from transactions in third countries where there are transfer restrictions or which are denominated in non-convertible currencies)							-	-
EU-19b	(Excess inflows from a related specialized credit institution)								
20	**Total cash inflows**			**19,952**	**18,713**			**10,461**	**9,709**
EU-20a	Fully exempt inflows			-	-			-	-
EU-20b	Inflows subject to 90% cap			158	162			104	106
EU-20c	Inflows subject to 75% cap			19,659	18,396			10,358	9,604
21	Liquidity buffer							78,194	80,621

Consolidated € million	Total unweighted value (average)				Total weighted value (average)			
Quarter ending on	Mar. 31, 2017	Jun. 30, 2017	Sep. 30, 2017	Dec. 31, 2017	Mar. 31, 2017	Jun. 30, 2017	Sep. 30, 2017	Dec. 31, 2017
22 Total net cash outflows							53,347	55,247
23 Liquidity coverage ratio							146.9%	146.2%

Fig. 8 – LIQUIDITY COVERAGE RATIO OF THE BANKING GROUP (AVERAGE)

	Total weighted value (average)	
€ million	Dec. 31, 2017	Sep. 30, 2017
21 Liquidity buffer	80,621	78,194
22 Net liquidity outflows	55,247	53,347
23 Liquidity coverage ratio (%)	146.2%	146.9%

In addition, the DZ BANK banking group discloses the liquidity buffer, net liquidity outflows, and the LCR as of the reporting date at the end of each six-month period in accordance with Delegated Regulation (EU) No. 2015/61. These are shown in Fig. 9 . The LCR as of December 31, 2017 was 161.7 percent (June 30, 2017: 134.8 percent), based on liquid assets of €77,459 million (June 30, 2017: €75,529 million) and net liquidity outflows of €47,912 million (June 30, 2017: €56,012 million). The DZ BANK banking group's LCR is thus already higher than the minimum ratio of 100 percent that becomes mandatory from 2018.

Fig. 9 – LIQUIDITY COVERAGE RATIO OF THE BANKING GROUP (REPORTING DATE)

	Total weighted value (reporting date)	
€ million	Dec. 31, 2017	Jun. 30, 2017
Liquidity buffer	77,459	75,529
Net liquidity outflows	47,912	56,012
Liquidity coverage ratio (%)	161.7%	134.8%

The main reason for the rise in the DZ BANK banking group's LCR in 2017 was an increased volume of deposits from local cooperative banks and other customers. This led to a larger credit balance with the ECB. As a result of different weighting factors for these variables within the cash outflows and liquid assets, the LCR went up accordingly.

4.3 Qualitative LCR disclosures

Further qualitative explanations regarding the LCR are provided below in accordance with the requirements of EBA/GL/2017/01.

4.3.1 Concentration of funding and liquidity sources

The DZ BANK banking group's main short-term and medium-term funding sources on the unsecured money markets essentially comprise deposits from local cooperative banks, deposits from corporate customers and institutional customers, and commercial paper held by institutional investors.

The DZ BANK banking group also obtains long-term funding through structured and non-structured capital market products that are mainly marketed to local cooperative banks and other institutional customers.

A large proportion of the long-term funding results from the issuance of covered bonds such as Pfandbriefe or DZ BANK BRIEFE, which are used on a decentralized basis, in other words based on the different cover assets at DZ BANK, DG HYP, WL BANK, and DVB. Another major source of funding is Bausparkasse Schwäbisch Hall's home savings deposits.

Within the LCR, deposits from corporate customers, deposits from local cooperative banks, and deposits from financial customers with a term to maturity of under 30 days have the biggest impact on the liquidity outflows of the DZ BANK banking group.

The liquidity sources included in the liquidity buffer for the LCR at the level of the DZ BANK banking group predominantly consist of balances with central banks and liquid securities. The dominant liquid securities under assets at level 1 (assets that are of extremely high liquidity and credit quality) are government and regional government bonds, bonds of public-sector entities and multilateral development banks, and extremely high-quality covered bonds. The assets at level 2 (assets that are of high liquidity and credit quality) largely comprise high-quality covered bonds and liquid corporate bonds.

4.3.2 Derivative exposures and potential collateral calls

Line item 11 in Fig. 7 – outflows related to derivative exposures and other collateral requirements – consists of potential outflows as a result of

- fluctuations in the fair value of derivatives and the related volatility of the collateral exposure,
- subsequent collateral requirements caused by the worsening of own credit rating by three notches,
- fluctuations in the fair value of the collateral,
- derivatives, and
- other potential collateral calls.

The biggest contribution to this line item is the simulation – using the historical look-back approach (HLBA) – of the effects of fluctuations in the fair value of derivatives on the collateral exposure. This involves simulating a stress scenario specified by the supervisory authority.

The effects of subsequent collateral requirements owing to the worsening of the credit rating of the entities in the DZ BANK banking group by three notches also have a significant influence on the aforementioned line item. This is because some OTC collateral agreements that entities in the DZ BANK banking group have concluded contain rating-based triggers. A downgrade in an entity's own credit rating would trigger collateral calls by counterparties.

4.3.3 Currency mismatch in the liquidity coverage ratio

At the level of the DZ BANK banking group, the US dollar is the only significant foreign currency as the liabilities in this currency exceed 5 percent of the total liabilities of the DZ BANK banking group. This gives rise to a requirement to disclose the LCR in US dollars on a monthly basis. However, there is no minimum LCR requirement for US dollars.

The currency mismatch in the liquidity coverage ratio for the US dollar, pound sterling, the Swiss franc, the Hong Kong dollar, and the Singapore dollar, which are the most significant currencies for the DZ BANK banking group besides the euro, is calculated and monitored monthly.

Details of the management of foreign-currency liquidity risk can be found in section 6.2.4 'Measurement of liquidity risk' (pages 93 to 95) of the opportunity and risk report.

4.3.4 Degree of centralization of liquidity management and interaction between the group's units

In the DZ BANK banking group, there is no group waiver pursuant to article 8 CRR that has been approved by the supervisory authority for the disclosure of, and compliance with, regulatory liquidity ratios. As a result, each subsidiary listed in Fig. 4 in the liquidity ratios column has to meet the LCR requirements itself.

Liquidity management of the entities in the DZ BANK banking group and the interaction between the individual entities in the banking group are described in the business report, section 5 'Financial position'.

Disclosures relating to the management of liquidity risk in the DZ BANK banking group can be found in section 6.2.4 'Management of limits for liquidity risk' (pages 93 to 95) of the opportunity and risk report.

4.3.5 Remarks about the LCR disclosure

Short-term deposits from major corporate customers and financial customers have a big impact on the level of liquidity outflows under the LCR of the DZ BANK banking group. As a result, the corresponding line items (Fig. 7, rows 5 and 6) are dominated by deposits from the local cooperative banks. DZ BANK performs the central cash-pooling function for these institutions. Local cooperative banks with available liquidity can invest it with DZ BANK, while those requiring liquidity can obtain it from DZ BANK.

The DZ BANK banking group also has inflows that, contrary to the fundamental eligibility cap of 75 percent pursuant to article 33 (4) of Delegated Regulation (EU) No. 2015/61, are subject to a cap of 90 percent (Fig. 7, row EU-20b). These are attributable to an entity in the DZ BANK banking group that has been granted approval by the competent supervisory authority to apply the aforementioned article in conjunction with article 33 (5) of Delegated Regulation (EU) No. 2015/61. This entity's liquidity inflows are therefore not subject to the usual cap on eligibility for the LCR.

4.4 Net stable funding ratio (NSFR)

Internal liquidity risk management is supplemented by the **net stable funding ratio (NSFR)**, which is based on the Basel III framework (BCBS 295).

Whereas the LCR relates to short-term liquidity with a 30-day time horizon, the **net stable funding ratio** has a long-term focus and is intended to ensure that institutions restrict mismatches between the maturity structures of their assets-side and liabilities-side business. This ratio is the amount of available stable funding (equity and liabilities) relative to the amount of required stable funding (assets-side business). The funding sources are weighted according to their degree of stability and assets are weighted according to their degree of liquidity based on factors defined by the supervisory authority. Unlike the liquidity coverage ratio, compliance with the NSFR is not expected to become mandatory before December 31, 2019 when CRR II comes into force.

5 Capital adequacy

5.1 Economic capital adequacy

(ARTICLE 438 SENTENCE 1 LETTER A CRR)

Information on the management of economic capital and on capital adequacy is disclosed in section 7.2 'Economic capital adequacy' (page 99) and section 7.3 (page 102) of the opportunity and risk report. Economic capital management is based on internal risk measurement methods that take into account all types of risk that are material from a capital adequacy perspective. The risk capital requirement is determined by aggregating the relevant risk types of all management units. The methods selected serve to meet the statutory requirements for a groupwide integrated risk capital management system.

In the **risk-bearing-capacity analysis**, the risk capital requirement (including capital buffer) is compared with the available internal capital in order to determine the economic capital adequacy. The Board of Managing Directors determines the upper loss limits for a particular year on the basis of the available internal capital. These limits then restrict the risk capital requirement (including capital buffer). If necessary, the upper loss limits can be adjusted during the year, e.g. if economic conditions change.

Available internal capital comprises equity and hidden reserves. It is reviewed on a quarterly basis.

5.2 Regulatory capital adequacy

5.2.1 Own funds

(ARTICLE 437 CRR)

The **regulatory own funds** of the DZ BANK banking group are derived from the provisions of the CRR/CRD IV. Pursuant to the provisions of the CRR (article 72 in conjunction with article 25), regulatory eligible own funds consist of Common Equity Tier 1 capital, Additional Tier 1 capital, and Tier 2 capital. They are based on the carrying amounts recognized under IFRS and essentially comprise the equity reported on the balance sheet, hybrid capital instruments, and subordinated liabilities.

Fig. 10 shows the DZ BANK banking group's aggregate own funds as defined by article 437 CRR in conjunction with Commission Implementing Regulation (EU) No. 1423/2013 dated December 20, 2013. These disclosures relate to all the entities consolidated for regulatory purposes in the DZ BANK banking group as of December 31, 2017.

Fig. 10 – STRUCTURE OF OWN FUNDS DURING TRANSITION PERIOD AS OF DECEMBER 31, 2017 (ARTICLE 437 (1) CRR IN CONJUNCTION WITH ANNEX VI OF IMPLEMENTING REGULATION (EU) NO. 1423/2013)

The dots in the table below indicate cells that the EBA specifies must be left empty. The dashes (-) indicate that DZ BANK has no value to disclose.

		(A)	(C)	(A)	(C)
€ million		Amount on disclosure reporting date	Amounts subject to pre-CRR treatment, or prescribed CRR residual amounts	Amount on disclosure reporting date	Amounts subject to pre-CRR treatment, or prescribed CRR residual amounts
		Dec. 31, 2017		Sep. 30, 2017	
Common Equity Tier 1: instruments and reserves					
1	Capital instruments and related share premium accounts	10,478	-	10,478	-
1a	of which: financial instrument type 1	-	●	-	●
1b	of which: financial instrument type 2	-	●	-	●
1c	of which: financial instrument type 3	-	●	-	●
2	Retained earnings	5,981	●	5,678	●
3	Accumulated other comprehensive income (and other reserves, to include unrealized gains and losses under the applicable accounting standards)	2,092	*See row 26a*	1,883	*See row 26a*
3a	Fund for general banking risks	-	●	-	●
4	Amount of qualifying items referred to in article 484 (3) CRR and the related share premium accounts subject to phase out from CET1	-	●	-	●
4a	Public-sector capital injections grandfathered until January 1, 2018	-	●	-	●
5	Non-controlling interests (amount allowed in consolidated CET1)	199	93	194	85

€ million		(A) Amount on disclosure reporting date	(C) Amounts subject to pre-CRR treatment, or prescribed CRR residual amounts	(A) Amount on disclosure reporting date	(C) Amounts subject to pre-CRR treatment, or prescribed CRR residual amounts
		Dec. 31, 2017		Sep. 30, 2017	
5a	Independently reviewed interim profits net of any foreseeable charge or dividend	665	●	230	●
6	**Common Equity Tier 1 (CET1) before regulatory adjustments**	**19,415**	●	**18,463**	●
7	Additional value adjustments (negative amount)	-322	●	-300	●
8	Intangible assets (net of related tax liability) (negative amount)	-521	-130	-508	-127
9	Empty set in the EU	●	●	●	●
10	Deferred tax assets that rely on future profitability, excluding those arising from temporary differences (net of related tax liability where the conditions in article 38 (3) CRR are met) (negative amount)	-5	-1	-10	-2
11	Fair value reserves related to gains and losses on cash flow hedges	-9	●	-3	●
12	Negative amounts resulting from the calculation of expected loss amounts	-110	-27	-104	-26
13	Any increase in equity arising from securitized assets (negative amount)	-	●	-	●
14	Gains or losses on liabilities recognized at fair value resulting from changes in own credit standing	29	-1	-3	-2
15	Defined benefit pension fund assets (negative amount)	0	0	-	-
16	Direct and indirect holdings by an institution of own CET1 instruments (negative amount)	-	-	-	-
17	Holdings of the CET1 instruments of financial-sector entities where those entities have reciprocal cross-holdings with the institution designed to artificially inflate the institution's own funds (negative amount)	-2	0	-2	0
18	Direct and indirect holdings by the institution of CET1 capital instruments of financial-sector entities where the institution does not have a significant investment in those entities (above 10 percent and net of eligible short positions) (negative amount)	-	-	-	-
19	Direct, indirect and synthetic holdings by the institution of CET1 instruments of financial-sector entities where the institution has a significant investment in those entities (above 10 percent and net of eligible short positions) (negative amount)	-	-	-	-
20	Empty set in the EU	●	●	●	●
20a	Exposure arising from the following items qualifying for a risk weighting of 1,250 percent, where the institution opts for the deduction alternative	-	●	-	●
20b	of which: qualifying holdings outside the financial sector (negative amount)	-	●	-	●
20c	of which: securitization exposures (negative amount)	-	●	-	●
20d	of which: free deliveries (negative amount)	-	●	-	●
21	Deferred tax assets that rely on future profitability, arising from temporary differences (amount above 10 percent threshold, net of related tax liability where the conditions in article 38 (3) CRR are met) (negative amount)	-	-	-	-
22	Amount exceeding the 15 percent threshold (negative amount)	-	-	-	-
23	of which: direct and indirect holdings by the institution of CET1 instruments of financial-sector entities where the institution has a significant investment in those entities	-	-	-	-
24	Empty set in the EU	●	●	●	●
25	of which: deferred tax assets that rely on future profitability, arising from temporary differences	-	-	-	-
25a	Losses for the current financial year (negative amount)	-	-	-	-
25b	Foreseeable tax charges relating to CET1 items (negative amount)	-	-	-	-
26	Regulatory adjustments applied to CET1 in respect of amounts subject to pre-CRR treatment	-	●	-	●
26a	Regulatory adjustments relating to unrealized gains and losses pursuant to articles 467 and 468 CRR	-214	●	-172	●
26a.1	of which: filters for unrealized gains	-318	●	-281	●
26a.2	of which: filters for unrealized losses	104	●	109	●

€ million		(A) Amount on disclosure reporting date	(C) Amounts subject to pre-CRR treatment, or prescribed CRR residual amounts	(A) Amount on disclosure reporting date	(C) Amounts subject to pre-CRR treatment, or prescribed CRR residual amounts
		Dec. 31, 2017		Sep. 30, 2017	
26b	Amount to be deducted from or added to CET1 capital with regard to additional filters and deductions required pre-CRR	-	●	-	●
27	Qualifying AT1 deductions that exceed the AT1 capital of the institution (negative amount)	-	●	-	●
27a	Other capital elements or deductions from Common Equity Tier 1	-10	●	-352	●
28	**Total regulatory adjustments to Common Equity Tier 1 (CET1)**	**-1,164**	●	**-1,454**	●
29	**Common Equity Tier 1 (CET1)**	**18,251**	●	**17,009**	●
Additional Tier 1 capital (AT1): instruments					
30	Capital instruments and related share premium accounts	750	●	750	●
31	of which: classified as equity under applicable accounting standards	750	●	750	●
32	of which: classified as liabilities under applicable accounting standards	-	●	-	●
33	Amount of qualifying items referred to in article 484 (4) CRR and the related share premium accounts subject to phase out from AT1	1,232	●	1,232	●
33a	Public-sector capital injections grandfathered until January 1, 2018	-	●	-	●
33b	Non-controlling interests in subsidiaries	-	●	-	●
34	Qualifying Tier 1 capital instruments included in consolidated AT1 capital (including non-controlling interests not included in row 5) issued by subsidiaries and held by third parties	17	-4	16	-4
35	of which: instruments issued by subsidiaries subject to phase out	-4	●	-4	●
36	**Additional Tier 1 capital (AT1) before regulatory adjustments**	**1,999**	●	**1,998**	●
Additional Tier 1 capital (AT1): regulatory adjustments					
37	Direct and indirect holdings by an institution of its own AT1 instruments (negative amount)	-65	-	-65	-
38	Holdings of AT1 instruments of financial-sector entities where those entities have reciprocal cross-holdings with the institution designed to artificially inflate the institution's own funds (negative amount)	-	-	-	-
39	Direct and indirect holdings by the institution of AT1 capital instruments of financial-sector entities where the institution does not have a significant investment in those entities (above 10 percent and net of eligible short positions) (negative amount)	-	-	-	-
40	Direct and indirect holdings by the institution of AT1 capital instruments of financial-sector entities where the institution has a significant investment in those entities (above 10 percent and net of eligible short positions) (negative amount)	-	-	-	-
41	Regulatory adjustments to Additional Tier 1 capital in respect of amounts subject to pre-CRR treatment and transitional treatments subject to phase out pursuant to Regulation (EU) No. 575/2013 (CRR residual amounts)	-144	●	-140	●
41a	of which: residual amounts deducted from Additional Tier 1 capital with regard to deduction from Common Equity Tier 1 capital during the transition period pursuant to article 472 of Regulation (EU) No. 575/2013	-144	●	-140	●
41a.1	of which: losses for the current financial year (net)	-	●	-	●
41a.2	of which: intangible assets	-130	●	-127	●
41a.3	of which: shortfall in provisions for expected losses	-14	●	-13	●
41a.4	of which: direct holdings by the institution of its own CET1 instruments	-	●	-	●
41a.5	of which: reciprocal cross-holdings	0	●	0	●
41a.6	of which: own funds instruments of financial-sector entities where the institution does not have a significant investment in those entities	-	●	-	●
41a.7	of which: own funds instruments of financial-sector entities where the institution has a significant investment in those entities	-	●	-	●
41b	of which: residual amounts deducted from Additional Tier 1 capital with regard to deduction from Tier 2 capital during the transition period pursuant to article 475 of Regulation (EU) No. 575/2013	0	●	0	●

€ million		(A) Amount on disclosure reporting date	(C) Amounts subject to pre-CRR treatment, or prescribed CRR residual amounts	(A) Amount on disclosure reporting date	(C) Amounts subject to pre-CRR treatment, or prescribed CRR residual amounts
		Dec. 31, 2017		Sep. 30, 2017	
41b.1	of which: direct holdings of non-significant investments in the capital of other financial-sector entities	-	●	-	●
41b.2	of which: direct holdings of significant investments in the capital of other financial-sector entities	0	●	-	●
41c	of which: amount to be deducted from or added to Additional Tier 1 capital with regard to additional filters and deductions required pre-CRR	-	●	-	●
41c.1	of which: possible filters for unrealized losses	-	●	-	●
41c.2	of which: possible filters for unrealized gains	-	●	-	●
41c.3	of which: other	-	●	-	●
42	Qualifying T2 deductions that exceed the T2 capital of the institution (negative amount)	-	●	-	●
43	**Total regulatory adjustments to Additional Tier 1 capital (AT1)**	**-209**	●	**-205**	●
44	**Additional Tier 1 capital (AT1)**	**1,790**	●	**1,793**	●
45	**Tier 1 capital (T1 = CET1 + AT1)**	**20,041**	●	**18,802**	●
Tier 2 capital (T2): instruments and reserves					
46	Capital instruments and related share premium accounts	3,302	●	3,416	●
47	Amount of qualifying items referred to in article 484 (5) CRR and the related share premium accounts subject to phase out from T2	10	●	12	●
48	Qualifying own funds instruments in consolidated T2 capital (including non-controlling interests and AT1 instruments not included in rows 5 or 34) issued by subsidiaries and held by third parties	156	8	157	43
49	of which: instruments issued by subsidiaries subject to phase out	8	●	19	●
50	Credit risk adjustments	503	●	506	●
51	**Tier 2 capital (T2) before regulatory adjustments**	**3,971**	●	**4,091**	●
Tier 2 capital (T2): regulatory adjustments					
52	Direct and indirect holdings by an institution of its own T2 instruments and subordinated loans (negative amount)	-51	-	-51	-
53	Holdings of T2 instruments and subordinated loans of financial-sector entities where those entities have reciprocal cross-holdings with the institution designed to artificially inflate the institution's own funds (negative amount)	-	-	-	-
54	Direct and indirect holdings by the institution of T2 instruments and subordinated loans of financial-sector entities where the institution does not have a significant investment in those entities (above 10 percent and net of eligible short positions) (negative amount)	-	-	-	-
54a	of which: new holdings not subject to transitional arrangements	-	-	-	-
54b	of which: holdings existing before January 1, 2013 and subject to transitional arrangements	-	-	-	-
55	Direct and indirect holdings by the institution of 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)	-1	0	-	-
56	Regulatory adjustments to Tier 2 capital in respect of amounts subject to pre-CRR treatment and transitional treatments subject to phase out pursuant to Regulation (EU) No. 575/2013 (CRR residual amounts)[1]	-1,232	●	-1,236	●
56a	of which: residual amounts deducted from Tier 2 capital with regard to deduction from Common Equity Tier 1 capital during the transition period pursuant to article 472 of Regulation (EU) No. 575/2013	-14	●	-13	●
56a.1	of which: shortfall in provisions for expected losses	-14	●	-13	●
56a.2	of which: Common Equity Tier 1 instruments of financial-sector entities where the institution does not have a significant investment in those entities	-	●	-	●
56a.3	of which: Common Equity Tier 1 instruments of financial-sector entities where the institution has a significant investment in those entities	-	●	-	●

€ million		(A) Amount on disclosure reporting date	(C) Amounts subject to pre-CRR treatment, or prescribed CRR residual amounts	(A) Amount on disclosure reporting date	(C) Amounts subject to pre-CRR treatment, or prescribed CRR residual amounts
		Dec. 31, 2017		Sep. 30, 2017	
56b	of which: residual amounts deducted from Tier 2 capital with regard to deduction from additional Tier 1 capital during the transition period pursuant to article 475 of Regulation (EU) No. 575/2013	-	●	-	●
56b.1	of which: additional Tier 1 capital instruments of financial-sector entities where the institution does not have a significant investment in those entities	-	●	-	●
56b.2	of which: additional Tier 1 capital instruments of financial-sector entities where the institution has a significant investment in those entities	-	●	-	●
56c	of which: amount to be deducted from or added to Tier 2 capital with regard to additional filters and deductions required pre-CRR	-	●	-	●
56c.1	of which: possible filters for unrealized losses	-	●	-	●
56c.2	of which: possible filters for unrealized gains	-	●	-	●
56d	of which: other capital elements or deductions from Tier 2 capital	-1,218	●	-1,223	●
57	**Total regulatory adjustments to Tier 2 capital (T2)**	**-1,284**	●	**-1,287**	●
58	**Tier 2 capital (T2)**	**2,687**	●	**2,804**	●
59	**Total capital (TC = T1 + T2)**	**22,728**	●	**21,606**	●
59a	Risk-weighted assets relating to amounts subject to pre-CRR treatment and transitional treatments subject to phase out pursuant to Regulation (EU) No. 575/2013 (i.e. CRR residual amounts)	354	●	354	●
59a.1	of which: items not deducted from Common Equity Tier 1 capital (Regulation (EU) No. 575/2013, residual amounts)	-	●	-	●
59a.1.1	of which: deferred tax assets that rely on future profitability, net of related tax liabilities	1	●	2	●
59a.1.2	of which: indirect holdings by the institution of its own CET1 instruments	-	●	-	●
59a.1.3	of which: items not deducted from Common Equity Tier 1 (Regulation (EU) No. 575/2013, residual amounts)	-	●	-	●
59a.1.4	of which: reciprocal cross-holdings in Common Equity Tier 1 instruments, direct holdings of non-significant investments in the capital of other financial-sector entities	-	●	-	●
59a.2	of which: items not deducted from additional Tier 1 capital (Regulation (EU) No. 575/2013, residual amounts)	-	●	-	●
59a.2.1	of which: indirect holdings by the institution of its own additional Tier 1 capital instruments	-	●	-	●
59a.2.2	of which: indirect holdings of non-significant investments in the AT1 capital of other financial-sector entities	-	●	-	●
59a.2.3	of which: indirect holdings of significant investments in the AT1 capital of other financial-sector entities	-	●	-	●
59a.3	of which: items not deducted from Tier 2 capital (Regulation (EU) No. 575/2013, residual amounts)	-	●	-	●
59a.3.1	of which: indirect holdings by the institution of its own Tier 2 capital instruments	-	●	-	●
59a.3.2	of which: indirect holdings of non-significant investments in the capital of other financial-sector entities	-	●	-	●
59a.3.3	of which: indirect holdings of significant investments in the capital of other financial-sector entities	-	●	-	●
60	**Total risk weighted assets**	**131,567**	●	**131,603**	●
Capital ratios and buffers					
61	Common Equity Tier 1 capital ratio (as a percentage of total exposure)	13.87	●	12.92	●
62	Tier 1 capital ratio (as a percentage of total exposure)	15.23	●	14.29	●
63	Total capital ratio (as a percentage of total exposure)	17.28	●	16.42	●
64	Institution-specific capital buffer requirement (minimum CET1 requirement pursuant to article 92 (1) letter a CRR, plus capital conservation and anti-cyclical capital buffer requirements, systemic risk buffer and systemically important institution buffer (G-SII or O-SII buffer), expressed as a percentage of total exposure)[2]	7.85	●	7.84	●

€ million		(A) Amount on disclosure reporting date	(C) Amounts subject to pre-CRR treatment, or prescribed CRR residual amounts	(A) Amount on disclosure reporting date	(C) Amounts subject to pre-CRR treatment, or prescribed CRR residual amounts
		Dec. 31, 2017		Sep. 30, 2017	
65	of which: capital conservation buffer	1.25	●	1.25	●
66	of which: countercyclical capital buffer	0.02	●	0.01	●
67	of which: systemic risk buffer	0.33	●	0.33	●
67a	of which: buffer for global systemically important institutions (G-SII) or other systemically important institutions (O-SII)	0.33	●	0.33	●
68	Common Equity Tier 1 available to meet buffers (as a percentage of total exposure)	6.02	●	5.08	●
69	[not relevant in EU regulation]	●	●	●	●
70	[not relevant in EU regulation]	●	●	●	●
71	[not relevant in EU regulation]	●	●	●	●
Amounts below threshold for deductions (before risk weighting)					
72	Direct and indirect holdings by the institution of capital instruments of financial-sector entities where the institution does not have a significant investment in those entities (less than 10 percent and net of eligible short positions)	1,126	●	1,187	●
73	Direct and indirect holdings by the institution of CET1 instruments of financial-sector entities where the institution holds a significant investment in those entities (above 10 percent and net of eligible short positions)	341	●	320	●
74	Empty set in the EU	●	●	●	●
75	Deferred tax assets that rely on future profitability, arising from temporary differences (amount below 10 percent threshold, net of related tax liability where the conditions in article 38 (3) CRR are met)	539	●	690	●
Applicable caps on the inclusion of provisions in Tier 2 capital					
76	Credit risk adjustments included in Tier 2 capital in respect of exposures subject to the standardized approach (prior to application of cap)	-	●	-	●
77	Cap on inclusion of credit risk adjustments in Tier 2 capital under standardized approach	320	●	331	●
78	Credit risk adjustments included in Tier 2 capital in respect of exposures subject to internal ratings-based approach (prior to application of cap)	816	●	735	●
79	Cap on inclusion of credit risk adjustments in Tier 2 capital under internal ratings based approach	503	●	506	●
Capital instruments subject to phase-out arrangements (only applicable between January 1, 2013 and January 1, 2022)					
80	Current cap on CET1 instruments subject to phase-out arrangements	-	●	-	●
81	Amount excluded from CET1 due to cap (excess over cap after redemptions and maturities)	-	●	-	●
82	Current cap on AT1 instruments subject to phase-out arrangements	1,232	●	1,232	●
83	Amount excluded from AT1 due to cap (excess over cap after redemptions and maturities)	178	●	178	●
84	Current cap on T2 instruments subject to phase-out arrangements	29	●	29	●
85	Amount excluded from T2 due to cap (excess over cap after redemptions and maturities)	-	●	-	●

[1] Item 56 is the sum of sub-items 56a to 56d.

[2] Including the Pillar 2 requirement of 1.75 percent.

The regulatory **own funds** of the **DZ BANK banking group** as of December 31, 2017 determined in accordance with the currently applicable CRR transitional guidance amounted to a total of €22,728 million (September 30, 2017: €21,606 million).

The significant rise in own funds was mainly attributable to a total increase of €1,242 million in **Common Equity Tier 1 capital**. All effects within Common Equity Tier 1 capital are due to the fact that profit retention as of December 31, 2017 and all other capital changes arising in the consolidated financial statements had already been recognized for regulatory purposes.

There were no changes in the year under review in the portfolio of issued additional Tier 1 bonds (AT1 bonds). During the reporting year, there was merely a small reduction from €1,793 million as of September 30, 2017 to €1,790 million as of December 31, 2017.

Additional Tier 1 capital (AT1) predominantly comprises open-ended own funds instruments without redemption incentives with a value of €2,160 million (September 30, 2017: €2,160 million). Of the instruments listed in Fig. 11, an amount of €1,410 million is subject to phase-out arrangements pursuant to articles 484 and 486 CRR. Consequently, the total eligibility cap for these instruments is €1,232 million (September 30, 2017: €1,232 million). Fig. 11 also shows the **features and terms and conditions** of the additional Tier 1 capital instruments classified as **additional Tier 1 capital** (AT1) before consolidation.

Fig. 11 – ADDITIONAL TIER 1 CAPITAL INSTRUMENTS (PURSUANT TO ANNEX II OF IMPLEMENTING REGULATION (EU) NO. 1423/2013)

Issuer	Volume (€ million)	Interest rate (%)[1]	Start date	Maturity	Next call date
DZ BANK Capital Funding LLC, Wilmington[2]	300	3m EURIBOR + 250bp	Nov. 7, 2003	Perpetual	Feb. 7, 2018
DZ BANK Capital Funding LLC II, Wilmington[2]	500	3m EURIBOR + 160bp	Nov. 22, 2004	Perpetual	Feb. 22, 2018
DZ BANK Capital Funding LLC III, Wilmington[2]	350	3m EURIBOR + 150bp	Jun. 6, 2005	Perpetual	Mar. 6, 2018
DZ BANK Perpetual Funding (Jersey) Limited, St. Helier[2]	45	3m EURIBOR + 110bp	Jan. 9, 2006	Perpetual	Jan. 9, 2018
DZ BANK Perpetual Funding (Jersey) Limited, St. Helier[2]	84	3m EURIBOR + 80bp	Feb. 13, 2006	Perpetual	Feb. 13, 2018
DZ BANK Perpetual Funding (Jersey) Limited, St. Helier[2]	4	3m EURIBOR + 100bp	Mar. 17, 2006	Perpetual	Mar. 17, 2018
DZ BANK Perpetual Funding (Jersey) Limited, St. Helier[2]	87	3m EURIBOR + 80bp	Sep. 4, 2006	Perpetual	Mar. 6, 2018
DZ BANK Perpetual Funding (Jersey) Limited, St. Helier[2]	40	3m EURIBOR + 50bp	Apr. 16, 2007	Perpetual	Jan. 16, 2018
Subtotal I	**1,410[2]**				
DZ BANK	221	12m EURIBOR + 420bp	Nov. 11, 2015	Perpetual	Aug. 1, 2021
DZ BANK	221	12m EURIBOR + 420bp	Nov. 11, 2015	Perpetual	Aug. 1, 2021
DZ BANK	74	4.85%, from Aug. 1, 2021 12m EURIBOR + 420bp	Nov. 11, 2015	Perpetual	Aug. 1, 2021
DZ BANK	134	5.5%, from Aug. 1, 2026 12m EURIBOR + 420bp	Nov. 11, 2015	Perpetual	Aug. 1, 2026
DZ BANK	100	4.85%, from Aug. 1, 2021 fixed rate based on 5-year euro mid-swap rate + 440bp	Nov. 11, 2015	Perpetual	Aug. 1, 2021
Subtotal II	**750**				
Total	**2,160**				

[1] bp = basis points.
[2] Instruments subject to phase-out arrangements pursuant to articles 484 and 486 CRR.

Tier 2 capital (T2) pursuant to article 62 CRR before capital deductions amounted to €3,971 million, which was lower than at the end of the previous quarter (September 30, 2017: €4,091 million). This decrease was almost entirely due to the reduced level of eligibility of subordinated capital under the CRR in the last 5 years before maturity date. The instruments in an amount of €1,232 million qualifying as additional Tier 1 capital in the grandfathering provision pursuant to article 484 (4) CRR are deemed CRR-compliant Tier 2 capital when the CRR is applied in full. These instruments have therefore already been recognized as subordinated capital and, in the amount in which they qualify as AT1, have been deducted again in the Other Transitional Provisions for Tier 2 capital deduction.

Fig. 12 provides an overview of the items, features, and terms and conditions related to this subordinated capital.

Fig. 12 – SUBORDINATED CAPITAL (PURSUANT TO ANNEX II OF IMPLEMENTING REGULATION (EU) NO. 1423/2013)

Issuer	Volume		Interest rate (%)[1]	Start date	Maturity
	€ million	Currency million			
DZ BANK	211	EUR 211	7.400/EURIBOR + 350bp	1997 to 1999	2018
DZ BANK	63	EUR 63	7.1000	2008	2020
DZ BANK	681	EUR 681	3.600 to 7.500/EURIBOR + 350bp	2003 to 2008	2018
DZ BANK	26	EUR 26	1.900 to 3.175/EURIBOR + 1.650	2013	2018
DZ BANK	340	EUR 340	2.433 to 7.410	1999 to 2009	2019
DZ BANK	285	EUR 285	2.200 to 3.00	2013	2019
DZ BANK	7	USD 8	4.000	2013	2019
DZ BANK	371	EUR 371	3.574 to 7.150	2004 to 2010	2020
DZ BANK	20	EUR 20	3.100 to 3.200	2013	2020
DZ BANK	15	EUR 15	7.000 to 7.070	2009	2021
DZ BANK	224	EUR 224	3.640 to 5.000	2013	2021
DZ BANK	156	EUR 156	3.300 to 6.350	2009 to 2013	2022
DZ BANK	30	EUR 30	4.039 to 7.250	2003	2023
DZ BANK	281	EUR 281	3.230 to 4.370	2013	2023
DZ BANK	103	CHF 120	3.240	2013	2023
DZ BANK	6	USD 7	2.600	2015	2021
DZ BANK	38	EUR 38	1.7500	2015	2023
DZ BANK	72	EUR 72	6.500	2009	2024
DZ BANK	3	EUR 3	5.700	2010	2025
DZ BANK	278	EUR 278	2.25 to 2.89/EURIBOR + 1.25 to 1.75	2015	2025
DZ BANK	2	EUR 2	3.080	2015	2027
DZ BANK	64	EUR 64	3.085 to 3.300	2015	2030
DZ BANK	50	EUR 50	3.5 fixed, then 6m EURIBOR + 1.3 variable	2015	2030
DZ BANK	83	USD 100	4.800 to 4.900	2015	2030
DZ PRIVATBANK	15	EUR 15	6.100	1999	2019
DVB	10	EUR 10	6.000 to 6.110	2003	2018
DVB	79	EUR 79	3.950 to 4.000	2013	2018
DVB	40	EUR 40	2.640 to 2.750	2014	2019
DVB	75	EUR 75	2.200	2014	2019
DVB	100	EUR 100	2.000	2015	2021
DVB	77	EUR 77	2.300 to 2.560	2015	2022
DVB	50	EUR 50	2.000	2015	2023
Total	**3,855**				

[1] bp = basis points.

Another component of own funds derives from the **comparison of loan loss allowances** pursuant to article 159 CRR, which DZ BANK carries out at both institution level and banking group level. In this comparison, the expected losses computed on the IRBA exposure classes of central governments and central banks, institutions, corporates, and retail business are compared with the amounts that can effectively be recognized in the annual or interim financial statements for actual or potential impairment losses (split into receivables that are past due and not past due).

The bank classifies the **write-down surplus** computed both for DZ BANK and at banking group level **for receivables that are past due and not past due** as Tier 2 capital in accordance with article 62 sentence 1 letter d CRR. This classification is capped at 0.6 percent of the risk-weighted IRBA exposure.

As of the reporting date, there was a **write-down deficit** totaling €137 million (September 30, 2017: €130 million) for **long-term equity investments** that was deducted from Common Equity Tier 1 capital pursuant to article 36 (1) letter d CRR.

The **write-down deficit** for long-term equity investments resulted in a deduction of €110 million from Common Equity Tier 1 capital pursuant to article 36 (1) letter h CRR as of December 31, 2017

(September 30, 2017: €104 million). During the transition period, the residual amount of €27 million (September 30, 2017: €26 million) is treated in accordance with CRD III rules and therefore half is deducted from Tier 1 capital and half from Tier 2 capital.
By contrast, the comparison of loan loss allowances for **receivables that are past due and not past due** pursuant to article 62 sentence 1 letter d CRR produced a **write-down surplus**. In the DZ BANK banking group, this resulted in a total amount eligible as Tier 2 capital of €503 million as of December 31, 2017 (September 30, 2017: €506 million).

Consequently, the allowances for losses on loans and advances recognized for the IRBA exposures in the central governments and central banks, institutions, corporates, and retail business exposure classes exceeded the expected losses for these exposures.

With very few exceptions, the CRR requires all capital deductions to be made from Common Equity Tier 1 capital. According to the CRR transitional guidance, 80 percent of the deduction from CET1 has to be recognized in 2017 and 100 percent of the deduction has to be recognized from 2018 onward (phase-in). The deductions largely result from prudent valuation, intangible assets including goodwill, deferred income tax assets, and reciprocal cross-holdings.

Pursuant to article 437 (1) letter b CRR, DZ BANK is obliged to disclose a description of the **main features of the Common Equity Tier 1, Additional Tier 1, and Tier 2 capital instruments issued** in accordance with Implementing Regulation (EU) No. 1423/2013.

This description is published in a separate annex on DZ BANK's website in the Investor Relations section under Bondholder Information, subsection Capital Instruments, together with the **full terms and conditions connected with these capital instruments**, whose publication is required pursuant to article 437 (1) letter c CRR.

Reconciliation of equity reported on the balance sheet with regulatory own funds of the DZ BANK banking group

(ARTICLE 437 (1) LETTER A CRR)

The reconciliation of equity reported under IFRS with equity reported for companies consolidated for regulatory purposes (Financial Reporting, FINREP) and regulatory own funds (Common Reporting, COREP) as of December 31, 2017 is shown in Fig. 13 below:

Fig. 13 – RECONCILIATION OF EQUITY REPORTED ON THE BALANCE SHEET WITH REGULATORY OWN FUNDS (ARTICLE 437 (1) LETTER A CRR IN CONJUNCTION WITH ANNEX I OF IMPLEMENTING REGULATION (EU) NO. 1423/2013)

	Carrying amounts on consolidated balance sheet in accordance with financial reporting (IFRS)	Consolidation/deconsolidation of entities	Carrying amounts under scope of regulatory consolidation (FINREP)	Regulatory law (COREP)	Reference to Fig. 10 – Structure of own funds during transition period
€ million			Dec. 31, 2017		
Assets					
Cash and cash equivalents	12,835	588	13,423	-	
Loans and advances to banks	120,489	479	120,968	-	
Loans and advances to customers	174,376	4,450	178,826	-	
Allowances for losses on loans and advances	-2,794	-167	-2,961	-	
Derivatives used for hedging (positive fair values)	1,096	-1	1,095	-	
Financial assets held for trading	38,709	-272	38,437	-	
Investments	57,486	5,916	63,402	0	
Investments held by insurance companies	96,416	-96,416	0	-	
Property, plant and equipment, and investment property	1,498	-101	1,397	-	
Income tax assets	1,127	-331	796	428	
Other assets	4,546	-2,713	1,833	550	
Non-current assets and disposal groups classified as held for sale	84	-50	34	-	
Fair value changes of the hedged items in portfolio hedges of interest-rate risk	-274	0	-274	-	

€ million	Carrying amounts on consolidated balance sheet in accordance with financial reporting (IFRS)	Consolidation/deconsolidation of entities	Carrying amounts under scope of regulatory consolidation (FINREP)	Regulatory law (COREP)	Reference to Fig. 10 – Structure of own funds during transition period
			Dec. 31, 2017		
Total assets	**505,594**	**-88,618**	**416,976**	**-**	
Equity and liabilities					
Deposits from banks	136,122	633	136,755	-	
Deposits from customers	126,319	6,714	133,033	-	
Debt certificates issued including bonds	67,327	303	67,630	-	
Derivatives used for hedging (negative fair values)	2,962	2	2,964	-	
Financial liabilities held for trading	44,280	10	44,290	-	
Provisions	3,372	75	3,447	-	
Insurance liabilities	89,324	-89,324	0	-	
Income tax liabilities	848	-544	304	29	
Other liabilities	7,523	-5,451	2,072	-	
Subordinated capital	3,899	65	3,964	-	
Liabilities included in disposal groups classified as held for sale	0	0	0	-	
Fair value changes of the hedged items in portfolio hedges of interest-rate risk	113	0	113	-	
Common Equity Tier 1 (CET1) before regulatory adjustments					
Subscribed capital	4,926	0	4,926	4,926	*1*
Capital reserve	5,551	0	5,551	5,551	*1*
Retained earnings	7,597	-969	6,628	5,981	*2/3*
Revaluation reserve	1,396	198	1,594	2,043	*3*
Cash flow hedge reserve	5	4	9	9	*3*
Currency translation reserve	43	-2	41	41	*3*
Non-controlling interests	2,815	-996	1,819	199	*5*
Unappropriated earnings	324	664	988	665	*6*
Total Common Equity Tier 1 (CET1) before regulatory adjustments				**19,415**	***6***
Common Equity Tier 1 (CET1): regulatory adjustments					
Capital deductions					
Loan loss allowances resulting from prudent valuation requirements (negative amount)				-322	*7*
Intangible assets (negative amount)	-665	-15	-680	-550	*8*
Deferred taxes related to other intangible assets (negative amount)	25	4	29	29	*8*
Deferred tax assets that rely on future profitability, not arising from temporary differences (negative amount)	-103	97	-6	-5	*10*
Hedge reserve (cash flow hedge reserve)			-9	-9	*11*
Negative amounts resulting from the calculation of expected loss amounts			-	-110	*12*
Effects resulting from measurement of own liabilities			-	29	*14*
Holdings of the CET1 instruments of financial-sector entities where those entities have reciprocal cross-holdings with the institution			-	-2	*17*
Deductible deferred tax assets that rely on future profitability, arising from temporary differences (negative amount)	-530	108	-422	-	*21*
Regulatory adjustments relating to unrealized gains and losses pursuant to articles 467 and 468 CRR				-214	*26a*
Other capital elements or deductions from Common Equity Tier 1			-	-10	*27a*
Total regulatory adjustments to			-	-1,164	28

€ million	Carrying amounts on consolidated balance sheet in accordance with financial reporting (IFRS)	Consolidation/deconsolidation of entities	Carrying amounts under scope of regulatory consolidation (FINREP)	Regulatory law (COREP)	Reference to Fig. 10 – Structure of own funds during transition period
			Dec. 31, 2017		
Common Equity Tier 1 (CET1)					
Common Equity Tier 1 (CET1) after regulatory adjustments:				**18,251**	***29***
Additional Tier 1 capital (AT1) before regulatory adjustments: instruments					
Capital instruments and related share premium accounts	848	0	848	750	*30*
Amount of qualifying items referred to in article 484 (4) and the related share premium accounts subject to phase out from AT1	1,410	0	1,410	1,232	*33*
Non-controlling interests in subsidiaries				-	*33a*
Qualifying Tier 1 capital instruments included in consolidated AT1 capital (including non-controlling interests not included in row 5[1]) issued by subsidiaries and held by third parties				17	*34 and 35*
Additional Tier 1 capital (AT1) before regulatory adjustments				**1,999**	***36***
Additional Tier 1 capital (AT1): regulatory adjustments					
Direct and indirect holdings by an institution of its own AT1 instruments (negative amount)	26	-21	5	-65	*37*
Holdings of AT1 instruments of financial-sector entities where those entities have reciprocal cross-holdings with the institution designed to artificially inflate the institution's own funds (negative amount)			-	-	*38*
Direct and indirect holdings by the institution of AT1 capital instruments of financial-sector entities where the institution does not have a significant investment in those entities (above 10 percent and net of eligible short positions) (negative amount)			-	-	*39*
Direct and indirect holdings by the institution of AT1 capital instruments of financial-sector entities where the institution has a significant investment in those entities (above 10 percent and net of eligible short positions) (negative amount)			-	-	*40*
Regulatory adjustments to additional Tier 1 capital in respect of amounts subject to pre-CRR treatment and transitional treatments subject to phase out pursuant to Regulation (EU) No. 575/2013 (i.e. CRR residual amounts)			-	-144	*41*
Qualifying T2 deductions that exceed the T2 capital of the institution (negative amount)			-	-	*42*
Total regulatory adjustments to Additional Tier 1 capital (AT1)				**-209**	***43***
Additional Tier 1 capital (AT1) after regulatory adjustments:				**1,790**	***44***
Tier 2 capital (T2): instruments and reserves					
Capital instruments and related share premium accounts	3,898	66	3,964	3,302	*46*
Amount of qualifying items referred to in article 484 (5) and the related share premium accounts subject to phase out from T2				10	*47*
Qualifying own funds instruments in consolidated T2 capital (including non-controlling interests and AT1 instruments not included in rows 5 or 34[1]) issued by				156	*48*

€ million	Carrying amounts on consolidated balance sheet in accordance with financial reporting (IFRS)	Consolidation/deconsolidation of entities	Carrying amounts under scope of regulatory consolidation (FINREP)	Regulatory law (COREP)	Reference to Fig. 10 – Structure of own funds during transition period
			Dec. 31, 2017		
subsidiaries and held by third parties					
of which: instruments issued by subsidiaries subject to phase out				8	*49*
Credit risk adjustments				503	*50*
IRB excess of provisions over expected losses, eligible				-	*50*
Tier 2 capital (T2) before regulatory adjustments				**3,971**	***51***
Tier 2 capital (T2): regulatory adjustments					
Direct and indirect holdings by an institution of its own T2 instruments and subordinated loans (negative amount)				-51	*52*
Holdings of T2 instruments and subordinated loans of financial-sector entities where those entities have reciprocal cross-holdings with the institution designed to artificially inflate the institution's own funds (negative amount)			-	-	*53*
Direct and indirect holdings by the institution of T2 instruments and subordinated loans of financial-sector entities where the institution does not have a significant investment in those entities (above 10 percent and net of eligible short positions) (negative amount)			-	-	*54*
of which: new holdings not subject to transitional arrangements			-	-	*54a*
of which: holdings existing before January 1, 2013 and subject to transitional arrangements			-	-	*54b*
Direct and indirect holdings by the institution of 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)			-	-1	*55*
Regulatory adjustments to Tier 2 capital in respect of amounts subject to pre-CRR treatment and transitional treatments subject to phase out pursuant to Regulation (EU) No. 575/2013 (i.e. CRR residual amounts)			-	-1,232	*56*
of which: residual amounts deducted from Tier 2 capital with regard to deduction from Common Equity Tier 1 capital during the transition period pursuant to article 472 of Regulation (EU) No. 575/2013				-14	*56a*
of which: other capital elements or deductions from Tier 2 capital				-1,218	*56d*
Total regulatory adjustments to Tier 2 capital (T2)				**-1,284**	*57*
Tier 2 capital (T2) after regulatory adjustments				**2,687**	***58***
Equity (IFRS/FINREP)/ own funds (COREP)	**23,505**	**-1,101**	**22,404**	**22,728**	***59***
Total equity and liabilities	**505,594**	**-88,618**	**416,976**		

1 See Fig. 3

The differences between the assets and the equity and liabilities reported in the IFRS consolidated financial statements and the DZ BANK banking group's assets and equity and liabilities under FINREP largely arose from different entities being included in each scope of consolidation and from different consolidation methods.

The variance in the consolidation methods essentially relates to R+V, which was consolidated using the equity method in the DZ BANK banking group's financial statements under FINREP but was fully consolidated in the consolidated financial statements. As a result, the figure for non-controlling interests was €1,032 million lower (June 30, 2017: €1,011 million lower).

Differences in the scope of consolidation also arose at the level of the consolidated subgroups DVB, UMH, and VR LEASING.

The differences between the equity under FINREP and the **Common Equity Tier 1 capital** under CRR/COREP arise solely from the provisions of the CRR. The reconciliation figures shown in Fig. 13 are explained below.

- The **retained earnings** according to FINREP includes the losses arising from revaluation of defined benefit pension plans in an amount of €522 million. Under COREP, in accordance with the transitional guidance as of December 31, 2017, 80 percent of the total volume of this item is recognized in the revaluation reserve.
- Under the CRR transitional provisions as of December 31, 2017, only 80 percent of the **revaluation reserve** attributable to equity instruments and debt instruments may be recognized. As a result, an amount of €319 million does not count as Common Equity Tier 1 capital.
- Furthermore, the CRR provisions state that **cash flow hedge reserves** cannot be recognized as equity, as a result of which the positive amount of €9 million has not been added to Common Equity Tier 1 capital.
- The additional equity components of €750 million have to be recognized as Additional Tier 1 capital (AT1) under COREP.
- The **non-controlling interests** contain further AT1 capital instruments of €1,410 million that, under COREP, have to be shown as additional Tier 1 capital in an amount of €1,232 million according to the transitional guidance.

The **Tier 2 capital** (T2) mainly consists of subordinated capital instruments. These are reported as subordinated capital under IFRS and as deposits or debt securities, split into 'fair value option', 'held for trading', and 'at amortized cost', under FINREP. The eligibility of the instruments under CRR is limited if their term to maturity is less than five years. The reduction, by a total of €662 million, of the amount eligible for regulatory purposes is largely due to this restriction and also to the pro-rata interest reported on the balance sheet.

5.2.2 Capital requirements
(ARTICLE 438 CRR)

The **DZ BANK banking group's** regulatory **capital requirements** amounted to €10,525 million as of December 31, 2017 (September 30, 2017: €10,528 million).

Fig. 14 provides an overview of risk-weighted assets and capital requirements.

Fig. 14 – EU OV1 – OVERVIEW OF RISK-WEIGHTED ASSETS (RWAS)

€ million			Dec. 31, 2017	
			Risk-weighted assets	**Capital requirements**
	1	**Credit risk (excluding CCR)**	**98,959**	**7,917**
Article 438 (c) and (d)	2	of which: Standardized Approach	19,020	1,522
Article 438 (c) and (d)	3	of which: foundation IRB (FIRB) approach	43,631	3,491
Article 438 (c) and (d)	4	of which: advanced IRB (AIRB) approach	15,161	1,213
Article 438 (d)	5	of which: long-term equity investments in the IRB approach under the simple risk-weighted approach or IMA	21,147	1,692
Article 107 Article 438 (c) and (d)	**6**	**Counterparty credit risk (CCR)**	**5,419**	**434**
Article 438 (c) and (d)	7	of which: mark-to-market method	3,760	301
Article 438 (c) and (d)	8	of which: original exposure method	-	-
	9	of which: Standardized Approach	-	-
	10	of which: internal model method (IMM)	-	-
Article 438 (c) and (d)	11	of which: risk exposure amount for contributions to the default fund of a central counterparty (CCP)	237	19
Article 438 (c) and (d)	12	of which: CVA	1,423	114
Article 438 (e)	**13**	**Settlement risk**	**0**	**0**
Article 449 (o) and (i)	**14**	**Securitization exposure in the banking book (after the cap)**	**5,978**	**478**
	15	of which: IRB approach	1,599	128
	16	of which: IRB supervisory formula approach (SFA)	162	13
	17	of which: Internal Assessment Approach (IAA)	1,390	111
	18	of which: Standardized Approach	3,106	248
Article 438 (e)	**19**	**Market risk**	**6,778**	**542**
	20	of which: Standardized Approach	1,491	119
	21	of which: IMA	5,287	423
Article 438 (e)	**22**	**Large exposures**	-	-
Article 438 (f)	**23**	**Operational risk**	**11,046**	**884**
	24	of which: Basic Indicator Approach	-	-
	25	of which: Standardized Approach	11,046	884
	26	of which: Advanced Measurement Approach	-	-
Article 437 (2), article 48, and article 60	**27**	**Amounts below the thresholds for deduction (subject to 250% risk weighting)**	**3,402**	**272**
Article 500	**28**	**Floor adjustment**	**11,274**	**902**
	29	**Total**	**142,856**	**11,429**

Fig. 15 and Fig. 16 show the capital requirements in relation to the risk types of relevance for regulatory purposes (credit risk, market risk, and operational risk).

These disclosures cover all the entities consolidated for regulatory purposes in the DZ BANK banking group.

Fig. 15 – CAPITAL REQUIREMENTS (PART 1)

	Dec. 31, 2017		Sep. 30, 2017	
€ million	Capital requirements	Risk-weighted assets	Capital require ments	Risk-weighted assets
1 Credit risk				
1.1 Standardized Approach to credit risk				
Central governments or central banks	111	1,384	141	1,760
Regional governments or local authorities	18	229	18	231
Other public-sector entities	6	73	7	86
Multilateral development banks	-	-	-	-
International organizations	-	-	-	-
Institutions	52	651	52	651
Covered bonds	3	39	3	38
Corporates	726	9,076	759	9,493
Retail business	225	2,813	227	2,834
Institutions and corporates with a short-term credit assessment	0	0	0	0
Exposures secured by mortgages on immovable property	195	2,439	210	2,619
Units or shares in collective investment undertakings (‘CIUs’)	148	1,853	145	1,809
Exposures associated with particularly high risk	110	1,380	101	1,267
Other items	117	1,459	116	1,444
Exposures in default	22	271	16	204
Total credit risk under the Standardized Approach	**1,733**	**21,667**	**1,795**	22,436
1.2 IRB approaches				
Central governments or central banks	79	990	126	1,572
Institutions	607	7,592	608	7,603
Corporates	3,046	38,071	3,097	38,718
of which: SMEs	195	2,437	165	2,067
Retail business	1,007	12,583	1,008	12,605
of which: mortgage-backed	606	7,575	603	7,541
qualified revolving	-	-	-	-
other retail business	401	5,007	405	5,064
Other non-credit-obligation assets	162	2,029	185	2,319
Total under IRB approaches	**4,901**	**61,265**	5,025	62,817
1.3 Securitizations				
Securitizations under the Standardized Approach to credit risk	248	3,106	265	3,309
of which: re-securitizations	0	0	0	0
Securitizations under IRB approaches	230	2,872	225	2,816
of which: re-securitizations	0	2	0	2
Total securitizations	**478**	**5,978**	490	6,125
1.4 Long-term equity investments				
Long-term equity investments under IRB approaches	1,707	21,335	1,624	20,297
of which: internal modeling approach	-	-	-	-
PD/LGD approaches	3	34	3	35
simple risk-weighting approach	1,692	21,147	1,602	20,029
of which: exchange-traded equity investments	0	1	0	1
equity investments not exchange-traded, but part of a diversified portfolio	2	22	2	21
other equity investments	1,690	21,124	1,601	20,006
Equity investments exempted from IRB approaches and included in Standardized Approach to credit risk	64	800	62	771
of which: grandfathering	-	-	11	134
Total long-term equity investments	**1,771**	**22,135**	1,685	21,068
1.5 Exposure amount for contributions to default fund of a CCP	19	237	15	185
1.6 Credit valuation adjustments (CVA charge)	114	1,423	136	1,704
1.7 Exposure amount for counterparty and settlement risk	0	0	0	0
1.8 Large exposure excess amounts in the trading book	-	-	-	-
Total credit risk	**9,016**	**112,705**	9,011	112,631

Fig. 16 – CAPITAL REQUIREMENTS (PART 2)

€ million	Dec. 31, 2017		Sep. 30, 2017	
	Capital requirements	Risk-weighted assets	Capital requirements	Risk-weighted assets
2 Market risk				
Standardized approach	119	1,491	89	1,107
of which: trading book risk exposures	8	98	5	66
of which: interest-rate risk	8	98	5	65
of which: general and specific price risk (net interest-rate exposure)	8	98	5	65
of which: specific price risk for securitization exposures in trading book	7	86	4	52
specific price risk in CTP	1	12	1	12
equity risk	0	1	0	0
special approach for position risk from CIUs	2	29	4	44
currency risk	108	1,354	79	987
commodity risk	1	10	1	10
Internal modeling approach	423	5,287	409	5,110
Total market risk	**542**	**6,778**	497	6,217
3 Operational risk				
Operational risk under Basic Indicator Approach	-	-	109	1,366
Operational risk under Standardized Approach	884	11,046	713	8,918
Operational risk under Advanced Measurement Approach (AMA)	-	-	-	-
Total operational risk	**884**	**11,046**	823	10,284
4 Other				
Additional exposure pursuant to article 3 CRR	83	1,037	61	766
Total other exposures	**83**	**1,037**	61	766
Sum total	**10,525**	**131,567**	10,528	131,603

The capital requirements were almost unchanged compared with September 30, 2017.

There was a difference of €11,290 million between the risk-weighted assets in Fig. 14, which is based on the requirements of EBA/GL/2016/11, and the risk-weighted assets in Fig. 15 and Fig. 16 , which were already included in this report as of earlier reporting dates. Fig. 14 contains risk-weighted exposure amounts of shares in the Common Equity Tier 1 capital of financial-sector entities of €1,053 million, which cannot be deducted from the institution's Common Equity Tier 1 capital (row 27). By contrast, Fig. 15 and Fig. 16 show additional exposures pursuant to article 3 CRR (including specialized lending) of €1,037 million. Fig. 14 also contains floor adjustments pursuant to article 500 CRR of €11,274 million.

5.2.3 Capital ratios

The regulatory capital ratios of the banking group's significant subsidiaries and of DZ BANK as its parent institution are shown in Fig. 17. These ratios illustrate the relationship between risk-weighted exposures and the regulatory capital components in the DZ BANK banking group. The figures disclosed for the entities in the DZ BANK banking group are in accordance with the country-specific legislation and do not include the effects of intragroup consolidation. Consequently, as in the previous year, the capital ratios for the DZ BANK banking group and the entities belonging to it were well above the corresponding minimum ratios prescribed for regulatory purposes as of December 31, 2017.

Because the waiver pursuant to article 7 CRR has been applied to DG HYP and WL BANK, capital ratios and other ratios are no longer calculated for these entities at individual-institution level. No disclosures are made at individual-institution level for DG HYP and WL BANK as significant subsidiaries.

The **total capital ratio** of the **DZ BANK banking group** rose from 16.4 percent as of September 30, 2017 to 17.3 percent as of the balance sheet date. As of December 31, 2017, the **Tier 1 capital ratio** was 15.2 percent, an increase on the Tier 1 capital ratio of 14.3 percent as of the end of the previous quarter. The **Common Equity Tier 1 capital ratio** was 13.9 percent as of December 31, 2017 and thus also significantly higher than the ratio of 12.9 percent as of the end of September 2017.

Fig. 17 – REGULATORY CAPITAL RATIOS OF THE DZ BANK BANKING GROUP IN ACCORDANCE WITH THE CRR

Entity	Total capital ratio		Tier 1 capital ratio		Common Equity Tier 1 capital ratio	
%	Dec. 31, 2017	Sep. 30, 2017	Dec. 31, 2017	Sep. 30, 2017	Dec. 31, 2017	Sep. 30, 2017
DZ BANK banking group	**17.3**	**16.4**	15.2	14.3	13.9	12.9
DZ BANK	**22.4**	**22.1**	18.2	17.6	17.4	16.8
BSH (banking group)	**28.2**	**28.8**	28.2	28.8	28.2	28.8
DVB (banking group)	**31.5**	**29.9**	21.8	20.4	21.8	20.4
DZ PRIVATBANK (banking group)	**22.3**	**21.8**	22.2	21.7	22.2	21.7
TeamBank (banking group)	**11.8**	**11.9**	9.5	9.6	8.7	8.7

Article 13 (1) CRR requires that the significant subsidiaries of the DZ BANK banking group and those of material significance for their local market disclose the information specified in articles 437 CRR (own funds), 438 CRR (capital requirements), 440 CRR (capital buffers), 442 CRR (credit risk adjustments and allowances for losses on loans and advances), 450 CRR (remuneration), 451 CRR (leverage ratio), and 453 CRR (risk mitigation) on an individual or subconsolidated basis to the extent necessary.

Based on the above categorization of management units, the disclosure requirements set out in article 13 CRR apply to the following entities:

- BSH
- DVB
- DZ PRIVATBANK
- TeamBank.

The disclosures required by article 13 CRR can be found in the regulatory risk reports on the websites of the group's significant subsidiaries in the form of partial disclosure reports.

Pursuant to article 7 CRR in conjunction with article 6 (1) CRR, this disclosure requirement is waived for DG HYP and WL BANK on an individual basis. Whereas, this disclosure requirement is waived for UMH and VR LEASING on an individual basis in accordance with section 2 (7a) KWG.

In July 2016, TeamBank carried out an increase in capital of approximately €150 million, laying the foundations for achieving its growth strategy while fulfilling regulatory and economic capital adequacy requirements and replacing expiring capital components. As of December 31, 2017, the ECB had not yet confirmed whether the capital increase was eligible as Common Equity Tier 1 capital. The capital increase therefore was not factored into the regulatory capital ratios.

5.2.4 Regulatory minimum capital requirements

The minimum capital requirements that the DZ BANK banking group had to comply with in the year under review comprised legally mandated components of Pillar 1 and those individually specified by the banking supervisor. Institution-specific requirements under the additional capital requirements in Pillar 2, determined in the outcome of the Supervisory Review and Evaluation Process (SREP) conducted for the DZ BANK banking group in 2016, also had to be satisfied.

As of this year, the ECB has used a modified approach for determining the additional capital requirement under Pillar 2. In the new approach, the regulatory commission specifies a mandatory add-on (Pillar 2 requirement) that is factored into the basis of calculation for the maximum distributable amount (MDA). The add-on is determined from the findings of the SREP.

The mandatory minimum capital requirements and their components applicable to 2017 are shown in Fig. 18.

Fig. 18 – REGULATORY MINIMUM REQUIREMENTS[1]

	Dec. 31, 2017	Sep. 30, 2017
Minimum requirement for Common Equity Tier 1 capital	4.50%	4.50%
Additional Pillar 2 capital requirement	1.75%	1.75%
Capital conservation buffer	1.25%	1.25%
Countercyclical capital buffer	0.02%	0.01%
Buffer for other systemically important institutions (O-SII)	0.33%	0.33%
Mandatory minimum requirement for Common Equity Tier 1 capital	**7.85%**	**7.84%**
Minimum requirement for additional Tier 1 capital[2]	1.50%	1.50%
Mandatory minimum requirement for Tier 1 capital	**9.35%**	**9.34%**
Minimum requirement for Tier 2 capital[3]	2.00%	2.00%
Mandatory minimum requirement for total capital	**11.35%**	**11.34%**

1 Percentage values based on risk-weighted assets.
2 The minimum requirement can also be satisfied with Common Equity Tier 1 capital.
3 The minimum requirement can also be satisfied with Common Equity Tier 1 or additional Tier 1 capital.

In addition to this mandatory component, there is a recommended own funds amount under Pillar 2 (Pillar 2 guidance), which likewise is determined from the SREP, but unlike the mandatory component relates only to Common Equity Tier 1 capital. Failure to comply with the own funds guidance under Pillar 2 does not constitute a breach of regulatory capital requirements. Nevertheless, this figure is relevant as an early warning indicator for capital planning.

The mandatory and the recommended minimum capital requirements were complied with in the year under review. This applies to both the currently applicable solvency regime (CRR transitional guidance) and the rules when the CRR is fully applied .

5.2.5 Financial conglomerate solvency

BaFin has classified the DZ BANK Group as a financial conglomerate. **Financial conglomerate solvency** is the amount equating to the difference between the total of eligible own funds and the total of solvency requirements for the financial conglomerate. The coverage ratio is calculated by dividing own funds by the solvency requirement. This ratio must be at least 100 percent.

The additional capital requirements for the financial conglomerate were calculated in accordance with the provisions of sections 17 and 18 FKAG and Commission Delegated Regulation (EU) No. 342/2014 dated January 21, 2014 to set standards for the calculation methods of capital adequacy requirements for financial conglomerates.

The financial conglomerate solvency is reported to the supervisory authority annually.

The solvency ratios as of December 31, 2016 were finalized in the first half of 2017. On the basis of a provisional calculation, the DZ BANK financial conglomerate's eligible own funds as of December 31, 2017 amounted to €27,459 million (December 31, 2016: confirmed final eligible own funds of €26,386 million). On the other side of the ratio, the provisional solvency requirement was €14,567 million (December 31, 2016: confirmed final solvency requirements of €14,624 million). This gives a provisional coverage ratio of 188.5 percent (December 31, 2016: confirmed final coverage ratio of 180.3 percent), which is significantly in excess of the regulatory minimum requirement of 100 percent.

6 Credit risk

Credit risk is defined in section 2.3.2, fig. 7 (page 70) of the opportunity and risk report.

6.1 Credit risk management objectives and policies

(ARTICLE 435 (1) CRR)

The principles for the management of credit risk and the strategies and processes in respect of credit risk management (article 435 (1) CRR) are presented in sections 8.1.2, 8.2, 8.4, and 8.5 (pages 107 to 116) of the opportunity and risk report. The structure and organization of the credit risk management function are described in section 8.3 (page 108) of the opportunity and risk report. The scope and nature of the credit risk reporting and measuring systems are presented in sections 8.3 and 8.5 (pages 108 and 116) of the opportunity and risk report, while sections 8.4.4 to 8.4.9 (pages 110 to 116) of the opportunity and risk report set out the strategies for hedging and mitigating credit risk and the strategies and processes for monitoring the ongoing effectiveness of the measures taken to hedge credit risk.

6.2 Credit risk information

Sections 6.3 to 6.6 of this risk report contain information about credit risk attaching to the instruments subject to Part 3 Title II Chapter 2 (Standardized Approach) and Chapter 3 (IRB approach) CRR. Risk-weighted exposures arising from DZ BANK's trading activities are not covered in these sections but in section 8 'Market risk' in this report. Disclosures on exposures with counterparty credit risk (section 6.7) and receivables subject to the framework for securitizations (section 7) are not covered in these sections either.

In this part of the regulatory risk report, securities financing transactions are included in the sections on credit risk rather than in those on counterparty credit risk.

6.2.1 Qualitative information on credit risk

(ARTICLE 442 SENTENCE 1 LETTERS A AND B CRR)

The amount and structure of the lending volume are key factors in determining credit risk. For external risk reporting in the DZ BANK banking group, the lending volume is broken down pursuant to article 442 sentence 1 letters c to f CRR by the exposure classes used for the Standardized Approach to credit risk and the internal ratings-based approach.

In accordance with article 442 sentence 1 letters c to I CRR, the exposures after accounting offsets and without taking into account the effects of credit risk mitigation are broken down by geographical distribution, industry, and residual maturity so that volume concentrations can be identified. Non-performing and past-due exposures as well as specific and general credit risk adjustments are broken down in the same way.

The **policies and procedures governing the recognition of allowances for losses on loans and advances** applicable to the entities in the DZ BANK banking group (article 442 sentence 1 letter b CRR) and other **accounting-related details on credit risk** (article 442 sentence 1 letter a CRR) are described in section 8.4.8 (pages 115 to 116) of the opportunity and risk report. Non-performing loans (NPLs) are also described in that section. The scope of the receivables that are past due but not impaired, and the reasons for this classification, are presented in section 8.6.6 (page 120) of the opportunity and risk report.

Distressed restructuring, which, according to article 178 (3) letter d CRR, is an indication that a liability is unlikely to be settled, is defined as follows at DZ BANK: The distressed debt rescheduling or restructuring of the liability results in the bank forgoing part of the principal, interest, or fees (i.e. an economic loss). In the future, DZ BANK plans to explicitly define the term 'distressed restructuring' in accordance with the definition of a forborne exposure in Annex V of Commission Implementing Regulation (EU) No. 680/2014 and to define the economic loss in accordance with the EBA guidelines on the application of the definition of default as a present value loss of more than 1 percent (valid from January 1, 2021).

6.2.2 Quantitative information on credit risk

6.2.2.1 Total and average amounts of net exposures by exposure class

(ARTICLE 442 SENTENCE 1 LETTER C CRR)

Fig. 19 shows the net figure for the exposures at the reporting date and the average amount of net exposures over the course of the reporting year, broken down by exposure class for the Standardized Approach and IRB approach. The average exposure is calculated for each exposure class using the average on the four quarterly reporting dates of the year. For on-balance-sheet items, the net value is the gross carrying amount of the exposure (after write-offs) less allowances/impairments. Off-balance-sheet items are shown at their gross carrying amount (nominal amount without application of a credit conversion factor (CCF)) less provisions.

Fig. 19 – EU CRB-B – TOTAL AND AVERAGE NET AMOUNT OF EXPOSURES

		a	b
	€ million	Net value of exposures at the end of the period	Average net exposures over the period
1	Central governments or central banks	8,929	12,911
2	Institutions	29,157	29,757
3	Corporates	102,664	94,135
4	of which: specialized lending	27,203	24,901
5	of which: SMEs	8,723	7,832
6	Retail business	68,247	66,892
7	Exposures secured by mortgages on immovable property	54,060	52,513
8	of which: SMEs	-	-
9	of which: non-SMEs	54,060	52,513
10	Qualified revolving	-	-
11	Other retail business	14,187	14,379
12	of which: SMEs	2	2
13	of which: non-SMEs	14,185	14,377
14	Equity exposures	5,759	5,433
15	Other non-credit-obligation assets	2,103	2,042
16	**Total amount under IRB approach**	**216,860**	**211,171**
17	Central governments or central banks	45,408	43,757
18	Regional governments or local authorities	39,120	41,039
19	Public-sector entities	10,873	11,245
20	Multilateral development banks	426	453
21	International organizations	898	899
21	Institutions	90,799	76,287
23	Corporates	14,854	13,549
24	of which: SMEs	2,381	2,269
25	Retail business	7,251	6,917
26	of which: SMEs	1,271	1,242
27	Secured by mortgages on immovable property	5,220	5,162
28	of which: SMEs	2,735	2,695
29	Exposures in default	209	195
30	Exposures associated with particularly high risk	888	715
31	Covered bonds	197	112
32	Exposures to institutions and corporates with a short-term credit assessment	0	0
33	CIUs	2,662	2,504
34	Equity exposures	409	356
35	Other items	304	297
36	**Total amount under Standardized Approach**	**219,521**	**203,488**
37	**Total**	**436,380**	**414,659**

6.2.2.2 Geographical structure of the exposure classes

(ARTICLE 442 SENTENCE 1 LETTER D CRR)

Fig. 20 gives a geographical breakdown of the exposures by country group. The lending volume is assigned to the individual country groups using the breakdown of the International Monetary Fund (IMF), which is updated annually. This system applies to the other country-group breakdowns related to credit risk in this regulatory risk report as well.

A country is deemed material if its share of the total exposure (Standardized Approach to credit risk and IRB approach) exceeds the materiality threshold of 5 percent.

For greater clarity, the exposures have been broken down by sector and aggregated into country groups in this part of the report. The full breakdown of the exposures by geographical area and material country can be found in appendix 2. Appendix 3 contains the disclosures for the countries categorized as non-material, which have been allocated to the other industrialized countries column here.

Fig. 20 – EU CRB-C – GEOGRAPHICAL BREAKDOWN OF EXPOSURES (SUMMARY)

		a	b	c	d	e	f	g
	€ million	**Germany**	**Other industrialized countries**	**Advanced economies**	**Emerging markets**	**Supranational organizations**	**Not allocated to a geographical area**	**Total amount**
1	Central governments or central banks	203	6,539	732	989	468	-	**8,929**
2	Institutions	9,639	17,079	634	1,770	35	-	**29,157**
3	Corporates	68,275	22,620	2,762	9,007	-	-	**102,664**
3a	of which: specialized lending	20,196	6,251	147	610	-	-	**27,203**
3b	of which: SMEs	8,699	20	1	3	-	-	**8,723**
4	Retail business	65,807	361	2,056	23	-	0	**68,247**
4a	Exposures secured by mortgages on immovable property	52,160	262	1,618	20	-	0	**54,060**
	of which: SMEs	-	-	-	-	-	-	**-**
	of which: non-SMEs	52,160	262	1,618	20	-	0	**54,060**
4b	Qualified revolving	0	0	0	0	-	-	**-**
4c	Other retail business	13,647	99	438	3	-	-	**14,187**
	of which: SMEs	2	-	-	-	-	-	**2**
	of which: non-SMEs	13,645	99	438	3	-	-	**14,185**
5	Equity exposures	5,736	22	-	1	-	-	**5,759**
	Other non-credit-obligation assets	624	230	17	229	-	1,004	**2,103**
6	**Total amount under IRB approach**	**150,283**	**46,851**	**6,200**	**12,019**	**502**	**1,004**	**216,860**
7	Central governments or central banks	37,721	6,293	361	1,020	-	14	**45,408**
8	Regional governments or local authorities	36,119	2,993	-	2	-	6	**39,120**
9	Public-sector entities	9,958	911	4	-	-	-	**10,873**
10	Multilateral development banks	-	28	-	-	398	-	**426**
11	International organizations	-	-	-	-	898	-	**898**
12	Institutions	88,979	1,629	115	76	-	-	**90,799**
13	Corporates	10,841	3,248	169	596	-	-	**14,854**
13a	of which: SMEs	2,234	24	50	73	-	-	**2,381**
14	Retail business	5,485	712	665	390	-	-	**7,251**
14a	of which: SMEs	1,257	3	11	-	-	-	**1,271**
15	Secured by mortgages on immovable property	3,590	253	48	1,330	-	-	**5,220**
15a	of which: SMEs	2,537	196	2	-	-	-	**2,735**
16	Exposures in default	103	55	18	33	0		**209**
17	Exposures associated with particularly high risk	828	61	-	-	-	-	**888**
18	Covered bonds	27	170	-	-	-	-	**197**
19	Exposures to institutions and corporates with a short-term credit assessment	-	-	-	0	-	-	**0**
20	CIUs	355	2,124	26	156	1	-	**2,662**
21	Equity exposures	144	194	12	60	-	-	**409**
22	Other items	153	40	14	20	5	72	**304**
23	**Total amount under Standardized Approach**	**194,302**	**18,711**	**1,432**	**3,682**	**1,302**	**92**	**219,521**
24	**Total**	**344,585**	**65,562**	**7,631**	**15,701**	**1,804**	**1,096**	**436,380**

As of December 31, 2017, the DZ BANK banking group's total exposure was concentrated in Germany with a total of €344,585 million (December 31, 2016: €334,126 million). Other industrialized countries accounted for €65,562 million (December 31, 2016: €83,079 million).

6.2.2.3 Exposure classes by sector

(ARTICLE 442 SENTENCE 1 LETTER E CRR)

Fig. 21 shows the breakdown of on-balance-sheet and off-balance-sheet exposures by sector; the exposures are assigned solely on the basis of the direct counterparties. Classification is based on the industry codes used by Deutsche Bundesbank. This also applies to the other sector breakdowns related to risk in this report.

As of December 31, 2017, a high proportion of the DZ BANK banking group's lending volume (44 percent) was concentrated in the financial sector, representing only a very slight change on the volume a year earlier (December 31, 2016: 43 percent). In addition to the local cooperative banks, the borrowers in this customer segment comprised banks from other parts of the banking industry and other financial institutions. The volume attributable to public-sector entities decreased to €51,719 million as of December 31, 2017 (December 31, 2016: €57,501 million); the volume of lending to private individuals and companies grew to €189,333 million as of December 31, 2017 (December 31, 2016: €189,197 million).

Fig. 21 – EU CRB-D – CONCENTRATION OF EXPOSURES BY INDUSTRY OR COUNTERPARTY TYPE

		a	b	c	d	e
	€ million	Financial sector	Public sector	Corporates and retail customers	Other	Total
1	Central governments or central banks	6,402	2,008	520	-	8,929
2	Institutions	28,191	584	381	-	29,157
3	Corporates	8,014	17	94,633	-	102,664
3a	of which: specialized lending	1,795	17	25,392	-	27,203
3b	of which: SMEs	38	-	8,685	-	8,723
4	Retail business	858	630	66,759	-	68,247
4a	Exposures secured by mortgages on immovable property	826	620	52,613	-	54,060
	of which: SMEs	-	-	-	-	-
	of which: non-SMEs	826	620	52,613	-	54,060
4b	Qualified revolving	-	-	-	-	-
4c	Other retail business	32	9	14,146	-	14,187
	of which: SMEs	-	-	2	-	2
	of which: non-SMEs	32	9	14,144	-	14,185
5	Equity exposures	3,438	-	2,321	-	5,759
	Other non-credit-obligation assets	0	-	435	1,668	2,103
6	**Total amount under IRB approach**	**46,904**	**3,239**	**165,050**	**1,668**	**216,860**
7	Central governments or central banks	37,839	7,532	23	14	45,408
8	Regional governments or local authorities	-	36,829	2,284	6	39,120
9	Public-sector entities	8,873	1,773	227	-	10,873
10	Multilateral development banks	296	130	-	-	426
11	International organizations	244	654	-	-	898
12	Institutions	89,492	1,287	21	-	90,799
13	Corporates	4,859	253	9,716	26	14,854
13a	of which: SMEs	207	11	2,163	-	2,381
14	Retail business	58	1	7,192	-	7,251
14a	of which: SMEs	13	1	1,257	-	1,271
15	Secured by mortgages on immovable property	2,248	5	2,967	-	5,220
15a	of which: SMEs	1,638	0	1,097	-	2,735
16	Exposures in default	1	16	192	-	209
17	Exposures associated with particularly high risk	197	0	692	-	888
18	Covered bonds	197	-	-	-	197
19	Exposures to institutions and corporates with a short-term credit assessment	0	-	-	-	0
20	CIUs	470	-	794	1,398	2,662
21	Equity exposures	272	-	138		409
22	Other items	5	0	38	261	304
23	**Total amount under Standardized Approach**	**145,051**	**48,480**	**24,284**	**1,706**	**219,521**

	€ million	a Financial sector	b Public sector	c Corporates and retail customers	d Other	e Total
24	Total	191,954	51,719	189,333	3,373	436,380

In its role as central institution for the Volksbanken Raiffeisenbanken cooperative financial network, DZ BANK provides funding for the entities in the DZ BANK Group and for the cooperative banks. For this reason, the cooperative banks account for one of the largest receivables items in the DZ BANK Group's credit portfolio. DZ BANK also supports the cooperative banks in the provision of larger-scale funding to corporate customers.

The resulting syndicated business, DZ BANK's, DG HYP's and DVB's direct business with corporate customers in Germany and abroad, the retail real-estate business under the umbrella of BSH, TeamBank's consumer finance business, and WL BANK's real-estate lending and local authority loans businesses determine the sectoral breakdown of the remainder of the portfolio.

6.2.2.4 Lending volume by maturity band and exposure class

(ARTICLE 442 SENTENCE 1 LETTER F CRR)

Fig. 22 shows the net values of the on-balance-sheet and the off-balance-sheet exposures broken down by maturity band in order to comply with both the CRR and EBA/GL/2016/11. The disclosure is based on the IFRS carrying amounts for the companies consolidated for regulatory purposes. The table therefore is limited to material exposure classes pursuant to articles 112 and 147 CRR, applying EBA/GL/2014/14. Non-material exposures are aggregated under Other items.

Fig. 22 – EU CRB-E – MATURITY OF EXPOSURES

		a	b	c	d	e	f
		Net exposure value					
	€ million	On demand	<= 1 year	> 1 year <= 5 years	> 5 years	No stated maturity	Total
1	Central governments or central banks	5,531	1,884	747	767	-	8,929
2	Institutions	1,349	13,242	9,318	5,247	-	29,157
3	Corporates	6,373	15,692	36,166	44,433	-	102,664
3a	of which: specialized lending	3,233	1,494	7,326	15,150	-	27,203
3b	of which: SMEs	164	1,568	625	6,365	-	8,723
4	Retail business	54	9,477	9,185	49,495	36	68,247
4a	Exposures secured by mortgages on immovable property	28	5,806	7,212	41,015	-	54,060
	of which: SMEs	-	-	-	-	-	-
	of which: non-SMEs	28	5,806	7,212	41,015	-	54,060
4b	Qualified revolving	-	-	-	-	-	-
4c	Other retail business	26	3,671	1,974	8,480	36	14,187
	of which: SMEs	-	2	-	-	-	2
	of which: non-SMEs	26	3,669	1,974	8,480	36	14,185
5	Equity exposures	5,759	0	-	-	-	5,759
	Other non-credit-obligation assets	922	38	394	15	733	2,103
6	Total amount under IRB approach	19,988	40,334	55,811	99,957	769	216,860
7	Central governments or central banks	7,153	31,129	982	6,098	46	45,408
8	Regional governments or local authorities	162	2,831	10,931	25,197	-	39,120
9	Public-sector entities	623	1,409	4,136	4,700	4	10,873
10	Multilateral development banks	-	0	147	279	-	426
11	International organizations	-	13	144	741	-	898
12	Institutions	1,845	22,475	12,583	53,895	2	90,799
13	Corporates	987	4,403	3,429	6,033	3	14,854
13a	of which: SMEs	37	398	839	1,106	-	2,381
14	Retail business	1,290	547	1,857	3,555	2	7,251
14a	of which: SMEs	2	115	911	243	-	1,271
15	Secured by mortgages on immovable property	3	616	1,583	3,019	0	5,220
15a	of which: SMEs	0	164	871	1,700	-	2,735
16	Exposures in default	27	16	85	64	18	209
17	Exposures associated with particularly high risk	17	130	261	481	-	888
18	Covered bonds	0	49	119	29	-	197
19	Exposures to institutions and corporates with a short-term credit assessment	0		0		-	0
20	CIUs	0	-	-	1,271	1,391	2,662
21	Equity exposures	302	-	-	85	22	409
22	Other items	87	25	42	67	82	304
23	Total amount under Standardized Approach	12,495	63,642	36,300	105,512	1,571	219,521
24	**Total[1]**	**32,483**	**103,976**	**92,111**	**205,470**	**2,340**	**436,380**
24a	of which: on-balance-sheet exposures	25,603	70,042	79,798	190,825	2,340	377,266
24b	of which: off-balance-sheet exposures	4,385	29,666	11,989	13,996	0	58,800

[1] Unlike the total in row 24, the 'of which' items in rows 24a and 24b contain no SFTs.

6.2.2.5 Credit quality, past-due, non-performing, and deferred exposures

(ARTICLE 442 SENTENCE 1 LETTERS G AND H CRR)

Fig. 23 shows the exposures in default and not in default, broken down by exposure class. It thus provides a comprehensive picture of the credit quality of the DZ BANK banking group's on-balance-sheet and off-balance-sheet exposures, broken down by the Standardized Approach to credit risk and the IRB approach. Exposures are deemed to be in default if they meet the IRB approach's definition of default pursuant to article 178 CRR, which also applies to the Standardized Approach.

Pursuant to Delegated Regulation (EU) No. 183/2014 dated December 20, 2013 specifying the calculation of specific and general credit risk adjustments, specific credit risk adjustments (SCRA) and general credit risk adjustments (GCRA) must be classified as types of provision in accordance with IFRS. The DZ BANK Group prepares its consolidated financial statements in accordance with IFRS. All impairment losses recognized at group level therefore have to be classified as specific credit risk adjustments.

Fig. 23 – EU CR1-A – CREDIT QUALITY OF EXPOSURES BY EXPOSURE CLASS AND INSTRUMENT

		a	b	c	d	e	f	g
		Gross carrying amounts of		**Specific credit risk adjustments**	**General credit risk adjustments**	**Accumulated write-offs**	**Credit risk adjustment charges in the reporting period**	**Net values**
	€ million	Defaulted exposures	Non-defaulted exposures					(a+b-c-d-e)
1	Central governments or central banks	-	8,943	13	-	1	7	8,929
2	Institutions	30	29,160	33	-	61	27	29,157
3	Corporates	4,311	100,463	2,110	-	407	707	102,664
4	of which: specialized lending	521	27,028	346	-	34	289	27,203
5	of which: SMEs	81	8,699	57	-	0	32	8,723
6	Retail business	1,001	67,832	585	-	16	371	68,247
7	Exposures secured by mortgages on immovable property	609	53,623	172	-	5	43	54,060
8	of which: SMEs	-	-	-	-	-	-	-
9	of which: non-SMEs	609	53,623	172	-	5	43	54,060
10	Qualified revolving	-	-	-	-	-	-	-
11	Other retail business	392	14,209	413	-	10	329	14,187
12	of which: SMEs		2		-			2
13	of which: non-SMEs	392	14,207	413	-	10	329	14,185
14	Equity exposures	0	5,759	-	-	-	-	5,759
	Other non-credit-obligation assets		2,103	-	-	-	-	2,103
15	Total amount under IRB approach	5,341	214,260	2,742	-	485	1,111	216,860
	of which: loans	5,045	153,307	2,623	-	485	1,021	155,729
	of which: debt securities	-	18,680	0	-	-	0	18,680
	of which: off-balance-sheet receivables	296	33,865	119	-	-	90	34,043
16	Central governments or central banks		45,408	0	-	-	0	45,408
17	Regional governments or local authorities	16	39,123	4	-	-	3	39,135
18	Public-sector entities		10,874	1	-	-	1	10,873
19	Multilateral development banks		426		-	-	-	426
20	International organizations		898		-	-	-	898
21	Institutions	0	90,803	3	-	-	3	90,800
22	Corporates	379	14,890	297	-	11	29	14,972
23	of which: SMEs	111	2,387	84	-	0	6	2,414
24	Retail business	133	7,284	103	-	0	24	7,314
25	of which: SMEs	43	1,279	30	-	0	9	1,292
26	Secured by mortgages on immovable property	14	5,232	14	-	0	4	5,232
27	of which: SMEs		2,736	0	-			2,735
28	Exposures in default	543	0	334	-	223	245	209
29	Exposures associated with particularly high risk	30	891	32	-	0	29	888
30	Covered bonds	-	197		-			197
31	Exposures to institutions and corporates with a short-term credit assessment	-	0	0	-	-	0	0
32	CIUs	-	2,662	-	-	-	-	2,662
33	Equity exposures	-	409	-	-	-	-	409
34	Other items	1	305	1	-		0	304
35	Total amount under Standardized Approach	573	219,402	455	-	235	339	219,521
	of which: loans	526	158,406	421	-	235	312	158,510
	of which: debt securities	0	32,424	1	-	0	1	32,423
	of which: off-balance-sheet receivables	46	25,143	29	-	0	24	25,160
36	**Total amount**	**5,914**	**433,663**	**3,197**	**-**	**720**	**1,450**	**436,380**
37	of which: loans	5,571	311,713	3,044	-	720	1,334	314,240
38	of which: debt securities	0	51,104	1	-	-	1	51,103
39	of which: Off-balance-sheet receivables	343	59,008	148	-	-	114	59,203

6.2.2.6 Past-due and non-performing exposures by sector

(ARTICLE 442 SENTENCE 1 LETTER G CRR)

Fig. 24 shows the **exposures** in default and not in default, broken down **by sector**.

Fig. 24 – EU CR1-B – CREDIT QUALITY OF EXPOSURES BY INDUSTRY

		a	b	c	d	e	f	g
		Gross carrying amounts of		**Specific credit risk adjustments**	**General credit risk adjustments**	**Accumulated write-offs**	**Credit risk adjustment charges**	**Net values**
		Defaulted exposures	Non-defaulted exposures					(a+b-c-d-e)
1	Financial sector	72	191,968	86	-	79	69	191,954
2	Public sector	16	51,709	6	-	1	5	51,719
3	Corporates and retail customers	5,826	186,612	3,105	-	640	1,375	189,333
4	Other	-	3,373	-	-	-	-	3,373
5	**Total**	**5,914**	**433,663**	**3,197**	**-**	**720**	**1,449**	**436,380**

6.2.2.7 Past-due and non-performing exposures by country group

(ARTICLE 442 SENTENCE 1 LETTER H CRR)

Fig. 25 provides an overview of non-performing and past-due exposures, broken down by main geographical area.

Fig. 25 – EU CR1-C – CREDIT QUALITY OF EXPOSURES BY GEOGRAPHY

		a	b	c	d	e	f	g
		Gross carrying amounts of		**Specific credit risk adjustments**	**General credit risk adjustments**	**Accumulated write-offs**	**Credit risk adjustment charges**	**Net values**
	€ million	Defaulted exposures	Non-defaulted exposures					(a+b-c-d-e)
1	**Germany**	2,545	343,734	1,695	-	634	1,266	344,585
2	**Other industrialized countries**	1,343	64,745	527	-	39	77	65,562
3	France	150	3,600	69	-	0	22	3,681
4	Netherlands	116	4,051	63	-	0	13	4,104
5	United Kingdom	107	7,748	25	-	0	5	7,830
8	Luxembourg	18	4,654	16	-	0	2	4,656
9	Austria	150	3,600	69	-	0	22	3,681
10	Switzerland	30	8,655	10	-	24	10	8,675
11	United States	48	7,538	27	-	15	8	7,559
12	Other countries	837	22,775	313	-	0	15	23,300
13	**Advanced economies**	490	7,388	247	-	43	10	7,631
14	Malta	58	447	22	-	-	1	483
15	Czech Republic	65	2,705	38	-	1	1	2,732
16	Slovakia	173	571	102	-	-	2	642
17	Singapore	149	1,588	54	-	6	4	1,684
18	Korea		577	1	-	0	0	576
19	Hong Kong	173	571	102	-	-	2	642
20	Other countries	10	491	10	-	36	1	491
21	**Emerging markets**	1,536	14,894	729	-	4	96	15,701
22	Turkey	0	971	5	-	-	13	965
23	Hungary	19	1,670	10	-	0	5	1,679
24	Liberia	67	1,284	22	-	-	0	1,328
25	Bermuda	76	814	67	-	-	1	823
26	China	2	1,617	12	-	0	0	1,607
27	Marshall Islands	952	3,242	430	-	-	6	3,764
28	Other countries	421	5,296	181	-	4	70	5,536
29	**Supranational organizations**	-	1,804	0	-	-	-	1,804

		a	b	c	d	e	f	g
		Gross carrying amounts of		Specific credit risk adjustments	General credit risk adjustments	Accumulated write-offs	Credit risk adjustment charges	Net values
	€ million	Defaulted exposures	Non-defaulted exposures					(a+b-c-d-e)
30	Other European institutions, governing bodies, and organizations	-	467	-	-	-	-	467
31	European Investment Bank	-	837	0	-	-	-	837
32	European Financial Stability Facility	-	249	-	-	-	-	249
33	European Stability Mechanism	-	36	-	-	-	-	36
34	Other	-	216	-	-	-	-	216
35	**Not allocated to a geographical area**	0	1,096	0	-	-	-	1,096
36	Countries and areas not considered	-	0	-	-	-	-	0
37	Other	0	1,096	0	-	-	-	1,096
38	**Total amount**	**5,914**	**433,663**	**3,197**	**-**	**720**	**1,449**	**436,380**

6.2.2.8 Maturity structure of past-due exposures

(ARTICLE 442 SENTENCE 1 LETTERS G AND H CRR)

Fig. 26 shows the maturity structure of past-due on-balance-sheet exposures, both impaired and non-impaired. In this table, the gross carrying amounts of past-due exposures are broken down by the number of days by which the oldest past-due exposure is past due.

Fig. 26 – EU CR1-D – AGEING OF PAST-DUE EXPOSURES

		a	b	c	d	e	f
		Gross carrying amounts					
	€ million	<= 30 days	> 30 days <= 60 days	> 60 days <= 90 days	> 90 days <= 180 days	> 180 days <= 1 year	> 1 year
1	Loans	310,436	159	167	883	285	1,513
2	Debt securities	53,604	-	-	-	-	-
3	**Total exposures**	**364,041**	**159**	**167**	**883**	**285**	**1,513**

6.2.2.9 Non-performing and forborne exposures

(ARTICLE 442 SENTENCE 1 LETTERS G AND I CRR)

Fig. 27 contains details of impaired and past-due exposures, supplemented by information about non-performing and forborne receivables in accordance with Implementing Regulation (EU) No. 680/2014.

Fig. 27 – EU CR1-E – NON-PERFORMING AND FORBORNE EXPOSURES

	a	b	c	d	e	f	g	h	i	j	k	l	m
	Gross carrying amounts of performing and non-performing exposures							**Accumulated impairment, provisions, and negative fair value adjustments due to credit risk**				**Collateral and financial guarantees received**	
		Of which: performing but past due > 30 days and <= 90 days	Of which: performing, forborne	Of which: non-performing				On performing exposures		On non-performing exposures		On non-performing exposures	of which: forborne exposures
€ million					of which: in default	of which: impaired	of which: forborne		of which: forborne		of which: forborne		
010 Debt securities	53,604	-	-	123	59	123	0	-	-	2	-	-	-
020 Loans and advances	313,444	326	1,352	6,378	5,982	5,582	3,916	-	-	3,922	1,653	3,097	2,433
030 Off-balance-sheet exposures	58,014	12	1,187	13,693	532	244	88	-	-	283	89	37	29

6.2.2.10 Changes in allowances for losses on loans and advances

(ARTICLE 442 SENTENCE 1 LETTER I CRR)

Fig. 28 shows the change in the balance of general and specific credit risk adjustments for defaulting or impaired loans and debt securities as well as the corresponding accumulated amounts. As general credit risk adjustments do not exist under IFRS, there are no values in column b of Fig. 28.

Further quantitative and qualitative information about **changes in allowances for losses on loans and advances** is presented in section 8.9.1 (fig. 40 and fig. 41) of the opportunity and risk report.

Fig. 28 – EU CR2-A – CHANGES IN THE STOCK OF GENERAL AND SPECIFIC CREDIT RISK ADJUSTMENTS

	€ million	a Accumulated specific credit risk adjustment	b Accumulated general credit risk adjustment
1	**Opening balance**	**2,566**	
2	Increases due to amounts set aside for estimated loan losses during the period	1,753	
3	Decreases due to amounts reversed for estimated loan losses during the period	-800	
4	Decreases due to amounts taken against accumulated credit risk adjustments	-392	
5	Transfers between credit risk adjustments	0	
6	Impact of exchange rate differences	-34	
7	Business combinations, including acquisitions and disposals of subsidiaries	-	
8	Other adjustments	-98	
9	**Closing balance**	**2,996**	
10	Recoveries on credit risk adjustments recorded directly to the income statement	-113	
11	Specific credit risk adjustments recorded directly to the income statement	40	
12	Direct write-downs or write-offs	38	
13	Recoveries on direct write-downs or write-offs	-	

The balance of specific credit risk adjustments rose by €430 million in 2017, primarily due to the increase in allowances for losses on loans and advances at DVB. Fig. 29 shows the changes in the balance of defaulting and impaired loans and debt securities. Based on the scope of consolidation for regulatory purposes, the values disclosed correspond to the IFRS carrying amounts after deduction of impairment losses.

Fig. 29 – EU CR2-B – CHANGES IN THE STOCK OF DEFAULTED AND IMPAIRED LOANS AND DEBT SECURITIES

€ million		a Gross carrying amount of defaulted exposures
1	**Opening balance**	**5,746**
2	Loans and debt securities that have defaulted or been impaired since the last reporting period	1,324
3	Returned to non-defaulted status	123
4	Amounts written off	2,327
5	Other changes	1,990
9	**Closing balance**	**6,610**

Loans and debt securities in default rose by €838 million in 2017, primarily due to the increase in impairment losses in DVB's portfolio.

6.3 Use of credit risk mitigation techniques

6.3.1 Qualitative information on credit risk mitigation

(ARTICLE 452 SENTENCE 1 LETTER B (III) AND ARTICLE 453 SENTENCE 1 LETTERS A TO E CRR)

The methods used by the DZ BANK banking group to mitigate credit risk are described in section 8.4.7 (pages 113 to 115) of the opportunity and risk report. The description is divided into the following topics:

- Collateral strategy and secured transactions
- Types of collateral
- Management of traditional loan collateral
- Collateral management
- Central counterparties (CCPs).

Sections 8.4.5, 8.4.7, and 8.6.1 (pages 111 to 115 and 116 to 117) of the opportunity and risk report contain a description of the credit risk mitigation rules and processes applicable to on-balance-sheet and off-balance-sheet netting. This is supplemented in section 8.4.7 (pages 113 to 115) of the opportunity and risk report by details of the rules and processes for the measurement and management of collateral as well as details of the most important types of collateral. The most important types of guarantor and counterparty for credit derivatives, and their creditworthiness, are disclosed in section 8.4.7 (page 114) of the opportunity and risk report. Concentrations of market risk or credit risk within credit risk mitigation are outlined in section 8.4.6 (pages 112 to 113) of the opportunity and risk report.

6.3.2 Quantitative information on credit risk mitigation

(ARTICLE 453 SENTENCE 1 LETTERS F AND G CRR)

This section contains information about exposures backed by financial collateral, other collateral, guarantees, and credit derivatives.

Fig. 30 provides an overview of the extent to which credit risk mitigation techniques are used in the DZ BANK banking group. The table also shows the secured and unsecured exposures. All collateral, financial guarantees, and credit derivatives used to mitigate the credit risk of the secured exposures are listed, irrespective of whether the risk-weighted assets are calculated under the Standardized Approach (simple and comprehensive method of recognizing financial collateral) or under the IRB approach. The figures shown for credit risk mitigation in each case are the regulatory risk-weighted values.

For certain IRBA assets held by BSH, DG HYP, DVB, and WL BANK, the mortgage-related or real-estate collateral recognized for credit risk mitigation purposes is included in the calculation of capital requirements as LGD.

Fig. 30 – EU CR3 – CREDIT RISK MITIGATION TECHNIQUES – OVERVIEW

		a	b	c	d	e
	€ million	Unsecured exposures – carrying amount	Secured exposures – carrying amount	Exposures secured by collateral	Exposures secured by financial guarantees	Exposures secured by credit derivatives
1	Central governments or central banks	7,866	1,063	648	216	-
2	Institutions	20,610	8,547	6,304	489	-
3	Corporates	53,341	49,323	32,185	2,951	-
4	of which: specialized lending	15,340	11,863	8,630	919	-
5	of which: SMEs	2,195	6,528	125	337	-
6	Retail business	16,486	51,761	39,955	66	-
7	Exposures secured by mortgages on immovable property	4,277	49,783	39,490	29	-
8	of which: SMEs	-	-	-	-	-
9	of which: non-SMEs	4,277	49,783	39,490	29	-
10	Qualified revolving	-	-	-	-	-
11	Other retail business	12,209	1,978	465	37	-
12	of which: SMEs	2	-	-	-	-
13	of which: non-SMEs	12,207	1,978	465	37	-
14	Equity exposures	5,752	7	7	0	-
15	Other non-credit-obligation assets	2,102	1	0	0	-
16	**Total amount under IRB**	**106,157**	**110,702**	**79,100**	**3,722**	**-**

	€ million	a Unsecured exposures – carrying amount	b Secured exposures – carrying amount	c Exposures secured by collateral	d Exposures secured by financial guarantees	e Exposures secured by credit derivatives
	approach					
17	of which: loans	54,512	100,139	70,955	3,160	-
18	of which: debt securities	16,639	2,041	1,802	0	-
19	of which: in default	1,995	3,676	3,252	190	-
20	Central governments or central banks	45,408	0	0	0	-
21	Regional governments or local authorities	39,071	49	17	3	-
22	Public-sector entities	9,876	998	291	611	-
23	Multilateral development banks	426	-	-	-	-
24	International organizations	898	-	-	-	-
25	Institutions	90,376	424	356	-	-
26	Corporates	10,757	4,318	1,843	1,347	-
27	of which: SMEs	1,788	354	11	242	-
28	Retail business	6,295	995	132	2	-
29	of which: SMEs	1,261	22	3	1	-
30	Secured by mortgages on immovable property	3,586	1,375	1,375	-	-
31	of which: SMEs	394	-	-	-	-
32	Exposures in default	182	27	2	13	-
33	Exposures associated with particularly high risk	888	-	-	-	-
34	Covered bonds	197	-	-	-	-
35	Exposures to institutions and corporates with a short-term credit assessment	0	-	-	-	-
36	CIUs	2,662	-	-	-	-
37	Equity exposures	409	-	-	-	-
38	Other items	304	-	-	-	-
39	**Total amount under Standardized Approach**	**211,335**	**8,186**	**4,016**	**1,975**	**-**
40	of which: loans	152,543	6,092	3,054	1,489	-
41	of which: debt securities	31,843	581	0	427	-
42	of which: in default	186	27	2	13	-
43	**Total exposures**	**316,067**	**118,888**	**83,116**	**5,697**	**-**
44	of which: loans	207,055	106,231	74,009	4,650	-
45	of which: debt securities	48,481	2,622	1,802	427	-
46	of which: in default	2,180	3,703	3,254	203	-

Disclosures about the use of credit risk mitigation techniques under the Standardized Approach can be found in section 6.5.2 of this risk report, whereas information about credit risk mitigation techniques under the IRB approach is provided in section 6.6.2.

6.4 Rating systems

6.4.1 Characteristics of the rating systems

The generation of internal credit ratings for the business partners of entities in the Bank sector helps, in particular, to provide a solid basis for lending decisions in the management of individual transactions. The **VR rating system** used as standard throughout the cooperative financial network ensures that all the entities in the network apply a sophisticated uniform methodology producing ratings that are comparable.

DZ BANK primarily uses VR rating systems in its credit risk management system to assess large and medium-sized companies, major corporate customers, banks, and countries, as well as project finance, asset finance, acquisition financing, and investment funds. The Internal Assessment Approach is also used to evaluate the liquidity lines and credit enhancements made available by DZ BANK to programs for the issuance of asset-backed commercial paper (ABCP). These rating systems have been approved by BaFin for the purposes of calculating regulatory capital using the **foundation IRB approach**.

For **internal management purposes**, DZ BANK uses further rating systems to assess SMEs (German Mittelstand), agricultural businesses, public-sector entities, not-for-profit organizations, foreign SMEs, and insurance companies. Although these systems satisfy the requirements for the foundation IRB approach according to DZ BANK's assessment, they are deemed to be of less significance and have not yet been reviewed by the supervisory authority. In addition, the rating systems for open-ended real estate funds and for commercial real estate used by the former WGZ BANK Group are used for internal management purposes.

Most of the other entities in the DZ BANK banking group use the DZ BANK rating systems for banks, countries, and major corporate customers. Rating systems for specific business segments are also used by individual subsidiaries.

6.4.2 Development and expansion of rating systems

The revision of the rating system for **project finance** used by DZ BANK for internal management purposes was completed in the year under review. The same also applies to the development of the supervisory **slotting approach for project finance**, which is scheduled to be used from 2020 onward to calculate the regulatory capital requirement. The enhancement of the **rating system for banks** was also completed in 2017. A supervisory assessment of the IRB approach followed by approval from the banking supervisor is still required before this rating system can be introduced. The assessment is scheduled for the first quarter of 2018.

Further information about the rating systems for the exposure classes used for the Standardized Approach to credit risk and the IRB approach can be found in sections 6.5.1 and 6.6.1 of this report.

6.5 Credit risk and techniques for mitigating credit risk under the Standardized Approach

6.5.1 Qualitative information on use of the Standardized Approach

(ARTICLE 444 LETTERS A AND B CRR)

As in previous years, the rating agencies below are used to help determine the capital requirements for all exposure classes under the Standardized Approach to credit risk for which credit ratings are used.

– Standard & Poor's Ratings Services (Standard & Poor's)
– Moody's Investors Service (Moody's), and
– Fitch Ratings, Ltd. (Fitch).

Competing external ratings are only included in the calculation of risk-weighted exposures in accordance with articles 138 and 139 CRR.

6.5.1.1 Transfer of credit ratings for bond issues to assets

(ARTICLE 444 LETTER C CRR)

External credit ratings awarded by recognized rating agencies or export insurance agencies are applied to assets of the DZ BANK banking group in accordance with the requirements of articles 137 to 141 CRR and apply to all exposure classes used for the Standardized Approach to credit risk listed in article 112 CRR. To assess creditworthiness, the DZ BANK banking group draws on all of the main external rating sources that are available in the reporting software. The logic used by this software is described below.

In cases where an exposure-specific credit rating is not available for an exposure, but an issuer-specific credit rating or a credit rating for another of the issuer's issues is available, DZ BANK applies this credit rating to the unrated exposure in accordance with the criteria of article 139 CRR. The available credit rating is applied if it

1. produces a higher risk weighting than for the unrated exposure and the unrated exposure's ranking is equal to or lower than that of the rated exposure, or
2. produces a lower risk weighting than for the unrated exposure and the unrated exposure's ranking is equal to or higher than that of the rated exposure (article 139 (2) sentence 1 letter b CRR).
3. If these conditions are not met, the exposure is treated as unrated pursuant to article 139 (2) sentence 2 CRR.

No bond issue credit ratings are transferred to comparable exposures of equal or higher ranking.

Currently, the DZ BANK banking group does not use the aforementioned process for applying credit ratings of issuers and issues to exposures in the banking book as it is not relevant.

DZ BANK uses the standard assignment of credit ratings as published by the EBA. Therefore, no separate disclosure pursuant to article 444 letter d CRR is required.

6.5.2 Quantitative information on use of the Standardized Approach

(ARTICLE 444 LETTER E AND ARTICLE 453 SENTENCE 1 LETTERS F AND G CRR)

Fig. 31 shows the exposures broken down by exposure class under the Standardized Approach to credit risk where such exposures are secured by financial collateral, life insurance, or guarantees. The figures for credit risk mitigation in each case are the regulatory risk-weighted values.

In this context, the exposures assigned to the exposure classes under the Standardized Approach to credit risk are shown before and after credit risk mitigation under the Standardized Approach. The classification of transactions in the regulatory risk-weighting categories depends on how the transactions are classified in the regulatory exposure classes, on the credit ratings of borrowers and transactions, and on the particular collateral provided. The sum total of exposures after credit risks have been mitigated under the Standardized Approach to credit risk arises from the provision of personal collateral for IRBA transactions by protection providers treated according to the Standardized Approach to credit risk.

In some cases, the exposures reported after credit risk mitigation are larger than exposures before credit risk mitigation. This is because exposures after credit risks have been mitigated include exposures reported under the IRB approach that are backed by protection providers, in particular guarantors, treated according to the Standardized Approach to credit risk.

Fig. 31 – CRSA EXPOSURES BEFORE CREDIT RISK MITIGATION BY RATING CATEGORY

	Risk weighting (%)															
€ million	Dec. 31, 2017															
Exposure class	0%	2%	4%	10%	20%	35%	50%	70%	75%	100%	150%	250%	370%	1,250%	Other	Capital deduction
Exposure before credit risk mitigation																
Central governments and central banks	44,821	-	-	-	52	-	-	-	-	4	-	539	-	-	0	-
Regional governments or local authorities	38,750	-	-	-	639	-	203	-	-	2	-	-	-	-	0	-
Other public-sector entities	10,386	-	-	-	304	-	207	-	0	310	-	-	-	-	-	-
Multilateral development banks	426	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
International organizations	899	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Institutions	78,238	-	-	-	2,981	-	23	-	-	3	-	-	-	-	0	-
Covered bonds	-	-	-	-	197	-	-	-	-	-	-	-	-	-	-	-
Corporates	19	-	-	-	1,024	-	1,607	-	-	11,667	1	-	-	-	3	-
Retail business	-	-	-	-	-	-	-	-	5,174	-	-	-	-	-	-	-
Institutions and corporates with a short-term credit assessment	-	-	-	-	-	-	-	-	-	-	0	-	-	-	0	-
Exposures secured by mortgages on immovable property	-	-	-	-	-	2,405	2,838	-	2,008	-	-	-	-	-	-	-
Long-term equity investments	-	-	-	-	-	-	-	-	-	170	-	240	-	-	-	-
CIUs	-	-	-	-	-	-	-	-	-	27	-	-	-	1	2,635	-
Exposures associated with particularly high risk	-	-	-	-	0	-	-	-	-	-	771	0	-	-	-	-
Other items	6	-	-	-	5	-	-	-	-	134	-	84	-	75	-	-
Exposures in default	-	-	-	-	-	-	-	-	-	108	99	-	-	-	-	-
Total as of Dec. 31, 2017	**173,547**	**-**	**-**	**-**	**5,203**	**2,405**	**4,879**	**-**	**7,181**	**12,424**	**871**	**863**	**-**	**76**	**2,638**	**-**
Total as of Dec. 31, 2016	166,205	-	-	120	4,694	1,473	1,594	-	6,081	17,228	475	854	-	87	2,275	-

6.5.2.1 Credit risk and the effects of credit risk mitigation under the Standardized Approach
(ARTICLE 453 LETTERS F AND G CRR)

Fig. 32 provides a breakdown of the DZ BANK banking group's receivables as of December 31, 2017, broken down by exposure class.

As well as this breakdown, the table contains information about the impact of credit risk mitigation techniques. In accordance with the requirements, receivables subject to counterparty credit risk or the frameworks for securitizations are not included in this table.

Fig. 32 – EU CR4 – STANDARDIZED APPROACH – CREDIT RISK EXPOSURE AND CREDIT RISK MITIGATION EFFECTS

		a	b	c	d	e	f
	€ million	**Exposures before credit conversion factor and credit risk mitigation**		**Exposures after credit conversion factor and credit risk mitigation**		**RWAs and RWA density**	
Exposure class		On-balance-sheet amount	Off-balance-sheet amount	On-balance-sheet amount	Off-balance-sheet amount	RWAs	RWA density (%)
1	Central governments or central banks	45,396	13	47,627	258	1,382	2.89
2	Regional governments or local authorities	38,833	286	39,257	171	228	0.58
3	Public-sector entities	10,873	-	10,120	6	73	0.72
4	Multilateral development banks	426	-	426	-	-	0.00
5	International organizations	898	-	898	-	-	0.00
6	Institutions	74,521	16,278	74,916	2,280	500	0.65
7	Corporates	9,428	5,426	7,149	1,676	7,720	87.47
8	Retail business	3,679	3,572	3,784	491	2,813	65.79
9	Secured by mortgages on immovable property	5,033	188	4,926	96	2,136	42.54
10	Exposures in default	174	23	175	18	240	123.95
11	Exposures associated with particularly high risk	561	303	586	42	942	150.03
12	Covered bonds	197	-	197	-	39	20.00
13	Institutions and corporates with a short-term credit assessment	0	-	0	-	0	167.62
14	CIUs	2,662	-	2,662	-	1,853	69.60
15	Long-term equity investments	409	-	409	-	769	187.77
16	Other items	229	75	229	75	1,284	421.97
17	**Total**	**193,320**	**26,164**	**193,362**	**5,113**	**19,979**	**9.96**

6.5.2.2 Breakdown of exposures by risk weighting under the Standardized Approach

(ARTICLE 444 LETTER E CRR)

Fig. 33 provides a breakdown of the DZ BANK banking group's regulatory exposures at the reporting date, broken down by risk weighting under the Standardized Approach. The table also shows the exposures broken down by credit conversion factor and credit risk mitigation techniques.

Fig. 33 – EU CR5 – STANDARDIZED APPROACH – CREDIT RISK BY EXPOSURE CLASS AND RISK WEIGHTING

	Exposure class	Risk weighting																Total	of which: unrated
	€ million	0%	2%	4%	10%	20%	35%	50%	70%	75%	100%	150%	250%	370%	1,250%	Other	Deducted		
1	Central governments or central banks	47,251	-	-	-	52	-	40	-	-	4	-	539	-	-	0	-	47,885	37,258
2	Regional governments or local authorities	38,592	-	-	-	633	-	203	-	-	0	-	-	-	-	0	-	39,428	12,262
3	Public-sector entities	9,870	-	-	-	209	-	32	-	0	15	-	-	-	-	-	-	10,126	5,523
4	Multilateral development banks	426	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	426	130
5	International organizations	898	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	898	745
6	Institutions	74,777	-	-	-	2,368	-	52	-	-	1	-	-	-	-	0	-	77,198	76,409
7	Corporates	52	-	-	-	707	0	924	5	-	7,134	1	-	-	-	3	-	8,825	5,838
8	Retail business	234	-	-	-	-	-	-	-	4,041	-	-	-	-	-	-	-	4,276	4,093
9	Secured by mortgages on immovable property	-	-	-	-	-	2,262	2,760	-	-	-	-	-	-	-	-	-	5,021	1,526
10	Exposures in default	-	-	-	-	-	-	-	-	-	101	93	-	-	-	-	-	194	154
11	Exposures associated with particularly high risk	-	-	-	-	0	-	-	-	-	-	628	0	-	-	-	-	628	558
12	Covered bonds	-	-	-	-	197	-	-	-	-	-	-	-	-	-	-	-	197	-
13	Institutions and corporates with a short-term credit assessment	-	-	-	-	-	-	-	-	-	-	0	-	-	-	0	-	0	-
14	Collective investment undertakings	29	-	-	-	-	-	-	-	-	27	-	-	-	1	2,605	-	2,662	1,399
15	Long-term equity investments	-	-	-	-	-	-	-	-	-	170	-	240	-	-	-	-	409	324
16	Other items	6	-	-	-	5	-	-	-	-	134	-	84	-	75	-	-	304	184
17	**Total**	**172,135**	**-**	**-**	**-**	**4,171**	**2,262**	**4,010**	**5**	**4,041**	**7,585**	**721**	**863**	**-**	**76**	**2,608**	**-**	**198,478**	**146,403**

6.6 Credit risk and techniques for mitigating credit risk under the IRB approach

(ARTICLE 452 SENTENCE 1 LETTER A CRR)

This section of the DZ BANK banking group's Regulatory Risk Report only contains information relating to the use of IRBA models.

Exposures subject to the framework for securitizations or to counterparty credit risk are not included in the tables in section 6.6.

6.6.1 Qualitative information on use of the IRB approach

In this section, information is provided about the IRB models used in the DZ BANK banking group to calculate the RWAs. The main features of these IRB models are described and their particular scope of application is defined. The percentage for the RWAs is listed in section 6.6.1.2 of the regulatory risk report. This indicates the degree to which each regulatory portfolio is covered by the relevant model.

6.6.1.1 Summary of internal rating systems

(ARTICLE 452 SENTENCE 1 LETTER A CRR)

In 2007, the DZ BANK banking group received official approval from BaFin to calculate its own funds using the foundation IRB approach and the IRB approach for retail business. Fig. 35, Fig. 36, and Fig. 37 show the approved internal rating systems used by the DZ BANK banking group to determine the parameters for calculating its regulatory capital requirements based on the IRB approaches. The overviews cover the rating systems developed and applied by DZ BANK that are also made available to BSH, DG HYP, DVB, and WL BANK, as well as those specially customized to the respective business models of BSH and DG HYP. TeamBank uses a proprietary rating for retail business.

As of the reporting date, the percentage of coverage by the IRBA according to the implementation plan (excluding DVB) was 93.1 percent measured in terms of exposures (EAD) and 85.9 percent in relation to RWAs according to the requirements of section 11 of the Solvency Regulation (SolvV). This represents a decrease compared with the position as of December 31, 2016 when coverage stood at 93.7 percent (EAD) and 88.2 percent (RWAs). The degree of coverage in relation to the RWAs was thus below the 92 percent threshold required by the supervisory authority. DVB is not included in the above values. In accordance with section 13 (2) no. 6 SolvV, the banking supervisor has given permission for this entity to be excluded from the calculation of the percentage of coverage.

Fig. 34 provides an overview of the exposure classes of the entire DZ BANK banking group under the Standardized Approach to credit risk, FIRB approach, and AIRB approach, and their share of the total EAD.

Fig. 34 – DISTRIBUTION OF THE EXPOSURE CLASSES AND THEIR PERCENTAGE OF COVERAGE UNDER THE STANDARDIZED APPROACH TO CREDIT RISK, FIRB APPROACH, AND AIRB APPROACH (SHARE OF TOTAL EAD)

Exposure class	CRSA (%)	FIRB (%)	AIRB (%)	Total
Central governments	23.62	2.24	0.00	25.86
Institutions	19.28	8.32	0.20	27.80
Long-term equity investments	0.10	1.37	0.00	1.47
Corporates	4.73	17.60	4.68	27.00
Retail business	1.02	0.00	16.24	17.25
Other assets	0.13	0.48	0.00	0.62
Total	**48.88**	**30.01**	**21.11**	**100.00**

The ECB, as the competent supervisory authority, is notified of the percentage of coverage at regular intervals. If required, necessary action steps are discussed and agreed upon in the event of any potential changes to the regulatory requirements.

Fig. 35 – RATING SYSTEMS DEVELOPED BY DZ BANK AND THEIR USE BY OTHER ENTITIES IN THE DZ BANK BANKING GROUP

						Exposure class										
										Corporates				Retail business		
Rating systems	DZ BANK	BSH	DG HYP	DVB	WL BANK	Central governments and central banks	Institutions	Long-term equity investments	Securitizations	Corporates (narrow sense)	SMEs	Specialized lending	Receivables purchased	Mortgage-backed	Qualified revolving	Other
VR rating for large and medium-sized companies	•		•							•	•					
VR rating for major corporate customers	•									•						
VR rating for banks	•	•	•	•	•	•	•	•								
VR rating for countries	•	•	•	•	•	•										
Project finance	•											•				
Asset finance	•											•				
Acquisition finance	•									•						
Internal Assessment Approach	•								•							
Investment fund rating	•									•						

Fig. 36 – PROPRIETARY RATING SYSTEMS DEVELOPED BY BSH

	Exposure class										
					Corporates				Retail business		
Rating systems	Central governments and central banks	Institutions	Long-term equity investments	Securitizations	Corporates (narrow sense)	SMEs	Specialized lending	Receivables purchased	Mortgage-backed	Qualified revolving	Other
Mortgage-backed retail business											
Application scoring									•		
Behavioral scoring									•		
LGD scoring									•		
EAD									•		
Non-mortgage-backed retail business											
Application scoring											•
Behavioral scoring											•
LGD scoring											•
EAD											•

Fig. 37 – PROPRIETARY RATING SYSTEMS DEVELOPED BY DG HYP

	Exposure class										
					Corporates				Retail business		
Rating systems	Central governments and central banks	Institutions	Long-term equity investments	Securitizations	Corporates (narrow sense)	SMEs	Specialized lending	Receivables purchased	Mortgage-backed	Qualified revolving	Other
VR rating systems											
VR rating for developers							•				
VR rating for closed-end inv. funds							•				
VR rating for investors					•						
VR rating for real-estate companies							•				
VR rating for project developers							•				
VR rating for housing companies					•						
VR rating for open-ended real estate funds					•						
Rating systems for retail business with non-self-employed customers											
Application scoring (retail)/behavioral scoring (retail)									•		
Estimated LGD (retail IRB)									•		
Rating systems for retail business with self-employed customers											
Application scoring (retail)/behavioral scoring (retail)									•		
Estimated LGD (retail IRB)									•		
Other rating systems											
Specialized real estate lending (outside Germany)							•				

WL BANK also uses the following proprietary rating systems in the retail business exposure class (mortgage-backed):

– VR rating for retail-customer building loans
– Rating for business customers, freelancers, and investors (WL GFI rating)
– LGD grading
– CCF.

In addition, the rating for local and regional government (LRG) is used in the central governments and central banks exposure class while the VR rating for investors and the VR rating for housing companies are used in the exposure class of corporates (in the narrow sense of the term).
In addition to the rating systems developed by DZ BANK, DVB uses separate rating systems for the following segments in order to classify the risks for the exposure class of corporates (in the narrow sense of the term):

– Aviation (aircraft)
– Aviation (aircraft engines)
– Land transport
– Shipping (containers)
– Shipping (vessels).

When using DZ BANK's VR rating system for banks, DVB applies its own LGD estimates.
TeamBank uses its consumer-finance rating system to determine the credit ratings for loan exposures in its retail business exposure class. However, the following products are covered by the Standardized Approach to credit risk:

– Purchased but not yet settled credit card transactions that, in total, are below the activation threshold for conversion into consumer finance and the associated easyCredit lines related to credit cards, binding loan commitments to selected existing customers ('Exklusivangebot')
– Other lines of credit to existing customers
– easyCredit loans to self-employed individuals
– Receivables purchased in connection with the integrated e-commerce finance solution and at the point of sale ('ratenkauf by easyCredit')
– Consumer loans marketed in Austria, which also form part of the retail business exposure class.

6.6.1.2 Description of internal rating systems

(ARTICLE 452 SENTENCE 1 LETTERS B (I) AND C CRR)

Application of the IRB approaches requires the use of internal rating systems to classify the risks of the exposures measured using the IRB approaches and to classify guarantors. Internal rating systems are considered suitable if they meet the minimum requirements for use of the IRB approaches pursuant to article 143 CRR. Apart from meeting the requirements relating to methodology and process organization, the rating systems must have demonstrated their suitability for classifying existing and new business. Rating systems are defined by article 142 (1) no. 1 CRR as all of the methods, processes, controls, and data collection and IT systems that support the assessment of credit risk, the assignment of exposures to rating grades or pools, and the quantification of default and loss estimates that have been developed for a certain type of exposure.

Most of the internal rating systems have been developed as the standard for the entire cooperative financial network by DZ BANK. This uniform approach for the entire cooperative network brings substantial efficiency gains for DZ BANK as the cooperative central institution and for the local cooperative banks. If DZ BANK requires rating systems for specialized segments that go beyond the scope of the rating systems developed for the cooperative network, DZ BANK will develop any such rating systems itself.

The internal rating systems used by the entities in the DZ BANK banking group feature a modular construction; they generally consist of a quantitative module and a qualitative module (although TeamBank, for example, does not use a qualitative module in standardized retail business). When rating systems are developed, various factors affecting credit ratings are identified and initially developed in isolation. The next stage is to take account of interdependencies between individual modules at the level of the overall model. The advantage of this approach is that individual modules of a particular rating system can be revised, for example, in the light of new methodical-conceptual or empirical findings, without any other module being affected by this. This reduces the costs of developing and refining rating systems.

Provided article 495 (1) CRR does not apply (grandfathering), the PD/LGD approach pursuant to article 155 (3) CRR is used for equity exposures if the equity exposure falls within the scope of a rating system approved for the IRBA and for which approval has been given. Otherwise, the simple risk weighting approach pursuant to article 155 (2) CRR is used.

The **VR rating system** standardizes rating methods and ensures comparability of rating results within the cooperative financial network. The VR rating system is differentiated by customer segment and is gradually being extended to cover all relevant customer groups.

The section below presents the main rating systems used by the DZ BANK banking group. These rating systems have been approved by BaFin for the purposes of calculating regulatory own funds using the foundation IRB approach. Each of these rating systems differentiates between a total of 25 rating categories; 20 of these categories are for non-defaulting counterparties and 5 are for defaulting counterparties. The regulatory lower limits for the probability of default to be used in the calculation of capital requirements, known as PD floors, are taken into account for the relevant exposure class in accordance with the provisions of the CRR.

The **VR rating for large and medium-sized companies** is used for the exposure class of corporates (in the narrow sense of the term) and small and medium-sized enterprises and therefore applies to 25 percent and 58 percent respectively of the RWAs in the corresponding exposure class in the DZ BANK banking group. This rating system covers the central institution's typical corporate customers that generate revenue of up to €1.0 billion. It is applied, amongst others, to loans jointly extended by entities in the DZ BANK banking group to local cooperative banks or their customers and, in addition, is used by all local cooperative banks in Germany throughout the cooperative network. A characteristic of the VR rating system devised for large and medium-sized companies is the large number of historical data records of defaulting and non-defaulting customers that were collected throughout the cooperative financial network. Given this ideal data scenario, a good/bad analysis was selected as the development method.

The **VR rating for major corporate customers** is used for large domestic and international customers that generate revenue in excess of €1.0 billion and belong to the exposure class of corporates (in the narrow sense of the term). It applies to 40 percent of the RWAs in this exposure class in the DZ BANK banking group. A characteristic of the VR rating system devised for major corporate customers is the small number of defaulting customers. Given this data scenario, the external rating method was selected as the development method. Under this approach, data was collected from many financial years for a large number of externally rated international companies from various sectors.

The **VR rating for banks** is used for the exposure class of central governments and central banks, institutions, and equity exposures and therefore applies to 58 percent, 99 percent, and 100 percent respectively of the RWAs in the corresponding exposure class in the DZ BANK banking group. This rating system is applied to German and international banks (including central banks), irrespective of legal structure or size. Whereas the external rating method on the other hand was chosen as the development method. Under this approach, data was collected from externally rated banks worldwide.

The **VR rating for countries** is used for the exposure class of central governments and central banks and therefore applies to 33 percent of the RWAs in the corresponding exposure class in the DZ BANK banking group. Given the international orientation of the DZ BANK banking group, the country rating is very important for risk-based management of the business conducted by the entities in the DZ BANK banking group. The country rating segment is concerned exclusively with credit ratings for central governments and not with credit ratings for central banks, other foreign public-sector entities, or international institutions. Under this rating system design, which is also based on the external rating method, countries are broken down into industrialized and developing nations. The reasons for this breakdown are the different risk factors and the need for a different interpretation of the factors relevant to credit quality when analyzing industrialized and developing nations' ability and willingness to pay.

The internal rating systems specified below are used exclusively by DZ BANK within the banking group to calculate capital requirements:

– The **project finance rating system** is used to assess complex transport and infrastructure projects. It therefore applies to 29 percent of the RWAs in the specialized lending exposure class in the DZ BANK banking group. As there are only a small number of external ratings available for project finance and an insufficient number of internal data sets, a combination of ratings by experts, cash flow simulations, and the external rating method were selected to develop the rating model.

– The **asset finance rating system** is used to assess investment projects in the transportation sector (currently exclusively shipping) that are financed on the basis of the cash flows generated by the asset. It therefore applies to 2 percent of the RWAs in the specialized lending exposure class in the DZ BANK banking group. This system is based on ratings by experts.

– The **acquisition finance rating system** is used in the provision of funding for acquisitions of companies or parts of companies and majority and minority stakes, irrespective of the legal structure of the transaction. It therefore applies to 6 percent of the RWAs in the exposure class of corporates (in the narrow sense of the term) in the DZ BANK banking group. As there is no sufficient number of external ratings available for acquisition financing either and, similarly, an insufficient quantity of internal data on defaults, a rating method based on the assessments of internal experts was chosen to develop this rating system.

– The **Internal Assessment Approach (IAA)** is used to rate liquidity lines and credit enhancements that are made available to programs for the purpose of issuing asset-backed commercial paper (ABCP).

– The **investment fund rating system** is used for funds in Germany and Luxembourg that mainly invest in liquid fixed assets. It therefore applies to 1 percent of the RWAs in the exposure class of corporates (in the narrow sense of the term) in the DZ BANK banking group. Because neither default data for funds in this scope of application nor external credit ratings for investment funds are available, a simulation-based approach using time series of fund returns combined with a qualitative sub-module were selected to develop this rating system.

A reconciliation of external and internal ratings, which illustrates the relationship between internal allocations to rating categories and external credit ratings, is presented in fig. 23 in section 8.4.1. of the opportunity and risk report.

6.6.1.3 Approved transitional rules for IRB approaches (partial use)

(ARTICLE 452 SENTENCE 1 LETTER A CRR)

Capital requirements for credit risk in the entities within the DZ BANK banking group are always calculated using the IRB approaches as well as the Standardized Approach to credit risk (partial use).

From a regulatory perspective, use of the Standardized Approach to credit risk by institutions that use the IRB approach is limited, and threshold values must be complied with. In order to monitor compliance, the cover ratio as defined by article 143 CRR in conjunction with section 11 SolvV is calculated on an ongoing basis. Because DVB has been using the advanced IRB approach to report its capital requirements for credit risk since January 1, 2008, it is exempted under section 13 (2) no. 6 SolvV from the calculation of the DZ BANK banking group's cover ratio.

The individual IRBA institutions use internal rating systems to cover their main business lines. Only segments that are immaterial in terms of their level of credit risk will continue to use the Standardized Approach to credit risk indefinitely. The other entities use the Standardized Approach to credit risk.

In the foundation IRB approach, the probability of default (PD) is estimated by the institutions themselves, while the loss given default (LGD) is specified by law. LGD values in the IRB approach for retail business and the advanced IRB approach are also based on the institutions' own estimates. By contrast, the Standardized Approach to credit risk is based on risk weightings that either depend on external ratings or are set in accordance with regulatory requirements.

Validation activities are carried out depending on the method chosen for a rating system (see 'Description of internal rating systems' in this section). For example, the Gini coefficient is calculated in order to assess the discriminant power of the rating systems with a good/bad analysis, whereas the hit rate is used with the external rating method. The minimum data history of five years as required by article 180 et seq. CRR is maintained for both the estimates and the validation of risk parameters. Validation also involves comparing the expected probability of default with the actual default rate for each rating system and, in the event of significant discrepancies, describing the underlying causes.

For each institution that uses the IRB approach there is an implementation plan that ensures compliance with the thresholds prescribed by the CRR or approved by the supervisory authority. Compliance with these thresholds is one of the preconditions for using the IRB approaches.

6.6.1.4 Use of internal estimates for purposes other than calculating risk-weighted exposures under the IRB approach

(ARTICLE 452 SENTENCE 1 LETTER B (II) CRR)

Internal rating systems are at the heart of credit risk management for the entities in the DZ BANK banking group. The credit ratings used for internal management purposes and regulatory reporting purposes are identical. Internal rating systems are used in the following areas:

- The **exposure limits** for lending or trading transactions for which there is a risk of default are partly determined by internal ratings.

- The profit-contribution-based **pre-analysis of loans** carried out in the course of pricing is based on key cost determinants such as sales commission, standard risk costs and the regulatory and economic capital costs involved in covering expected and unexpected losses. The two latter cost components are based on internal ratings.

- The **level of authority** for decision-makers in both front-office and back-office divisions to approve loan applications is also determined by internal ratings.

- When **loans are analyzed ex-post** after a transaction has been closed, the profit contributed by individual transactions, customers, and profit centers is primarily determined (similarly to the pre-analysis of loans) by the standard risk costs and the regulatory and economic capital costs based on internal ratings.

- During the term of the loan, internal ratings determine the extent to which **credit ratings are monitored**.
- Taking the overall economic situation into account, **specific and portfolio loan loss allowances are planned** on the basis of the calculation of standard risk costs and credit risk (expected loss). The level of costs depends on internal ratings and, if applicable, loss rates.

- The risk of unexpected losses is measured using **credit value-at-risk systems** that are based on internal credit ratings and the corresponding default probabilities as well as further risk parameters.

- And finally, internal ratings play a key role in internal **credit risk reporting**.

6.6.1.5 Control mechanisms for the rating systems

(ARTICLE 452 SENTENCE 1 LETTER B (IV) CRR)

The internal rating systems used are validated once a year on the basis of internal and external data. **Validation** consists partly of quantitative analysis aimed at measuring the rating systems' discriminant power and stability and at calibrating them. It also includes qualitative analysis that tests the use of these rating systems for internal management purposes with respect to their model design and data quality. In addition, pool validation is carried out on the standard rating systems used throughout the cooperative financial network. When pool validation is conducted, the rating-related data of all banks that use the rating system concerned is collected and analyzed in the same way as in the internal bank validation process. If validations reveal any room for improvement, improvements are made when the rating systems are refined.

The monitoring function also includes checking that the rating systems are being properly used, regularly estimating the risk parameters derived from them, and reviewing these estimates. The findings of these monitoring activities are integrated into the internal reporting system.

The rating systems used by DZ BANK have been approved by its Board of Managing Directors.

At DZ BANK, a dedicated organizational unit in the Group Risk Controlling division is responsible for regularly reviewing the adequacy and integrity of the rating systems used to manage credit risk (credit risk monitoring unit). In addition, this unit is responsible for ensuring compliance with regulatory requirements in respect of rating systems, for developing and implementing new rating models, and for adapting existing models.

Since January 1, 2017, the Group Risk Controlling division has had a separate, independent unit for validating the rating systems. This unit validates DZ BANK AG's rating systems independently of the development process, produces validation reports, and recommends any required action steps.

The Internal Audit function is independent of this process and regularly reviews the adequacy of internal rating systems, including compliance with the minimum requirements for using these systems.

Similar arrangements have been implemented in all entities in the DZ BANK banking group.

6.6.1.6 Process of assigning exposures and borrowers to rating categories and risk pools

(ARTICLE 452 SENTENCE 1 LETTER C CRR)

Every borrower clearly falls into a defined area of an internal rating system based on industrial sector codes, revenue characteristics, and business specifics. As a rule, it is not possible to conduct business that bears a default risk with borrowers who do not have an internal rating. All rating systems are assigned – without any overlaps – to one regulatory exposure class. The relevant rating models are used as part of the credit application and approval process to classify the applicant or the guarantor. The classification of every borrower or guarantor must be reviewed at least once a year. All relevant input factors and ratings conducted are saved in the data processing systems so that there is a complete rating history for every customer and every transaction.

6.6.2 Quantitative information on use of the IRB approach

(ARTICLE 452 SENTENCE 1 LETTERS D TO H CRR)

This section focuses on default risk for exposures under the IRB approach.

Fig. 38 and Fig. 39 show the lending volumes under the IRB approach for borrowers and transactions that are classified on the basis of internal credit ratings. The rating systems used internally are unambiguously assigned to one regulatory exposure class. The borrowers/transactions are assigned to a credit rating category based on their individual rating in the form of their specific default probability or the expected loss for a rating category. Classification as 'investment grade', 'non-investment grade', or 'default' is based on the corresponding default probabilities for each rating category on the standardized groupwide master scale of the DZ BANK banking group. This rating scale is described in fig. 23 in section 8.4.1 (page 110) of the opportunity and risk report.

6.6.2.1 Lending volume broken down by PD category under the foundation IRB approach

(ARTICLE 452 SENTENCE 1 LETTERS D TO G CRR)

Fig. 38 shows the parameters used in the DZ BANK banking group to calculate the capital requirements on the basis of IRB rating systems. The exposure classes are broken down by PD category so that the credit quality of the portfolio can be assessed. The on-balance-sheet exposure before credit conversion factor and the off-balance-sheet exposures before credit risk mitigation are disclosed in columns a and b, whereas columns c to l contain the regulatory values, e.g. average values for PD, LGD, and term to maturity, as well as the RWAs and their density, expected loss (EL), and loan loss allowances and provisions for each exposure class.

The disclosures are based on the exposure classes (central governments and central banks, institutions, corporates, and long-term equity investments) under the IRB approach and are also broken down by PD category. The exposure for undrawn credit lines is calculated by applying the credit conversion factors to the carrying amount. The average risk weightings reveal borrowers' credit ratings and the extent to which transactions are collateralized. The number of borrowers in each exposure class is also stated.

Fig. 38 – EU CR6 – IRB APPROACH – CREDIT RISK EXPOSURES BY EXPOSURE CLASS AND PD RANGE (FIRB)

PD scale	a	b	c	d	e	f	g	h	i	j	k	l
€ million (unless indicated otherwise)	Original on-balance-sheet gross exposures	Off-balance-sheet exposures pre-CCF	Average CCF (%)	EAD after credit risk mitigation and after CCF	Average PD (%)	Number of borrowers	Average LGD (%)	Average maturity (days)	RWAs	RWA density (%)	EL	Loan loss allowances and provisions
Central governments and central banks												
0.00 to < 0.15	7,769	17	100	8,366	0.02	33	42.23	837	691	8.26	0	0
0.15 to < 0.25	38	45	80	74	0.23	4	45.00	900	37	50.17	0	0
0.25 to < 0.50	111	-	-	111	27.93	14	45.00	3	61	55.56	0	0
0.50 to < 0.75	0	-	-	0	0.50	4	45.00	900	0	73.79	0	-
0.75 to < 2.50	676	3	75	666	1.09	16	2.56	212	32	4.88	0	0
2.50 to < 10.00	140	9	75	71	8.04	19	37.76	900	117	163.65	2	-6
10.00 to < 100.00	122	14	75	7	16.53	9	45.00	768	16	235.78	1	-8
100.00 (default)	-	-	-	-	-	1	-	-	-	-	-	-
Subtotal	8,856	88	82.13	9,294	0.51	100	39.42	783	955	10.28	4	-14
Institutions												
0.00 to < 0.15	16,662	1,276	43.72	17,662	0.07	400	20.67	729	2,202	12.47	2	-1
0.15 to < 0.25	5,077	62	46.11	5,112	0.15	141	10.79	572	671	13.13	1	-3
0.25 to < 0.50	1,870	27	53.38	1,885	0.48	53	23.70	559	398	21.10	1	0
0.50 to < 0.75	880	77	38.75	896	0.46	57	20.29	808	376	41.96	1	0
0.75 to < 2.50	1,262	185	34.58	1,026	0.93	124	33.20	812	931	90.70	3	-4
2.50 to < 10.00	66	36	31.52	45	7.96	52	13.42	900	26	57.14	0	-2
10.00 to < 100.00	41	124	53.22	21	25.39	61	38.65	900	51	242.04	2	-14
100.00 (default)	89	-	-	89	100.00	4	45.00	900	-	-	40	-69
Subtotal	25,948	1,786	43.20	26,737	0.52	892	19.54	694	4,654	17.41	51	-94
Corporates – SMEs												
0.00 to < 0.15	4,841	521	74.64	5,210	6.51	730	51.62	386	1,389	26.67	2	1
0.15 to < 0.25	517	123	54.61	583	10.45	246	71.14	1,471	420	72.03	1	0
0.25 to < 0.50	404	137	42.35	460	16.33	230	81.38	1,670	549	119.45	1	0
0.50 to < 0.75	194	140	56.71	271	8.79	178	45.60	1,015	185	68.26	1	0
0.75 to < 2.50	620	539	49.97	874	7.73	643	44.56	943	745	85.28	4	-3
2.50 to < 10.00	196	145	56.07	273	11.18	196	43.88	886	327	119.79	5	-4
10.00 to < 100.00	315	6	87.04	11	20.78	1,232	42.93	900	24	207.90	1	-1
100.00 (default)	53	28	90.85	74	306.44	65	44.56	881	-	-	33	-47
Subtotal	7,139	1,641	59.46	7,757	10.66	3,520	53.49	651	3,640	46.92	47	-54
Corporates – specialized lending												
0.00 to < 0.15	7,793	407	81.04	8,104	0.08	547	38.72	900	1,937	23.90	3	-2
0.15 to < 0.25	3,698	790	76.10	4,243	0.20	275	41.15	900	1,823	42.96	4	-3
0.25 to < 0.50	2,877	1,601	74.74	3,923	0.35	221	42.88	900	2,349	59.88	6	-4
0.50 to < 0.75	1,296	390	75.02	1,521	0.50	188	43.81	900	1,111	73.05	3	-3
0.75 to < 2.50	3,199	801	73.51	3,333	0.95	350	43.63	900	3,106	93.20	14	-13
2.50 to < 10.00	438	51	76.91	246	4.50	92	43.62	900	364	147.79	5	-19
10.00 to < 100.00	9	1	91.29	7	30.00	51	21.70	900	17	244.52	1	-1
100.00 (default)	550	6	80.46	537	100.00	112	44.37	900	-	-	238	-333
Subtotal	19,858	4,047	75.46	21,913	2.82	1,836	41.22	900	10,706	48.86	273	-377

PD scale	a	b	c	d	e	f	g	h	i	j	k	l
€ million (unless indicated otherwise)	Original on-balance-sheet gross exposures	Off-balance-sheet exposures pre-CCF	Average CCF (%)	EAD after credit risk mitigation and after CCF	Average PD (%)	Number of borrowers	Average LGD (%)	Average maturity (days)	RWAs	RWA density (%)	EL	Loan loss allowances and provisions
Corporates – purchased receivables												
0.00 to < 0.15	8,176	3,742	64.52	10,547	0.07	623	41.92	900	2,411	22.86	3	-2
0.15 to < 0.25	5,479	5,251	62.31	8,596	0.19	693	43.51	900	3,815	44.38	7	-5
0.25 to < 0.50	2,227	2,928	51.90	3,734	0.35	497	44.23	900	2,295	61.45	6	-17
0.50 to < 0.75	2,942	3,274	48.23	4,243	0.50	545	44.53	900	3,105	73.17	9	-7
0.75 to < 2.50	3,908	3,681	53.02	5,468	1.04	979	44.17	900	5,277	96.52	25	-20
2.50 to < 10.00	823	373	53.64	681	3.23	194	44.76	900	938	137.76	10	-15
10.00 to < 100.00	50	54	6.31	22	19.97	33	43.75	900	51	235.34	2	-5
100.00 (default)	1,193	186	64.79	1,147	100.00	226	44.49	900	-	-	510	-862
Subtotal	24,798	19,489	56.75	34,438	3.74	3,790	43.39	900	17,892	51.95	573	-931
Corporates – other												
0.00 to < 0.15	12,169	4,057	65.33	14,760	1.85	919	40.41	644	3,218	21.80	4	-1
0.15 to < 0.25	5,579	5,284	62.39	8,719	0.51	728	43.41	887	3,865	44.33	7	-5
0.25 to < 0.50	2,300	3,002	52.47	3,878	1.52	539	43.90	867	2,360	60.87	6	-17
0.50 to < 0.75	2,985	3,318	48.58	4,316	1.38	573	44.39	885	3,150	72.98	10	-7
0.75 to < 2.50	3,949	3,682	53.02	5,509	1.63	997	44.11	893	5,307	96.33	25	-20
2.50 to < 10.00	823	376	53.82	683	4.14	195	44.72	897	941	137.66	10	-15
10.00 to < 100.00	50	54	6.31	22	19.97	33	43.75	900	51	235.34	2	-5
100.00 (default)	1,196	186	64.79	1,150	125.21	227	44.46	898	-	-	511	-862
Subtotal	29,049	19,958	57.18	39,036	5.12	4,211	42.59	794	18,892	48.39	575	-930
Long-term equity investments												
0.00 to < 0.15	36	-	-	36	0.09	5	71.73	1,800	28	76.91	0	-
0.15 to < 0.25	1	-	-	1	0.23	2	90.00	1,800	1	151.43	0	-
0.25 to < 0.50	-	-	-	-	-	1	-	-	-	-	-	-
0.50 to < 0.75	-	-	-	-	-	-	-	-	-	-	-	-
0.75 to < 2.50	-	-	-	-	-	-	-	-	-	-	-	-
2.50 to < 10.00	1	-	-	1	5.57	2	90.00	1,800	6	392.45	0	-
10.00 to < 100.00	-	-	-	-	-	-	-	-	-	-	-	-
100.00 (default)	0	-	-	0	100.00	4	90.00	1,800	-	-	0	-
Subtotal	38	-	-	38	0.29	14	72.74	1,800	34	89.91	0	-
Total (all portfolios)	**90,888**	**27,520**	**59.18**	**104,775**	**3.46**	**10,573**	**402.62**	**780**	**38,882**	**37.11**	**951**	**-1,469**

6.6.2.2 Lending volume broken down by PD category under the advanced IRB approach

(ARTICLE 452 SENTENCE 1 LETTERS D TO G CRR)

Fig. 39 shows the exposures broken down by PD category under the advanced IRB approach using the structure shown in section 6.6.2.1.

Fig. 39 – EU CR6 – AIRB APPROACH – CREDIT RISK EXPOSURES BY EXPOSURE CLASS AND PROBABILITY OF DEFAULT

PD scale	a	b	c	d	e	f	g	h	i	j	k	l
€ million (unless indicated otherwise)	Original on-balance-sheet gross exposures	Off-balance-sheet exposures pre-CCF	Average CCF (%)	EAD after credit risk mitigation and after CCF	Average PD (%)	Number of borrowers	Average LGD (%)	Average maturity (days)	RWAs	RWA density (%)	EL	Loan loss allowances and provisions
Central governments and central banks												
0.00 to < 0.15	-	-	-	-	-	-	-	-	-	-	-	-
0.15 to < 0.25	-	-	-	-	-	-	-	-	-	-	-	-
0.25 to < 0.50	-	-	-	-	-	-	-	-	-	-	-	-
0.50 to < 0.75	-	-	-	-	-	-	-	-	-	-	-	-
0.75 to < 2.50	-	-	-	-	-	-	-	-	-	-	-	-
2.50 to < 10.00	-	-	-	-	-	-	-	-	-	-	-	-
10.00 to < 100.00	-	-	-	-	-	-	-	-	-	-	-	-

PD scale	a	b	c	d	e	f	g	h	i	j	k	l
€ million (unless indicated otherwise)	Original on-balance-sheet gross exposures	Off-balance-sheet exposures pre-CCF	Average CCF (%)	EAD after credit risk mitigation and after CCF	Average PD (%)	Number of borrowers	Average LGD (%)	Average maturity (days)	RWAs	RWA density (%)	EL	Loan loss allowances and provisions
100.00 (default)	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-	-	-	-	-	-	-
Institutions												
0.00 to < 0.15	82	-	-	82	0.08	10	81.00	1	11	13.52	0	-
0.15 to < 0.25	-	-	-	-	-	-	-	-	-	-	-	-
0.25 to < 0.50	-	-	-	-	-	-	-	-	-	-	-	-
0.50 to < 0.75	73	-	-	73	0.50	4	81.00	2	6	7.86	0	-
0.75 to < 2.50	-	-	-	-	-	-	-	-	-	-	-	-
2.50 to < 10.00	-	-	-	-	-	-	-	-	-	-	-	-
10.00 to < 100.00	-	-	-	-	-	-	-	-	-	-	-	-
100.00 (default)	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal	155	-	-	155	0.28	14	81.00	1	17	10.85	0	-
Corporates – SMEs												
0.00 to < 0.15	-	-	-	-	-	-	-	-	-	-	-	-
0.15 to < 0.25	-	-	-	-	-	-	-	-	-	-	-	-
0.25 to < 0.50	-	-	-	-	-	-	-	-	-	-	-	-
0.50 to < 0.75	-	-	-	-	-	-	-	-	-	-	-	-
0.75 to < 2.50	-	-	-	-	-	-	-	-	-	-	-	-
2.50 to < 10.00	-	-	-	-	-	-	-	-	-	-	-	-
10.00 to < 100.00	-	-	-	-	-	-	-	-	-	-	-	-
100.00 (default)	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-	-	-	-	-	-	-
Corporates – specialized lending												
0.00 to < 0.15	-	-	-	-	-	-	-	-	-	-	-	-
0.15 to < 0.25	-	-	-	-	-	-	-	-	-	-	-	-
0.25 to < 0.50	-	-	-	-	-	-	-	-	-	-	-	-
0.50 to < 0.75	-	-	-	-	-	-	-	-	-	-	-	-
0.75 to < 2.50	-	-	-	-	-	-	-	-	-	-	-	-
2.50 to < 10.00	-	-	-	-	-	-	-	-	-	-	-	-
10.00 to < 100.00	-	-	-	-	-	-	-	-	-	-	-	-
100.00 (default)	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-	-	-	-	-	-	-
Corporates – purchased receivables												
0.00 to < 0.15	-	-	-	-	-	-	-	-	-	-	-	-
0.15 to < 0.25	-	-	-	-	-	-	-	-	-	-	-	-
0.25 to < 0.50	-	-	-	-	-	-	-	-	-	-	-	-
0.50 to < 0.75	-	-	-	-	-	-	-	-	-	-	-	-
0.75 to < 2.50	-	-	-	-	-	-	-	-	-	-	-	-
2.50 to < 10.00	-	-	-	-	-	-	-	-	-	-	-	-
10.00 to < 100.00	-	-	-	-	-	-	-	-	-	-	-	-
100.00 (default)	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-	-	-	-	-	-	-
Corporates – other												
0.00 to < 0.15	143	-	-	143	0.05	5	2.65	744	2	1.30	0	-
0.15 to < 0.25	1,852	58	100.00	1,911	0.19	76	5.22	1,050	136	7.11	1	-
0.25 to < 0.50	2,558	204	100.00	2,761	0.35	95	3.07	1,201	150	5.45	2	-
0.50 to < 0.75	76	30	100.00	107	0.61	31	5.52	1,732	14	13.39	0	-
0.75 to < 2.50	3,539	143	100.00	3,682	1.47	140	5.53	1,249	563	15.30	4	-
2.50 to < 10.00	5,909	239	100.00	6,148	6.54	284	4.03	1,083	1,003	16.32	17	-6
10.00 to < 100.00	2,034	189	100.00	2,223	26.26	103	5.32	1,062	692	31.12	33	-22
100.00 (default)	2,615	72	100.00	2,687	100.00	99	37.85	1,208	-	-	1,015	-1,120
Subtotal	18,727	934	100.00	19,662	19.02	833	9.06	1,143	2,561	13.03	1,072	-1,148
Retail business – SMEs, secured by mortgages on immovable property												
0.00 to < 0.15	-	-	-	-	-	-	-	-	-	-	-	-
0.15 to < 0.25	-	-	-	-	-	-	-	-	-	-	-	-
0.25 to < 0.50	-	-	-	-	-	-	-	-	-	-	-	-
0.50 to < 0.75	-	-	-	-	-	-	-	-	-	-	-	-
0.75 to < 2.50	-	-	-	-	-	-	-	-	-	-	-	-

PD scale	a	b	c	d	e	f	g	h	i	j	k	l
€ million (unless indicated otherwise)	Original on-balance-sheet gross exposures	Off-balance-sheet exposures pre-CCF	Average CCF (%)	EAD after credit risk mitigation and after CCF	Average PD (%)	Number of borrowers	Average LGD (%)	Average maturity (days)	RWAs	RWA density (%)	EL	Loan loss allowances and provisions
2.50 to < 10.00	-	-	-	-	-	-	-	-	-	-	-	-
10.00 to < 100.00	-	-	-	-	-	-	-	-	-	-	-	-
100.00 (default)	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-	-	-	-	-	-	-
Retail business – non-SMEs, secured by mortgages on immovable property												
0.00 to < 0.15	4,073	137	53.39	4,146	8.40	43,219	6.89	2	64	1.54	0	0
0.15 to < 0.25	4,329	350	49.27	4,501	14.94	44,290	10.37	2	186	4.12	1	1
0.25 to < 0.50	2,432	293	71.70	2,642	14.20	37,549	11.09	1	176	6.68	1	0
0.50 to < 0.75	7,983	828	91.90	8,744	5.11	133,201	9.37	0	674	7.70	4	-2
0.75 to < 2.50	24,603	3,199	97.48	27,722	3.48	373,529	10.54	0	4,039	14.57	32	-23
2.50 to < 10.00	3,985	346	98.52	4,325	12.32	59,726	11.38	0	1,489	34.42	20	-16
10.00 to < 100.00	1,032	35	98.89	1,066	148.86	16,642	11.32	0	679	63.70	42	-31
100.00 (default)	604	5	98.38	609	489.42	9,219	24.58	0	269	44.18	129	-96
Subtotal	49,040	5,192	90.80	53,755	14.71	717,375	10.32	0	7,575	14.09	229	-168
Retail business – qualified revolving												
0.00 to < 0.15	-	-	-	-	-	-	-	-	-	-	-	-
0.15 to < 0.25	-	-	-	-	-	-	-	-	-	-	-	-
0.25 to < 0.50	-	-	-	-	-	-	-	-	-	-	-	-
0.50 to < 0.75	-	-	-	-	-	-	-	-	-	-	-	-
0.75 to < 2.50	-	-	-	-	-	-	-	-	-	-	-	-
2.50 to < 10.00	-	-	-	-	-	-	-	-	-	-	-	-
10.00 to < 100.00	-	-	-	-	-	-	-	-	-	-	-	-
100.00 (default)	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-	-	-	-	-	-	-
Retail business – other SMEs												
0.00 to < 0.15	2	-	-	2	0.132	1	27.28	720	0	6.78	0	-
0.15 to < 0.25	-	-	-	-	-	-	-	-	-	-	-	-
0.25 to < 0.50	-	-	-	-	-	-	-	-	-	-	-	-
0.50 to < 0.75	-	-	-	-	-	-	-	-	-	-	-	-
0.75 to < 2.50	-	-	-	-	-	-	-	-	-	-	-	-
2.50 to < 10.00	-	-	-	-	-	-	-	-	-	-	-	-
10.00 to < 100.00	-	-	-	-	-	-	-	-	-	-	-	-
100.00 (default)	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-	-	-	-	-	-	-
Retail business – other non-SMEs												
0.00 to < 0.15	3,598	21	86.16	3,616	0.19	21,682	27.33	0	321	8.86	1	0
0.15 to < 0.25	623	61	80.04	671	1.29	124,411	23.68	350	72	10.73	0	-3
0.25 to < 0.50	520	41	84.64	554	1.36	71,937	13.95	0	45	8.18	0	0
0.50 to < 0.75	2,327	26	79.07	2,348	0.92	288,885	34.81	1,081	658	28.03	5	-25
0.75 to < 2.50	4,360	45	84.07	4,398	1.69	350,984	36.14	1,517	1,883	42.82	21	-52
2.50 to < 10.00	2,109	8	98.19	2,116	4.15	117,060	42.00	1,959	1,344	63.53	35	-36
10.00 to < 100.00	467	3	97.94	469	27.56	38,791	37.74	1,564	405	86.38	38	-34
100.00 (default)	391	0	100.00	392	109.42	37,342	46.46	1,172	278	71.08	159	-263
Subtotal	14,394	205	83.28	14,564	5.25	1,051,092	33.50	1,015	5,007	34.38	260	-413
Other non-credit-obligation assets												
0.00 to < 0.15	-	-	-	-	-	-	-	-	-	-	-	-
0.15 to < 0.25	-	-	-	-	-	-	-	-	-	-	-	-
0.25 to < 0.50	-	-	-	-	-	-	-	-	-	-	-	-
0.50 to < 0.75	-	-	-	-	-	-	-	-	-	-	-	-
0.75 to < 2.50	-	-	-	-	-	-	-	-	-	-	-	-
2.50 to < 10.00	-	-	-	-	-	-	-	-	-	-	-	-
10.00 to < 100.00	-	-	-	-	-	-	-	-	-	-	-	-
100.00 (default)	36	-	-	36	-	-	-	-	36	100.00	-	-
Subtotal	36	-	-	36	-	-	-	-	36	100.00	-	-
Total (all portfolios)	**82,391**	**6,332**	**91.92**	**88,211**	**14.07**	**1,769,314**	**14.01**	**423**	**15,231**	**17.27**	**1,561**	**-1,729**

6.6.2.3 Collateralized lending volume under the IRB approaches

(ARTICLE 453 SENTENCE 1 LETTER G CRR)

This section presents the impact of credit derivatives on the calculation of capital requirements under the IRB approach. To this end, Fig. 40 shows the RWAs before credit risk has been mitigated using credit derivatives and compares them with the actual RWAs (i.e. after risk mitigation using credit derivatives and guarantees).

Fig. 40 – EU CR7 – EFFECT OF CREDIT DERIVATIVES USED AS CREDIT RISK MITIGATION TECHNIQUES ON THE RWAS

		a	b
	€ million	RWAs before credit derivatives	Actual RWAs
1	Exposure classes under FIRB approach	43,634	43,634
2	Central governments and central banks	981	981
3	Institutions	5,856	5,856
4	Corporates – SMEs	2,417	2,417
5	Corporates – specialized lending	13,385	13,385
6	Corporates – other	18,966	18,966
7	Exposure classes under AIRB approach	36,496	36,496
8	Central governments and central banks	-	-
9	Institutions	17	17
10	Corporates – SMEs	-	-
11	Corporates – specialized lending	-	-
12	Corporates – other	2,561	2,561
13	Retail business – SMEs, secured by mortgages on immovable property	-	-
14	Retail business – non-SMEs, secured by mortgages on immovable property	7,575	7,575
15	Retail business – qualified revolving	-	-
16	Retail business – other SMEs	0	0
17	Retail business – other non-SMEs	5,007	5,007
18	Long-term equity investments under the IRB approach	21,335	21,335
19	Other non-credit-obligation assets*	2,029	2,029
20	**Total**	**80,129**	**80,129**

*Other assets are assigned to the FIRB approach and form part of the total in row 1.

In the DZ BANK banking group, no credit derivatives were used for risk mitigation under the IRB approach. As a result, the RWAs before the mitigation of credit risk using credit derivatives are the same as the actual RWAs.

6.6.2.4 RWA flow statement for credit risk under the IRB approach

(ARTICLE 438 SENTENCE 1 LETTER D CRR)

The flow statement in Fig. 41 explains the fluctuation in the RWAs of risk-weighted exposure amounts under the IRB approach. The associated capital requirements are also shown. Reconciliation of the RWAs from the previous reporting date to the RWAs as of December 31, 2017 is not necessary because this information is being presented for the first time as of December 31, 2017. Therefore rows 1 to 8 do not contain any data in this report (n/a). The RWAs at the end of the reporting period are only shown in row 9.

Fig. 41 – EU CR8 – RWA FLOW STATEMENT OF CREDIT RISK EXPOSURES UNDER THE IRB APPROACH

		a	b
	€ million	RWA amounts	Capital requirements
1	**RWAs as of the end of the previous reporting period**	**n/a**	**n/a**
2	Asset size	n/a	n/a
3	Asset quality	n/a	n/a
4	Model updates	n/a	n/a
5	Methodology and policy	n/a	n/a
6	Acquisitions and disposals	n/a	n/a
7	Foreign exchange movements	n/a	n/a
8	Other	n/a	n/a
9	**RWAs as of the end of the reporting period**	**80,129**	**6,410**

6.6.2.5 Risk-weighted exposure amounts for specialized lending and long-term equity investments

(ARTICLE 438 SENTENCE 2 CRR)

Fig. 42 contains the banking group's exposures for specialized lending using the simple risk-weighting method. It also shows the exposures for long-term equity investments under the IRB approach using the simple risk-weighting method.

Fig. 42 – EU CR10 – IRB (SPECIALIZED LENDING AND LONG-TERM EQUITY INVESTMENTS)

€ million

Specialized lending

Regulatory categories	Remaining maturity	On-balance-sheet amount	Off-balance-sheet amount	Risk weighting	Exposure amount	RWAs	Expected losses
Category 1	Less than 2.5 years	277	46	50%	312	156	-
	Equal to or more than 2.5 years	931	33	70%	957	670	4
Category 2	Less than 2.5 years	53	45	70%	83	58	0
	Equal to or more than 2.5 years	1,118	87	90%	1,170	1,053	9
Category 3	Less than 2.5 years	6	31	115%	28	32	1
	Equal to or more than 2.5 years	238	34	115%	257	295	7
Category 4	Less than 2.5 years	-	-	250%	-	-	-
	Equal to or more than 2.5 years	13	1	250%	15	37	1
Category 5	Less than 2.5 years	-	-	-	-	-	-
	Equal to or more than 2.5 years	-	-	-	-	-	-
Total	Less than 2.5 years	336	122		423	247	1
	Equal to or more than 2.5 years	2,300	155		2,398	2,055	22

Long-term equity investments under the simple risk-weighted approach

Category	On-balance-sheet amount	Off-balance-sheet amount	Risk weighting	Exposure amount	RWAs	Capital requirements
Private long-term equity investments	11	0	190%	12	22	2
Exchange-traded long-term equity investments	0	-	290%	0	1	0
Other long-term equity investments	5,709	-	370%	5,709	21,124	1,690
Total	**5,721**	**0**		**5,721**	**21,147**	**1,692**

6.6.2.6 Actual specific credit risk adjustments and factors influencing losses incurred in lending business

(ARTICLE 452 SENTENCE 1 LETTERS G AND H CRR)

Fig. 43 contains information about the losses in the past 5 years in the following exposure classes: central governments and central banks, institutions, corporates (including SMEs, specialized lending, and purchased receivables that are treated as corporate loans), long-term equity investments that are backed by own funds based on individual probabilities of default (PD/LGD approach), and retail business (broken down into mortgage-backed exposures, qualified revolving, and other exposures under the IRB approach).

The calculations of losses presented in Fig. 43 are based on the carrying amounts recognized under IFRS. Market-price-related write-downs on securities portfolios and long-term equity investments managed according to their default probabilities are not taken into account.

An actual loss of €912 million for the reporting period (2016: €419 million) was calculated for the subportfolios presented in accordance with the IRBA approach (IRBA) in figure Fig. 43. The loss on the IRBA subportfolios was therefore €222 million higher than the corresponding value for the aggregate portfolio. In the previous year, the actual loss on the IRBA subportfolios had been €90 million higher than the actual loss on the aggregate portfolio.

The information disclosed in the regulatory risk report includes the changes in allowances for losses on loans and advances, provisions for loan commitments, and liabilities from financial guarantee contracts reported in section 8.9 (pages 128 to 130) of the opportunity and risk report, as described below:

– Additions of €1,363 million in 2017 (2016: €908 million) to specific loan loss allowances (including specific loan loss allowances evaluated on a group basis) are offset against reversals of such losses (2017: €442 million; 2016: €416 million), interest income (2017: €40 million; 2016: €31 million), and other changes in 2017.

– The difference between directly recognized impairment losses of €47 million in 2017 (2016: €48 million) and recoveries on loans and advances previously impaired amounting to €127 million for the year under review (2016: €116 million) is also recognized.

– Finally, additions to provisions for loan commitments and liabilities under financial guarantee contracts (2017: €116 million; 2016: €117 million) are offset against reversals of these items (2017: €133 million; 2016: €71 million) and other changes.

The sum total of the aforementioned components represents the actual loss incurred by the aggregate portfolio, measured at €690 million for the year under review (2016: €509 million).

Over the course of the reporting period, the **volume of specific loan loss allowances** in the banking group rose by €438 million compared with December 31, 2016 (2016: rise of €229 million). This increase was primarily attributable to DVB's shipping and offshore businesses.

The **volume of portfolio loan loss allowances** in the **Bank sector** decreased by €38 million during the reporting year (2016: increase of €92 million) and totaled €520 million at the end of 2017.

Provisions for loan commitments and **liabilities under financial guarantee contracts** are recognized in an amount equivalent to the difference between the present value of the potential default amount and the present value of expected payments, provided that it is probable the obligation will actually be incurred.
The level of specific loan loss allowances for the DZ BANK banking group's exposure in the peripheral countries of the eurozone increased marginally in the year under review.

Portfolio loan loss allowances in this subportfolio amounted to a total of €12 million as of December 31, 2017 (December 31, 2016: €11 million).

Fig. 43 – YEAR-ON-YEAR CHANGE IN THE ACTUAL LOSSES IN THE TOTAL CREDIT PORTFOLIO UNDER THE IRB APPROACH BY EXPOSURE CLASS

€ million	Losses during the period					
Exposure class	Jan. 1, 2017 to Dec. 31, 2017	Jan. 1, 2016 to Dec. 31, 2016	Jan. 1, 2015 to Dec. 31, 2015	Jan. 1, 2014 to Dec. 31, 2014	Jan. 1, 2013 to Dec. 31, 2013	Jan. 1, 2012 to Dec. 31, 2012
Central governments and central banks	-	-	-	-	-	-
Institutions	-	5	-5	-8	38	1
Corporates	830	356	72	113	195	207
Equity exposures	-	-	-	-	-	-
Mortgage-backed retail IRBA receivables	28	9	45	22	22	23
Qualified revolving retail IRBA receivables	-	-	-	-	-	-
Other retail IRBA receivables	55	48	65	68	92	73
Total	**912**	419	178	194	350	303

6.6.2.7 Backtesting of the probability of default (PD) per exposure class under the IRB approach

(ARTICLE 452 SENTENCE 1 LETTER I CRR)

Fig. 44 and Fig. 45 compare the PD determined per exposure class for the calculation of capital requirements with the effective default rates of the DZ BANK banking group's borrowers, under the FIRB and AIRB approaches respectively.

The tables show DZ BANK's credit rating master scale, in which internal credit ratings are matched to the ratings used by Moody's, Standard & Poor's, and Fitch. It should be noted that some internal ratings cannot be matched with a particular external rating because of the greater degree of refinement in the credit rating master scale.

Fig. 44 –EU CR9 – FIRB APPROACH – BACKTESTING OF THE PROBABILITY OF DEFAULT (PD) PER EXPOSURE CLASS

€ million
(unless indicated otherwise)

a	b	c			d	e	f		g	h	i
Exposure class	PD range	External rating equivalent			Weighted average PD (%)	Arithmetic average PD by borrower (%)	Number of borrowers		Defaulted borrowers in the year		Average historical annual default rate (%)
		Moody's	Standard & Poor's	Fitch			End of previous year	End of the year		Of which: new borrowers	
Central governments and central banks											
Investment grade											
1A	0.00 - 0.02	Aaa-Aa2	AAA-AA	AAA-AA	0.05	0.00	36	32	-	-	0.00
1B	0.02 - 0.02	Aa3	AA-	AA-	0.26	0.01	2	2	-	-	0.00
1C	0.02 - 0.03				0.30	0.00	1	1	-	-	0.00
1D	0.03 - 0.04	A1	A+	A+	-	-	-	-	-	-	0.00
1E	0.04 - 0.06				0.05	0.00	4	2	-	-	0.00
2A	0.06 - 0.08	A2	A	A	0.07	0.03	19	26	-	-	0.00
2B	0.08 - 0.12	A3	A-	A-	-	-	1	-	-	-	0.00
2C	0.12 - 0.19	Baa1	BBB+	BBB+	0.23	0.00	-	1	-	-	0.00
2D	0.19 - 0.28	Baa2	BBB	BBB	2.23	0.05	4	18	-	-	0.00
2E	0.28 - 0.42				4.60	0.03	3	17	-	-	0.00
3A	0.42 - 0.63	Baa3	BBB-	BBB-	1.47	0.02	5	16	-	-	0.00
Non-investment grade											
3B	0.63 - 0.94	Ba1	BB+	BB+	0.75	0.02	7	25	-	-	0.00
3C	0.94 - 1.42	Ba2	BB	BB	1.68	0.03	6	28	-	-	0.00
3D	1.42 - 2.12				1.61	0.01	1	4	-	-	0.00
3E	2.12 - 3.19	Ba3	BB-	BB-	1.70	0.02	1	5	-	-	0.00
4A	3.19 - 4.78	B1	B+	B+	3.89	0.04	4	11	-	-	0.00
4B	4.78 - 7.17	B2	B	B	4.23	0.05	4	15	-	-	0.00
4C	7.17 - 10.75	B3	B-	B-	9.01	0.10	5	13	-	-	0.00
4D	10.75 - 16.13				13.50	0.12	5	7	-	-	0.00
4E	16.13 - 100.00	Caa1 or lower	CCC+ or lower	CCC+ or lower	-	0.30	1	1	-	-	0.00
Default											
5	100.00				-	1.00	-	1	1	-	0.00
Institutions											
Investment grade											
1A	0.00 - 0.02	Aaa-Aa2	AAA-AA	AAA-AA	0.20	0.00	-	7	1	-	0.00
1B	0.02 - 0.02	Aa3	AA-	AA-	0.03	0.00	1	1	-	-	0.00
1C	0.02 - 0.03				0.04	0.00	1,349	1,356	-	-	0.00
1D	0.03 - 0.04	A1	A+	A+	0.06	0.00	33	54	-	-	0.00
1E	0.04 - 0.06				0.05	0.00	41	54	-	-	0.00
2A	0.06 - 0.08	A2	A	A	0.12	0.00	90	105	-	-	0.00
2B	0.08 - 0.12	A3	A-	A-	0.20	0.00	93	117	-	-	0.00
2C	0.12 - 0.19	Baa1	BBB+	BBB+	0.28	0.00	74	111	-	-	0.00
2D	0.19 - 0.28	Baa2	BBB	BBB	0.25	0.00	50	64	-	-	0.00
2E	0.28 - 0.42				0.66	0.00	66	75	-	-	0.00
3A	0.42 - 0.63	Baa3	BBB-	BBB-	0.01	0.01	53	69	-	-	0.00
Non-investment grade											
3B	0.63 - 0.94	Ba1	BB+	BB+	0.01	0.01	42	60	-	-	0.00
3C	0.94 - 1.42	Ba2	BB	BB	1.10	0.01	42	53	-	-	0.00
3D	1.42 - 2.12				1.21	0.02	15	19	-	-	0.00
3E	2.12 - 3.19	Ba3	BB-	BB-	2.63	0.02	12	17	-	-	0.00
4A	3.19 - 4.78	B1	B+	B+	4.00	0.04	14	16	-	-	0.00
4B	4.78 - 7.17	B2	B	B	6.02	0.06	8	9	-	-	0.00
4C	7.17 - 10.75	B3	B-	B-	9.00	0.09	9	14	-	-	0.00
4D	10.75 - 16.13				13.64	0.16	18	24	-	-	0.00
4E	16.13 - 100.00	Caa1 or lower	CCC+ or lower	CCC+ or lower	2.26	0.28	31	35	-	-	0.00
Default											
5	100.00				99.51	0.88	5	5	1	1	0.00
Corporates – SMEs											
Investment grade											
1A	0.00 - 0.02	Aaa-Aa2	AAA-AA	AAA-AA	-	-	-	-	-	-	0.00
1B	0.02 - 0.02	Aa3	AA-	AA-	-	-	-	-	-	-	0.00

€ million
(unless indicated otherwise)

a	b	c			d	e	f		g	h	i
Exposure class	PD range	External rating equivalent			Weighted average PD (%)	Arithmetic average PD by borrower (%)	Number of borrowers		Defaulted borrowers in the year		Average historical annual default rate (%)
		Moody's	Standard & Poor's	Fitch			End of previous year	End of the year		Of which: new borrowers	
1C	0.02 - 0.03				16.23	0.04	-	1	-	-	0.00
1D	0.03 - 0.04	A1	A+	A+	17.00	0.05	-	-	-	-	0.00
1E	0.04 - 0.06				18.00	0.05	-	-	-	-	0.00
2A	0.06 - 0.08	A2	A	A	19.00	0.07	-	-	-	-	0.00
2B	0.08 - 0.12	A3	A-	A-	20.10	0.09	6	6	-	-	0.00
2C	0.12 - 0.19	Baa1	BBB+	BBB+	21.17	0.11	24	48	-	-	0.00
2D	0.19 - 0.28	Baa2	BBB	BBB	22.40	0.07	67	109	-	-	0.00
2E	0.28 - 0.42				23.34	0.06	103	170	-	-	0.00
3A	0.42 - 0.63	Baa3	BBB-	BBB-	24.52	0.05	132	202	-	-	0.03
Non-investment grade											
3B	0.63 - 0.94	Ba1	BB+	BB+	25.77	0.04	126	243	-	-	0.02
3C	0.94 - 1.42	Ba2	BB	BB	27.32	0.03	137	231	-	-	0.01
3D	1.42 - 2.12				29.10	0.03	105	202	1	1	0.05
3E	2.12 - 3.19	Ba3	BB-	BB-	30.97	0.04	71	107	1	-	0.02
4A	3.19 - 4.78	B1	B+	B+	36.68	0.09	26	66	2	2	0.06
4B	4.78 - 7.17	B2	B	B	35.28	0.10	20	36	-	-	0.04
4C	7.17 - 10.75	B3	B-	B-	42.74	0.31	12	17	5	2	0.15
4D	10.75 - 16.13				13.50	0.14	3	7	-	-	0.00
4E	16.13 - 100.00	Caa1 or lower	CCC+ or lower	CCC+ or lower	33.59	0.30	1,209	1,223	1	-	0.00
Default											
5	100.00				131.00	1.57	52	56	14	12	0.00
Corporates – specialized lending											
Investment grade											
1A	0.00 - 0.02	Aaa-Aa2	AAA-AA	AAA-AA	1.70	0.02	-	1	-	-	0.00
1B	0.02 - 0.02	Aa3	AA-	AA-	-	-	-	-	-	-	0.00
1C	0.02 - 0.03				0.03	0.00	1	2	-	-	0.00
1D	0.03 - 0.04	A1	A+	A+	-	-	-	-	-	-	0.00
1E	0.04 - 0.06				0.05	0.00	-	1	-	-	0.00
2A	0.06 - 0.08	A2	A	A	0.17	0.00	416	409	1	-	0.00
2B	0.08 - 0.12	A3	A-	A-	0.13	0.00	155	192	-	-	0.00
2C	0.12 - 0.19	Baa1	BBB+	BBB+	0.15	0.01	121	143	-	-	0.00
2D	0.19 - 0.28	Baa2	BBB	BBB	0.23	0.00	179	209	-	-	0.00
2E	0.28 - 0.42				0.39	0.01	234	270	-	-	0.00
3A	0.42 - 0.63	Baa3	BBB-	BBB-	0.53	0.01	166	192	1	-	0.01
Non-investment grade											
3B	0.63 - 0.94	Ba1	BB+	BB+	1.31	0.02	205	245	2	-	0.00
3C	0.94 - 1.42	Ba2	BB	BB	1.05	0.01	87	118	-	-	0.00
3D	1.42 - 2.12				1.77	0.02	43	67	-	-	0.04
3E	2.12 - 3.19	Ba3	BB-	BB-	6.66	0.07	35	48	2	-	0.04
4A	3.19 - 4.78	B1	B+	B+	59.50	0.27	24	27	6	-	0.02
4B	4.78 - 7.17	B2	B	B	13.46	0.10	11	14	1	-	0.10
4C	7.17 - 10.75	B3	B-	B-	14.86	0.43	21	19	1	1	0.11
4D	10.75 - 16.13				20.68	0.23	6	6	1	-	0.09
4E	16.13 - 100.00	Caa1 or lower	CCC+ or lower	CCC+ or lower	47.06	0.26	41	44	2	-	0.00
Default											
5	100.00				99.82	0.98	110	107	17	16	0.00
Corporates – purchased receivables											
Investment grade											
1A	0.00 - 0.02	Aaa-Aa2	AAA-AA	AAA-AA	-	-	-	-	-	-	0.00
1B	0.02 - 0.02	Aa3	AA-	AA-	-	-	-	-	-	-	0.00
1C	0.02 - 0.03				-	-	-	-	-	-	0.00
1D	0.03 - 0.04	A1	A+	A+	-	-	-	-	-	-	0.00
1E	0.04 - 0.06				-	-	-	-	-	-	0.00
2A	0.06 - 0.08	A2	A	A	-	-	-	-	-	-	0.00
2B	0.08 - 0.12	A3	A-	A-	-	-	-	-	-	-	0.00
2C	0.12 - 0.19	Baa1	BBB+	BBB+	0.19	0.00	3	3	-	-	0.00

€ million
(unless indicated otherwise)

a	b	c			d	e	f		g	h	i
Exposure class	PD range	External rating equivalent			Weighted average PD (%)	Arithmetic average PD by borrower (%)	Number of borrowers		Defaulted borrowers in the year		Average historical annual default rate (%)
		Moody's	Standard & Poor's	Fitch			End of previous year	End of the year		Of which: new borrowers	
2D	0.19 - 0.28	Baa2	BBB	BBB	0.23	0.00	2	3	-	-	0.00
2E	0.28 - 0.42				0.35	0.00	4	2	-	-	0.00
3A	0.42 - 0.63	Baa3	BBB-	BBB-	0.50	0.00	7	10	-	-	0.00
Non-investment grade											
3B	0.63 - 0.94	Ba1	BB+	BB+	0.52	0.01	5	3	-	-	0.00
3C	0.94 - 1.42	Ba2	BB	BB	1.78	0.01	4	7	-	-	0.00
3D	1.42 - 2.12				1.12	0.02	4	3	-	-	0.00
3E	2.12 - 3.19	Ba3	BB-	BB-	-	-	-	-	-	-	0.00
4A	3.19 - 4.78	B1	B+	B+	4.00	0.04	-	4	-	-	0.00
4B	4.78 - 7.17	B2	B	B	-	-	-	-	-	-	0.00
4C	7.17 - 10.75	B3	B-	B-	9.00	0.09	-	1	-	-	0.00
4D	10.75 - 16.13				-	-	-	-	-	-	0.00
4E	16.13 - 100.00	Caa1 or lower	CCC+ or lower	CCC+ or lower	-	-	-	-	-	-	0.00
Default											
5	100.00				-	-	-	-	-	-	0.00
Corporates – other											
Investment grade											
1A	0.00 - 0.02	Aaa-Aa2	AAA-AA	AAA-AA	-	-	5	-	-	-	0.00
1B	0.02 - 0.02	Aa3	AA-	AA-	-	-	-	-	-	-	0.00
1C	0.02 - 0.03				0.94	0.00	188	215	-	-	0.00
1D	0.03 - 0.04	A1	A+	A+	3.22	0.03	31	60	-	-	0.00
1E	0.04 - 0.06				3.59	0.03	70	103	-	-	0.00
2A	0.06 - 0.08	A2	A	A	2.69	0.03	54	93	-	-	0.00
2B	0.08 - 0.12	A3	A-	A-	1.28	0.02	142	216	-	-	0.00
2C	0.12 - 0.19	Baa1	BBB+	BBB+	1.09	0.01	170	315	-	-	0.00
2D	0.19 - 0.28	Baa2	BBB	BBB	0.89	0.01	242	422	-	-	0.00
2E	0.28 - 0.42				1.03	0.01	314	554	1	-	0.00
3A	0.42 - 0.63	Baa3	BBB-	BBB-	1.47	0.01	376	592	-	-	0.04
Non-investment grade											
3B	0.63 - 0.94	Ba1	BB+	BB+	3.98	0.03	325	480	2	2	0.01
3C	0.94 - 1.42	Ba2	BB	BB	1.17	0.01	255	402	-	-	0.00
3D	1.42 - 2.12				1.62	0.02	185	271	-	-	0.00
3E	2.12 - 3.19	Ba3	BB-	BB-	7.08	0.09	76	111	1	1	0.06
4A	3.19 - 4.78	B1	B+	B+	4.56	0.19	34	85	1	-	0.00
4B	4.78 - 7.17	B2	B	B	18.26	0.10	20	19	1	-	0.00
4C	7.17 - 10.75	B3	B-	B-	10.38	0.12	8	9	1	-	0.00
4D	10.75 - 16.13				13.50	0.14	4	1	-	-	0.00
4E	16.13 - 100.00	Caa1 or lower	CCC+ or lower	CCC+ or lower	29.15	0.27	27	27	-	-	0.00
Default											
5	100.00				127.04	1.16	204	222	26	25	0.00
Long-term equity investments											
Investment grade											
1A	0.00 - 0.02	Aaa-Aa2	AAA-AA	AAA-AA	-	-	-	-	-	-	0.00
1B	0.02 - 0.02	Aa3	AA-	AA-	-	-	-	-	-	-	0.00
1C	0.02 - 0.03				0.09	0.00	-	1	-	-	0.00
1D	0.03 - 0.04	A1	A+	A+	-	-	-	-	-	-	0.00
1E	0.04 - 0.06				-	-	-	-	-	-	0.00
2A	0.06 - 0.08	A2	A	A	-	-	-	-	-	-	0.00
2B	0.08 - 0.12	A3	A-	A-	0.07	0.00	7	4	-	-	0.00
2C	0.12 - 0.19	Baa1	BBB+	BBB+	-	0.00	3	3	-	-	0.00
2D	0.19 - 0.28	Baa2	BBB	BBB	0.23	0.01	4	6	-	-	0.00
2E	0.28 - 0.42				-	0.01	5	3	-	-	0.00
3A	0.42 - 0.63	Baa3	BBB-	BBB-	-	0.01	1	1	-	-	0.00
Non-investment grade											
3B	0.63 - 0.94	Ba1	BB+	BB+	-	0.01	-	1	-	-	0.00
3C	0.94 - 1.42	Ba2	BB	BB	-		1	-	-	-	0.00

€ million
(unless indicated otherwise)

a	b	c			d	e	f		g	h	i
Exposure class	PD range	External rating equivalent			Weighted average PD (%)	Arithmetic average PD by borrower (%)	Number of borrowers		Defaulted borrowers in the year		Average historical annual default rate (%)
		Moody's	Standard & Poor's	Fitch			End of previous year	End of the year		Of which: new borrowers	
3D	1.42 - 2.12				-	0.03	-	1	-	-	0.00
3E	2.12 - 3.19	Ba3	BB-	BB-	-	-	-	-	-	-	0.00
4A	3.19 - 4.78	B1	B+	B+	4.00	0.12	1	1	-	-	0.00
4B	4.78 - 7.17	B2	B	B	6.00	0.18	1	1	-	-	0.00
4C	7.17 - 10.75	B3	B-	B-	-	-	-	-	-	-	0.00
4D	10.75 - 16.13				-	-	-	-	-	-	0.00
4E	16.13 - 100.00	Caa1 or lower	CCC+ or lower	CCC+ or lower	-	-	-	-	-	-	0.00
Default											
5	100.00				0.00	1.5	1	4	-	-	0.00

Fig. 45 –EU CR9 – AIRB APPROACH – BACKTESTING OF THE PROBABILITY OF DEFAULT (PD) PER EXPOSURE CLASS

a	b	c			d	e	f		g	h	i
Exposure class	PD range	External rating equivalent			Weighted average PD	Arithmetic average PD by borrower	Number of borrowers		Defaulted borrowers in the year		Average historical annual default rate
		Moody's	Standard & Poor's	Fitch			End of previous year	End of the year		Of which: new borrowers	
Central governments and central banks											
Investment grade											
1A	0.00 - 0.02	Aaa-Aa2	AAA-AA	AAA-AA	-	-	-	-	-	-	0.00
1B	0.02 - 0.02	Aa3	AA-	AA-	-	-	-	-	-	-	0.00
1C	0.02 - 0.03				-	-	-	-	-	-	0.00
1D	0.03 - 0.04	A1	A+	A+	-	-	-	-	-	-	0.00
1E	0.04 - 0.06				-	-	-	-	-	-	0.00
2A	0.06 - 0.08	A2	A	A	-	-	-	-	-	-	0.00
2B	0.08 - 0.12	A3	A-	A-	-	-	-	-	-	-	0.00
2C	0.12 - 0.19	Baa1	BBB+	BBB+	-	-	-	-	-	-	0.00
2D	0.19 - 0.28	Baa2	BBB	BBB	-	-	-	-	-	-	0.00
2E	0.28 - 0.42				-	-	-	-	-	-	0.00
3A	0.42 - 0.63	Baa3	BBB-	BBB-	-	-	-	-	-	-	0.00
Non-investment grade											
3B	0.63 - 0.94	Ba1	BB+	BB+	-	-	-	-	-	-	0.00
3C	0.94 - 1.42	Ba2	BB	BB	-	-	-	-	-	-	0.00
3D	1.42 - 2.12				-	-	-	-	-	-	0.00
3E	2.12 - 3.19	Ba3	BB-	BB-	-	-	-	-	-	-	0.00
4A	3.19 - 4.78	B1	B+	B+	-	-	-	-	-	-	0.00
4B	4.78 - 7.17	B2	B	B	-	-	-	-	-	-	0.00
4C	7.17 - 10.75	B3	B-	B-	-	-	-	-	-	-	0.00
4D	10.75 - 16.13				-	-	-	-	-	-	0.00
4E	16.13 - 100.00	Caa1 or lower	CCC+ or lower	CCC+ or lower	-	-	-	-	-	-	0.00
Default											
5	100.00				-	-	-	-	-	-	0.00
Institutions											
Investment grade											
1A	0.00 - 0.02	Aaa-Aa2	AAA-AA	AAA-AA	-	-	-	-	-	-	0.00
1B	0.02 - 0.02	Aa3	AA-	AA-	-	-	-	-	-	-	0.00
1C	0.02 - 0.03				-	-	-	-	-	-	0.00
1D	0.03 - 0.04	A1	A+	A+	-	-	-	-	-	-	0.00
1E	0.04 - 0.06				-	-	-	-	-	-	0.00
2A	0.06 - 0.08	A2	A	A	-	-	-	-	-	-	0.00
2B	0.08 - 0.12	A3	A-	A-	-	-	-	-	-	-	0.00
2C	0.12 - 0.19	Baa1	BBB+	BBB+	-	-	-	-	-	-	0.00
2D	0.19 - 0.28	Baa2	BBB	BBB	-	-	-	-	-	-	0.00
2E	0.28 - 0.42				0.00	0.0005	-	-	-	-	0.00
3A	0.42 - 0.63	Baa3	BBB-	BBB-	0.0826	0.0010	-	-	-	-	0.00

a	b	c			d	e	f		g	h	i
Exposure class	PD range	External rating equivalent			Weighted average PD	Arithmetic average PD by borrower	Number of borrowers		Defaulted borrowers in the year		Average historical annual default rate
		Moody's	Standard & Poor's	Fitch			End of previous year	End of the year		Of which: new borrowers	
Non-investment grade											
3B	0.63 - 0.94	Ba1	BB+	BB+	0.5000	0.0050	-	-	-	-	0.00
3C	0.94 - 1.42	Ba2	BB	BB	-	-	-	-	-	-	0.00
3D	1.42 - 2.12				-	-	-	-	-	-	0.00
3E	2.12 - 3.19	Ba3	BB-	BB-	-	-	-	-	-	-	0.00
4A	3.19 - 4.78	B1	B+	B+	-	-	-	-	-	-	0.00
4B	4.78 - 7.17	B2	B	B	-	-	-	-	-	-	0.00
4C	7.17 - 10.75	B3	B-	B-	-	-	-	-	-	-	0.00
4D	10.75 - 16.13				-	-	-	-	-	-	0.00
4E	16.13 - 100.00	Caa1 or lower	CCC+ or lower	CCC+ or lower	-	-	-	-	-	-	0.00
Default											
5	100.00				-	-	-	-	-	-	0.00
Corporates – SMEs											
Investment grade											
1A	0.00 - 0.02	Aaa-Aa2	AAA-AA	AAA-AA	-	-	-	-	-	-	0.00
1B	0.02 - 0.02	Aa3	AA-	AA-	-	-	-	-	-	-	0.00
1C	0.02 - 0.03				-	-	-	-	-	-	0.00
1D	0.03 - 0.04	A1	A+	A+	-	-	-	-	-	-	0.00
1E	0.04 - 0.06				-	-	-	-	-	-	0.00
2A	0.06 - 0.08	A2	A	A	-	-	-	-	-	-	0.00
2B	0.08 - 0.12	A3	A-	A-	-	-	-	-	-	-	0.00
2C	0.12 - 0.19	Baa1	BBB+	BBB+	-	-	-	-	-	-	0.00
2D	0.19 - 0.28	Baa2	BBB	BBB	-	-	-	-	-	-	0.00
2E	0.28 - 0.42				-	-	-	-	-	-	0.00
3A	0.42 - 0.63	Baa3	BBB-	BBB-	-	-	-	-	-	-	0.00
Non-investment grade											
3B	0.63 - 0.94	Ba1	BB+	BB+	-	-	-	-	-	-	0.00
3C	0.94 - 1.42	Ba2	BB	BB	-	-	-	-	-	-	0.00
3D	1.42 - 2.12				-	-	-	-	-	-	0.00
3E	2.12 - 3.19	Ba3	BB-	BB-	-	-	-	-	-	-	0.00
4A	3.19 - 4.78	B1	B+	B+	-	-	-	-	-	-	0.00
4B	4.78 - 7.17	B2	B	B	-	-	-	-	-	-	0.00
4C	7.17 - 10.75	B3	B-	B-	-	-	-	-	-	-	0.00
4D	10.75 - 16.13				-	-	-	-	-	-	0.00
4E	16.13 - 100.00	Caa1 or lower	CCC+ or lower	CCC+ or lower	-	-	-	-	-	-	0.00
Default											
5	100.00				-	-	-	-	-	-	0.00
Corporates – specialized lending											
Investment grade											
1A	0.00 - 0.02	Aaa-Aa2	AAA-AA	AAA-AA	-	-	-	-	-	-	0.00
1B	0.02 - 0.02	Aa3	AA-	AA-	-	-	-	-	-	-	0.00
1C	0.02 - 0.03				-	-	-	-	-	-	0.00
1D	0.03 - 0.04	A1	A+	A+	-	-	-	-	-	-	0.00
1E	0.04 - 0.06				-	-	-	-	-	-	0.00
2A	0.06 - 0.08	A2	A	A	-	-	-	-	-	-	0.00
2B	0.08 - 0.12	A3	A-	A-	-	-	-	-	-	-	0.00
2C	0.12 - 0.19	Baa1	BBB+	BBB+	-	-	-	-	-	-	0.00
2D	0.19 - 0.28	Baa2	BBB	BBB	-	-	-	-	-	-	0.00
2E	0.28 - 0.42				-	-	-	-	-	-	0.00
3A	0.42 - 0.63	Baa3	BBB-	BBB-	-	-	-	-	-	-	0.00
Non-investment grade											
3B	0.63 - 0.94	Ba1	BB+	BB+	-	-	-	-	-	-	0.00
3C	0.94 - 1.42	Ba2	BB	BB	-	-	-	-	-	-	0.00
3D	1.42 - 2.12				-	-	-	-	-	-	0.00
3E	2.12 - 3.19	Ba3	BB-	BB-	-	-	-	-	-	-	0.00
4A	3.19 - 4.78	B1	B+	B+	-	-	-	-	-	-	0.00
4B	4.78 - 7.17	B2	B	B	-	-	-	-	-	-	0.00
4C	7.17 - 10.75	B3	B-	B-	-	-	-	-	-	-	0.00

a	b	c			d	e	f		g	h	i
Exposure class	PD range	External rating equivalent			Weighted average PD	Arithmetic average PD by borrower	Number of borrowers		Defaulted borrowers in the year		Average historical annual default rate
		Moody's	Standard & Poor's	Fitch			End of previous year	End of the year		Of which: new borrowers	
4D	10.75 - 16.13				-	-	-	-	-	-	0.00
4E	16.13 - 100.00	Caa1 or lower	CCC+ or lower	CCC+ or lower	-	-	-	-	-	-	0.00
Default											
5	100.00				-	-	-	-	-	-	0.00
Corporates – purchased receivables											
Investment grade											
1A	0.00 - 0.02	Aaa-Aa2	AAA-AA	AAA-AA	-	-	-	-	-	-	0.00
1B	0.02 - 0.02	Aa3	AA-	AA-	-	-	-	-	-	-	0.00
1C	0.02 - 0.03				-	-	-	-	-	-	0.00
1D	0.03 - 0.04	A1	A+	A+	-	-	-	-	-	-	0.00
1E	0.04 - 0.06				-	-	-	-	-	-	0.00
2A	0.06 - 0.08	A2	A	A	-	-	-	-	-	-	0.00
2B	0.08 - 0.12	A3	A-	A-	-	-	-	-	-	-	0.00
2C	0.12 - 0.19	Baa1	BBB+	BBB+	-	-	-	-	-	-	0.00
2D	0.19 - 0.28	Baa2	BBB	BBB	-	-	-	-	-	-	0.00
2E	0.28 - 0.42				-	-	-	-	-	-	0.00
3A	0.42 - 0.63	Baa3	BBB-	BBB-	-	-	-	-	-	-	0.00
Non-investment grade											
3B	0.63 - 0.94	Ba1	BB+	BB+	-	-	-	-	-	-	0.00
3C	0.94 - 1.42	Ba2	BB	BB	-	-	-	-	-	-	0.00
3D	1.42 - 2.12				-	-	-	-	-	-	0.00
3E	2.12 - 3.19	Ba3	BB-	BB-	-	-	-	-	-	-	0.00
4A	3.19 - 4.78	B1	B+	B+	-	-	-	-	-	-	0.00
4B	4.78 - 7.17	B2	B	B	-	-	-	-	-	-	0.00
4C	7.17 - 10.75	B3	B-	B-	-	-	-	-	-	-	0.00
4D	10.75 - 16.13				-	-	-	-	-	-	0.00
4E	16.13 - 100.00	Caa1 or lower	CCC+ or lower	CCC+ or lower	-	-	-	-	-	-	0.00
Default											
5	100.00				-	-	-	-	-	-	0.00
Corporates – other											
Investment grade											
1A	0.00 - 0.02	Aaa-Aa2	AAA-AA	AAA-AA	-	-	-	-	-	-	0.00
1B	0.02 - 0.02	Aa3	AA-	AA-	-	-	-	-	-	-	0.00
1C	0.02 - 0.03				-	-	-	-	-	-	0.00
1D	0.03 - 0.04	A1	A+	A+	-	-	-	-	-	-	0.00
1E	0.04 - 0.06				-	-	-	-	-	-	0.00
2A	0.06 - 0.08	A2	A	A	-	-	-	-	-	-	0.00
2B	0.08 - 0.12	A3	A-	A-	-	-	-	-	-	-	0.00
2C	0.12 - 0.19	Baa1	BBB+	BBB+	-	-	-	-	-	-	0.00
2D	0.19 - 0.28	Baa2	BBB	BBB	-	-	-	-	-	-	0.00
2E	0.28 - 0.42				0.0400	0.0004	-	-	-	-	0.00
3A	0.42 - 0.63	Baa3	BBB-	BBB-	0.1402	0.0025	-	-	-	-	0.00
Non-investment grade											
3B	0.63 - 0.94	Ba1	BB+	BB+	0.2874	0.0029	-	-	-	-	0.00
3C	0.94 - 1.42	Ba2	BB	BB	-	-	-	-	-	-	0.00
3D	1.42 - 2.12				-	-	-	-	-	-	0.00
3E	2.12 - 3.19	Ba3	BB-	BB-	1.4240	0.0145	-	-	-	-	0.00
4A	3.19 - 4.78	B1	B+	B+	-	-	-	-	-	-	0.00
4B	4.78 - 7.17	B2	B	B	-	-	-	-	-	-	0.00
4C	7.17 - 10.75	B3	B-	B-	5.2206	0.0522	-	-	-	-	0.00
4D	10.75 - 16.13				7.0082	0.0692	-	-	-	-	0.00
4E	16.13 - 100.00	Caa1 or lower	CCC+ or lower	CCC+ or lower	9.4672	0.0945	-	-	-	-	0.00
Default											
5	100.00				69.0456	0.6560	-	-	-	-	0.08
Retail business – SMEs, secured by mortgages on immovable property											
Investment grade											
1A	0.00 - 0.02	Aaa-Aa2	AAA-AA	AAA-AA	-	-	-	-	-	-	0.00

a	b	c			d	e	f		g	h	i
Exposure class	PD range	External rating equivalent			Weighted average PD	Arithmetic average PD by borrower	Number of borrowers		Defaulted borrowers in the year		Average historical annual default rate
		Moody's	Standard & Poor's	Fitch			End of previous year	End of the year		Of which: new borrowers	
1B	0.02 - 0.02	Aa3	AA-	AA-	-	-	-	-	-	-	0.00
1C	0.02 - 0.03				-	-	-	-	-	-	0.00
1D	0.03 - 0.04	A1	A+	A+	-	-	-	-	-	-	0.00
1E	0.04 - 0.06				-	-	-	-	-	-	0.00
2A	0.06 - 0.08	A2	A	A	-	-	-	-	-	-	0.00
2B	0.08 - 0.12	A3	A-	A-	-	-	-	-	-	-	0.00
2C	0.12 - 0.19	Baa1	BBB+	BBB+	-	-	-	-	-	-	0.00
2D	0.19 - 0.28	Baa2	BBB	BBB	-	-	-	-	-	-	0.00
2E	0.28 - 0.42				-	-	-	-	-	-	0.00
3A	0.42 - 0.63	Baa3	BBB-	BBB-	-	-	-	-	-	-	0.00
Non-investment grade											
3B	0.63 - 0.94	Ba1	BB+	BB+	-	-	-	-	-	-	0.00
3C	0.94 - 1.42	Ba2	BB	BB	-	-	-	-	-	-	0.00
3D	1.42 - 2.12				-	-	-	-	-	-	0.00
3E	2.12 - 3.19	Ba3	BB-	BB-	-	-	-	-	-	-	0.00
4A	3.19 - 4.78	B1	B+	B+	-	-	-	-	-	-	0.00
4B	4.78 - 7.17	B2	B	B	-	-	-	-	-	-	-
4C	7.17 - 10.75	B3	B-	B-	-	-	-	-	-	-	-
4D	10.75 - 16.13				-	-	-	-	-	-	-
4E	16.13 - 100.00	Caa1 or lower	CCC+ or lower	CCC+ or lower	-	-	-	-	-	-	-
Default											
5	100.00				-	-	2	-	-	-	0.00
Retail business – non-SMEs, secured by mortgages on immovable property											
Investment grade											
1A	0.00 - 0.02	Aaa-Aa2	AAA-AA	AAA-AA	-	-	-	-	-	-	0.00
1B	0.02 - 0.02	Aa3	AA-	AA-	-	-	-	-	-	-	0.00
1C	0.02 - 0.03				0.03	0.00	4,169,398	27,673,991	-	-	0.00
1D	0.03 - 0.04	A1	A+	A+	0.00	0.00	5	-	-	-	0.00
1E	0.04 - 0.06				0.00	0.00	11	-	-	-	0.00
2A	0.06 - 0.08	A2	A	A	0.00	0.07	-	-	-	-	0.00
2B	0.08 - 0.12	A3	A-	A-	0.10	0.10	-	-	-	-	0.00
2C	0.12 - 0.19	Baa1	BBB+	BBB+	0.29	0.15	-	-	-	-	0.00
2D	0.19 - 0.28	Baa2	BBB	BBB	0.30	0.23	-	-	-	-	0.00
2E	0.28 - 0.42				0.38	0.35	-	-	-	-	0.00
3A	0.42 - 0.63	Baa3	BBB-	BBB-	0.01	0.51	-	-	-	-	0.00
Non-investment grade											
3B	0.63 - 0.94	Ba1	BB+	BB+	0.01	0.76	-	-	-	-	0.00
3C	0.94 - 1.42	Ba2	BB	BB	0.01	1.11	-	-	-	-	0.00
3D	1.42 - 2.12				0.02	1.72	-	-	-	-	0.00
3E	2.12 - 3.19	Ba3	BB-	BB-	0.03	2.63	-	-	-	-	0.02
4A	3.19 - 4.78	B1	B+	B+	0.04	4.04	-	-	-	-	0.03
4B	4.78 - 7.17	B2	B	B	0.06	6.06	-	-	-	-	0.03
4C	7.17 - 10.75	B3	B-	B-	0.09	9.09	-	-	-	-	0.02
4D	10.75 - 16.13				0.13	13.63	-	-	-	-	0.09
4E	16.13 - 100.00	Caa1 or lower	CCC+ or lower	CCC+ or lower	0.44	30.42	-	-	-	-	0.16
Default											
5	100.00				1.00	101.00	-	-	-	-	0.00
Retail business – qualified revolving											
Investment grade											
1A	0.00 - 0.02	Aaa-Aa2	AAA-AA	AAA-AA	-	-	-	-	-	-	0.00
1B	0.02 - 0.02	Aa3	AA-	AA-	-	-	-	-	-	-	0.00
1C	0.02 - 0.03				-	-	-	-	-	-	0.00
1D	0.03 - 0.04	A1	A+	A+	-	-	-	-	-	-	0.00
1E	0.04 - 0.06				-	-	-	-	-	-	0.00
2A	0.06 - 0.08	A2	A	A	-	-	-	-	-	-	0.00
2B	0.08 - 0.12	A3	A-	A-	-	-	-	-	-	-	0.00
2C	0.12 - 0.19	Baa1	BBB+	BBB+	-	-	-	-	-	-	0.00
2D	0.19 - 0.28	Baa2	BBB	BBB	-	-	-	-	-	-	0.00

a	b	c			d	e	f		g	h	i
Exposure class	PD range	External rating equivalent			Weighted average PD	Arithmetic average PD by borrower	Number of borrowers		Defaulted borrowers in the year		Average historical annual default rate
		Moody's	Standard & Poor's	Fitch			End of previous year	End of the year		Of which: new borrowers	
2E	0.28 - 0.42				-	-	-	-	-	-	0.00
3A	0.42 - 0.63	Baa3	BBB-	BBB-	-	-	-	-	-	-	0.00
Non-investment grade											
3B	0.63 - 0.94	Ba1	BB+	BB+	-	-	-	-	-	-	0.00
3C	0.94 - 1.42	Ba2	BB	BB	-	-	-	-	-	-	0.00
3D	1.42 - 2.12				-	-	-	-	-	-	0.00
3E	2.12 - 3.19	Ba3	BB-	BB-	-	-	-	-	-	-	0.00
4A	3.19 - 4.78	B1	B+	B+	-	-	-	-	-	-	0.00
4B	4.78 - 7.17	B2	B	B	-	-	-	-	-	-	0.00
4C	7.17 - 10.75	B3	B-	B-	-	-	-	-	-	-	0.00
4D	10.75 - 16.13				-	-	-	-	-	-	0.00
4E	16.13 - 100.00	Caa1 or lower	CCC+ or lower	CCC+ or lower	-	-	-	-	-	-	0.00
Default											
5	100.00				-	-	-	-	-	-	0.00
Retail business – other SMEs											
Investment grade											
1A	0.00 - 0.02	Aaa-Aa2	AAA-AA	AAA-AA	-	-	-	-	-	-	0.00
1B	0.02 - 0.02	Aa3	AA-	AA-	-	-	-	-	-	-	0.00
1C	0.02 - 0.03				-	-	-	-	-	-	0.00
1D	0.03 - 0.04	A1	A+	A+	-	-	-	-	-	-	0.00
1E	0.04 - 0.06				-	-	-	-	-	-	0.00
2A	0.06 - 0.08	A2	A	A	0.13	0.00	-	-	-	-	0.00
2B	0.08 - 0.12	A3	A-	A-	0.00	0.00	1	-	-	-	0.00
2C	0.12 - 0.19	Baa1	BBB+	BBB+	0.00	0.00	1	-	-	-	0.00
2D	0.19 - 0.28	Baa2	BBB	BBB	0.00	0.00	2	-	-	-	0.00
2E	0.28 - 0.42				0.00	0.00	1	-	-	-	0.00
3A	0.42 - 0.63	Baa3	BBB-	BBB-	0.00	0.00	1	-	-	-	0.00
Non-investment grade											
3B	0.63 - 0.94	Ba1	BB+	BB+	-	-	-	-	-	-	0.00
3C	0.94 - 1.42	Ba2	BB	BB	-	-	-	-	-	-	0.00
3D	1.42 - 2.12				-	-	-	-	-	-	0.00
3E	2.12 - 3.19	Ba3	BB-	BB-	-	-	-	-	-	-	0.00
4A	3.19 - 4.78	B1	B+	B+	-	-	-	-	-	-	0.00
4B	4.78 - 7.17	B2	B	B	-	-	-	-	-	-	0.00
4C	7.17 - 10.75	B3	B-	B-	-	-	-	-	-	-	0.00
4D	10.75 - 16.13				-	-	-	-	-	-	0.00
4E	16.13 - 100.00	Caa1 or lower	CCC+ or lower	CCC+ or lower	-	-	-	-	-	-	0.00
Retail business – other non-SMEs											
Investment grade											
1A	0.00 - 0.02	Aaa-Aa2	AAA-AA	AAA-AA	-	-	-	-	-	-	0.00
1B	0.02 - 0.02	Aa3	AA-	AA-	-	-	-	-	-	-	0.00
1C	0.02 - 0.03				-	-	-	-	-	-	0.00
1D	0.03 - 0.04	A1	A+	A+	-	-	-	-	-	-	0.00
1E	0.04 - 0.06				0.03	0.00	-	-	-	-	0.00
2A	0.06 - 0.08	A2	A	A	0.00	0.07	-	-	-	-	0.00
2B	0.08 - 0.12	A3	A-	A-	0.00	0.10	-	-	-	-	0.00
2C	0.12 - 0.19	Baa1	BBB+	BBB+	0.14	0.15	-	-	-	-	0.00
2D	0.19 - 0.28	Baa2	BBB	BBB	7.59	0.23	-	-	-	-	0.00
2E	0.28 - 0.42				0.35	0.35	-	-	-	-	0.00
3A	0.42 - 0.63	Baa3	BBB-	BBB-	0.01	0.52	-	-	-	-	0.00
Non-investment grade											
3B	0.63 - 0.94	Ba1	BB+	BB+	0.01	0.76	-	-	-	-	0.00
3C	0.94 - 1.42	Ba2	BB	BB	0.01	1.11	-	-	-	-	0.00
3D	1.42 - 2.12				0.02	1.75	-	-	-	-	0.00
3E	2.12 - 3.19	Ba3	BB-	BB-	0.03	2.65	-	-	-	-	0.00
4A	3.19 - 4.78	B1	B+	B+	0.04	0.04	-	-	-	-	0.00
4B	4.78 - 7.17	B2	B	B	0.06	4.09	-	-	-	-	0.00
4C	7.17 - 10.75	B3	B-	B-	0.09	0.09	-	-	-	-	0.00

a	b	c			d	e	f		g	h	i
Exposure class	PD range	External rating equivalent			Weighted average PD	Arithmetic average PD by borrower	Number of borrowers		Defaulted borrowers in the year		Average historical annual default rate
		Moody's	Standard & Poor's	Fitch			End of previous year	End of the year		Of which: new borrowers	
4D	10.75 - 16.13				0.14	13.60	-	2	-	-	0.00
4E	16.13 - 100.00	Caa1 or lower	CCC+ or lower	CCC+ or lower	0.57	30.60	-	1	1	-	0.00
Default											
5	100.00				1.00	100.73	-	-	-	-	0.00

Fig. 46 compares the expected losses with the losses actually incurred during the period January 1 to December 31, 2012 to 2017 for the following IRBA exposure classes:

- Central governments and central banks
- Institutions
- Corporates (including SMEs, specialized lending, and purchased receivables that are treated as corporate loans)
- Long-term equity investments recognized under the PD/LGD approach
- Retail business.

The estimate of the expected losses for 2017 relates to the non-defaulting risk-weighted assets in the traditional lending business. The losses shown that have actually been incurred also relate to the exposures that had not yet defaulted at the beginning of the year under review. The definition of 'loss' corresponds to the definition used in Fig. 43. The supervisory authority intends this comparison to be the basis for measuring the efficiency of the process for allocating exposures or borrowers to rating categories as required by section 452 sentence 1 letter i CRR. In this respect, the table can be seen as a supplement to the description of the internal validation processes in the section 'Control mechanisms for the rating systems' in this report.

However, the comparison of expected and actual losses in the form described above should be viewed with the reservation that, due to methodology reasons, very few of the figures are directly comparable with each other. Furthermore, the expected losses relate to a static portfolio of risk-weighted assets, whereas the losses incurred are the result of a credit portfolio that is subject to change over the course of the year.

Fig. 46 – COMPARISON OF LOSS ESTIMATES AND ACTUAL LOSSES IN NON-DEFAULTING EXPOSURE CLASSES UNDER THE IRB APPROACH

€ million	**Losses during the period**									
Exposure class	Expected Dec. 31, 2016	Actual 2017	Expected Dec. 31, 2015	Actual 2016	Expected Dec. 31, 2014	Actual 2015	Expected Dec. 31, 2013	Actual 2014	Expected Dec. 31, 2012	Actual 2013
Central governments and central banks	6	-	9	-	4	-	4	-	4	-
Institutions	17	-	22	5	29	2	25	17	22	42
Corporates	263	442	298	203	220	166	101	123	337	192
Equity exposures	-	-	6	-	1	-	-		7	-
Mortgage-backed retail IRBA receivables	105	18	201	23	46	32	229	20	73	21
Qualified revolving retail IRBA receivables	-	-	-	-	-	-	-	-	-	-
Other retail IRBA receivables	101	86	198	78	100	86	158	91	104	97
Total	**493**	**547**	652	233	400	286	517	251	547	352

Fig. 46 shows that the losses of €547 million actually incurred in 2017 (2016: €233 million) across all exposure classes were higher than the expected figure of €493 million (December 31, 2016: €652 million).

6.6.2.8 Average risk parameter by country of domicile of borrowing entity and exposure class

(ARTICLE 452 SENTENCE 1 LETTER J CRR)

The information in Fig. 47 relates to the following exposure classes: central governments and central banks, institutions, corporates (including small and medium-sized enterprises (SMEs), specialized lending, and purchased receivables that are treated as corporate loans), and long-term equity investments that are backed by own funds based on individual probabilities of default (PD/LGD approach). Using the foundation IRB approach, the average exposure-weighted PD per country in which loans and advances are granted (country of asset) is disclosed as a percentage.

Fig. 47 – AVERAGE PD BY COUNTRY AND EXPOSURE CLASS UNDER THE FOUNDATION IRB APPROACH

	Exposure class								
	Central governments and central banks	**Institutions**	**Corporates, of which:**				**Long-term equity investments**	**Total**	**Total as of Dec. 31, 2016**
Average PD (%)			SMEs	Specialized lending	Receivables purchased	Other			
Country	**Dec. 31, 2017**								
Germany	0.03	0.21	1.34	3.30	1.14	3.45	0.10	2.67	2.64
Egypt	13.50	14.12	-	100.00	-	-	-	59.40	58.47
Algeria	-	1.28	-	-	-	-	-	1.28	0.48
Angola	-	9.00	-	-	-	-	-	9.00	100.00
Argentina	4.00	-	-	-	-	-	-	4.00	6.00
Armenia	-	9.00	-	-	-	-	-	9.00	4.00
Azerbaijan	1.70	-	-	-	-	-	-	1.70	1.10
Australia	-	0.03	-	0.64	-	0.19	-	0.28	0.45
Bahamas	-	-	-	1.70	-	-	-	1.70	1.70
Bahrain	1.70	1.10	-	4.00	-	-	-	3.89	2.60
Bangladesh	6.00	-	-	-	-	-	-	6.00	-
Barbados	-	-	-	-	-	-	-	-	9.00
Belgium	-	0.11	-	0.48	-	0.29	-	0.21	0.14
Bermuda	-	-	-	-	-	3.77	-	3.77	3.72
Bolivia	4.00	-	-	-	-	-	-	4.00	-
Bosnia and Herzegovina	13.50	0.23	-	-	-	-	-	1.34	0.65
Brazil	1.10	1.14	-	-	-	1.10	-	1.13	1.10
British Virgin Islands	-	-	-	0.07	-	0.15	-	0.07	0.44
Bulgaria	-	0.75	-	6.00	-	-	-	5.96	6.00
Burundi	-	4.00	-	-	-	-	-	4.00	-
Cayman Islands	9.00	-	-	-	-	-	-	9.00	6.68
Chile	0.05	0.07	-	-	0.07	-	-	0.05	0.05
China	-	0.09	-	-	2.19	1.70	-	0.09	0.08
Cook Islands	0.01	0.03	-	-	-	-	-	0.01	0.01
Costa Rica	1.10	-	-	-	-	-	-	1.10	0.75

Average PD (%)	Exposure class								
	Central governments and central banks	Institutions	Corporates, of which:				Long-term equity investments	Total	Total as of Dec. 31, 2016
			SMEs	Specialized lending	Receivables purchased	Other			
Country	Dec. 31, 2017								
Curaçao	-	-	-	-	-	-	-	-	0.23
Denmark	-	0.41	-	26.78	-	1.04	-	3.14	2.95
Ecuador	13.50	-	-	-	-	-	-	13.50	13.50
Côte d'Ivoire	-	-	-	-	-	-	-	-	2.60
Eritrea	-	-	-	-	-	-	-	-	-
Estonia	-	0.07	-	-	-	-	-	0.07	0.07
Finland	-	0.06	-	-	-	0.27	-	0.08	0.06
France	0.03	0.08	-	0.30	0.13	0.19	-	0.12	0.19
Georgia	2.60	-	-	-	-	-	-	2.60	-
Ghana	9.00	13.50	-	-	-	1.70	-	8.41	8.66
Greece	-	-	-	-	-	-	-	-	9.00
United Kingdom	-	0.08	1.65	1.78	0.15	0.33	-	0.26	0.22
Guatemala	2.60	-	-	-	-	-	-	2.60	1.70
Guernsey	-	-	-	0.40	-	-	-	0.40	0.17
Hong Kong	0.03	0.07	-	-	0.18	0.44	-	0.18	0.28
India	-	0.53	-	-	1.10	5.88	-	3.68	1.98
Indonesia	0.75	1.19	-	-	0.75	-	-	1.07	0.75
Iran	-	-	-	-	-	100.00	-	100.00	100.00
Ireland	-	0.35	-	0.35	-	0.31	-	0.33	0.39
Iceland	-	95.38	-	-	-	-	-	95.38	93.52
Isle of Man	-	-	-	0.07	-	-	-	0.07	0.08
Israel	0.07	0.07	-	-	-	0.50	-	0.15	0.15
Italy	0.24	2.03	-	-	-	0.29	-	0.99	0.85
Jamaica	6.00	-	-	-	-	-	-	6.00	6.00
Japan	-	0.14	-	-	-	-	-	0.14	0.07
Jersey	-	-	-	0.23	-	-	-	0.23	16.17
Jordan	4.00	4.00	-	-	-	-	-	4.00	4.00
Cameroon	6.00	-	-	-	-	-	-	6.00	6.00
Canada	0.03	0.03	-	0.73	-	0.24	-	0.20	0.20
Kazakhstan	0.75	1.70	-	-	-	-	-	1.70	1.10
Qatar	0.07	-	-	0.54	-	-	-	0.54	0.47
Kenya	-	30.00	-	-	-	-	-	30.00	13.50
Colombia	0.35	0.50	-	-	-	-	-	0.36	0.35
Croatia	1.10	1.10	-	-	1.10	-	-	1.10	1.01
Cuba	-	30.00	-	-	30.00	-	-	30.00	30.00
Kuwait	-	0.11	-	-	0.11	-	-	0.11	-
Lebanon	13.50	13.50	-	-	-	-	-	13.50	9.00
Liberia	-	30.00	-	-	-	-	-	30.00	-
Liechtenstein	-	-	0.23	-	-	0.15	-	0.18	0.15
Lithuania	-	-	-	-	-	-	-	0.00	0.23
Luxembourg	-	0.16	-	0.25	-	0.38	0.10	0.25	0.23
Macao	-	-	-	-	-	-	-	-	-
Malaysia	0.10	0.10	-	-	-	0.22	-	0.21	0.14
Mali	-	30.00	-	-	-	-	-	30.00	13.50
Malta	-	-	-	1.74	-	-	-	1.74	0.23
Morocco	0.75	0.80	-	-	-	-	-	0.80	0.77
Marshall Islands	-	-	-	6.00	-	2.60	-	5.95	1.83
Mauritius	-	0.07	-	-	-	-	-	0.07	0.07
Macedonia	2.60	-	-	-	-	-	-	2.60	-
Mexico	0.23	0.23	1.70	-	-	2.20	-	0.28	0.23
Moldova	-	30.00	-	-	-	-	-	30.00	30.00
Mongolia	-	9.00	-	-	9.00	-	-	9.00	6.00
Myanmar	-	-	-	2.60	-	-	-	2.60	-
Montenegro	-	-	-	-	-	-	-	-	4.00
Mozambique	-	-	-	-	-	-	-	-	30.00
Namibia	0.75	0.75	-	-	-	-	-	0.75	0.50
New Zealand	-	0.03	-	0.35	-	0.03	-	0.13	0.15
Netherlands	0.02	0.09	0.35	4.79	-	0.38	-	1.02	1.47
Nigeria	9.00	9.00	-	-	-	-	-	9.00	9.00

Average PD (%)	Exposure class								
	Central governments and central banks	Institutions	Corporates, of which:				Long-term equity investments	Total	Total as of Dec. 31, 2016
			SMEs	Specialized lending	Receivables purchased	Other			
Country	**Dec. 31, 2017**								
Norway	-	0.07	-	4.00	-	0.17	-	0.10	0.08
Oman	-	-	-	1.11	-	-	-	1.11	0.96
Austria	0.01	0.29	0.35	0.25	-	27.85	-	9.05	0.48
Pakistan	9.00	13.50	-	-	-	-	-	13.19	13.50
Panama	0.50	0.75	-	-	-	0.20	-	0.20	0.37
Peru	0.23	0.30	-	-	-	0.75	-	0.63	1.29
Philippines	0.50	0.75	-	2.60	-	-	-	2.59	2.59
Poland	-	0.15	2.60	0.50	-	8.71	5.57	4.40	5.86
Portugal	-	4.00	-	1.04	-	-	-	1.06	29.88
Rwanda	-	30.00	-	-	-	-	-	30.00	30.00
Romania	-	0.63	0.35	-	-	0.10	-	0.13	0.14
Russia	0.75	0.83	-	-	0.82	5.82	-	1.33	1.20
Saudi Arabia	0.07	0.23	-	0.69	0.10	0.50	-	0.62	0.73
Sweden	-	0.06	-	0.11	-	0.13	-	0.08	0.08
Switzerland	0.01	3.02	0.75	0.36	-	0.42	-	0.73	1.08
Senegal	4.00	4.00	-	-	-	-	-	4.00	4.00
Serbia and Kosovo	1.70	2.60	-	-	-	-	-	1.71	2.61
Singapore	0.01	0.03	-	0.31	-	0.50	-	0.24	2.27
Slovenia	-	-	-	-	-	0.23	-	0.23	0.49
Spain	-	0.51	-	0.10	-	0.33	-	0.48	0.69
Sri Lanka	6.00	6.00	-	-	-	-	-	6.00	6.00
South Africa	0.75	0.75	-	-	-	-	-	0.75	0.50
Sudan	-	30.00	-	-	30.00	-	-	30.00	30.00
South Korea	0.07	0.09	-	-	0.07	100.00	-	0.12	0.21
Taiwan	-	0.07	-	-	-	-	-	0.07	0.08
Tanzania	-	13.50	-	-	-	-	-	13.50	13.50
Thailand	0.35	0.50	-	0.50	0.50	-	-	0.50	0.56
Togo	-	30.00	-	-	30.00	-	-	30.00	30.00
Czech Republic	0.03	0.18	-	-	-	0.51	-	0.07	0.10
Tunisia	4.00	4.71	-	-	-	-	-	4.68	2.84
Turkey	1.10	1.04	-	3.07	1.02	0.10	-	0.90	1.55
Turkmenistan	-	6.00	-	-	-	-	-	6.00	6.00
Ukraine	30.00	30.00	-	-	-	-	-	30.00	30.00
Hungary	-	2.50	-	1.50	-	1.10	-	1.57	1.69
Uruguay	0.35	-	100.00	-	-	-	-	0.45	0.35
USA	0.08	0.11	1.70	2.97	-	0.21	-	0.49	1.72
United Arab Emirates	-	0.13	-	0.55	-	-	-	0.54	0.64
Vietnam	4.00	4.00	-	64.05	-	-	-	61.16	60.75
Belarus	-	30.00	-	-	30.00	-	-	30.00	30.00
Cyprus	-	-	-	-	-	0.75	-	0.75	5.14
Total average PD as of Dec. 31, 2017	**0.17**	**0.48**	**1.34**	**2.88**	**1.69**	**3.22**	**0.30**	**1.99**	
Total average PD as of Dec. 31, 2016	0.21	0.50	1.41	3.69	0.86	2.92	0.45		2.01

The information given in Fig. 48 relates to the following exposure classes: central governments and central banks, institutions, corporates (including SMEs, specialized lending, and purchased receivables that are treated as corporate loans), long-term equity investments that are backed by own funds based on individual probabilities of default (PD/LGD approach), and retail business (broken down into mortgage-backed IRBA exposures, qualified revolving IRBA exposures, and other IRBA exposures). Using the advanced IRB approach, the average exposure-weighted PD and LGD per country in which loans and advances are granted (country of asset) is disclosed as a percentage.

Fig. 48 – AVERAGE PD AND LGD BY COUNTRY AND EXPOSURE CLASS UNDER THE ADVANCED IRB APPROACH

		Exposure class											
Country	Risk parameter	Central governments and central banks	Institutions	Corporates, of which:				Retail subcategory: mortgage-backed IRBA exposures	Retail subcategory: qualified revolving	Retail subcategory: other IRBA retail exposures	Long-term equity investments	Total	Total as of Dec. 31, 2016
%				SMEs	Specialized lending	Receivables purchased	Other						
Germany	Average PD	-	0.46	-	-	-	5.05	2.56	-	4.30	-	2.92	3.30
	Average LGD	-	81.00	-	-	-	2.98	10.12	-	34.03	-	15.67	16.46
Egypt	Average PD	-	-	-	-	-	-	1.10	-	-	-	1.10	6.00
	Average LGD	-	-	-	-	-	-	10.40	-	-	-	10.40	55.04
Andorra	Average PD	-	-	-	-	-	-	-	-	0.15	-	0.15	0.15
	Average LGD	-	-	-	-	-	-	-	-	27.28	-	27.28	29.64
Argentina	Average PD	-	-	-	-	-	-	1.58	-	84.78	-	3.97	2.02
	Average LGD	-	-	-	-	-	-	20.38	-	36.37	-	20.84	33.45
Australia	Average PD	-	-	-	-	-	10.88	1.50	-	2.88	-	10.41	10.53
	Average LGD	-	-	-	-	-	1.68	10.10	-	28.07	-	2.33	4.71
Bahamas	Average PD	-	-	-	-	-	62.53	-	-	0.15	-	62.28	26.42
	Average LGD	-	-	-	-	-	10.15	-	-	27.28	-	10.22	2.03
Barbados	Average PD	-	-	-	-	-	-	2.60	-	-	-	2.60	-
	Average LGD	-	-	-	-	-	-	11.76	-	-	-	11.76	-
Belgium	Average PD	-	-	-	-	-	5.46	2.92	-	6.14	-	5.15	4.18
	Average LGD	-	-	-	-	-	2.53	11.26	-	23.77	-	4.01	3.40
Bermuda	Average PD	-	-	-	-	-	15.86	-	-	-	-	15.86	12.99
	Average LGD	-	-	-	-	-	9.99	-	-	-	-	9.99	8.75
Bolivia	Average PD	-	-	-	-	-	-	-	-	0.75	-	0.75	1.10
	Average LGD	-	-	-	-	-	-	-	-	14.83	-	14.83	18.03
Bosnia and Herzegovina	Average PD	-	-	-	-	-	-	-	-	79.84	-	79.84	76.35
	Average LGD	-	-	-	-	-	-	-	-	49.95	-	49.95	49.77
Brazil	Average PD	-	-	-	-	-	31.25	0.15	-	92.69	-	31.21	6.64
	Average LGD	-	-	-	-	-	17.92	4.02	-	41.44	-	17.90	14.53
British Virgin Islands	Avera	-	-	-	-	-	44.47	-	-	-	-	44.47	28.29

Country	Risk parameter	Exposure class											
		Central governments and central banks	Institutions	Corporates, of which:				Retail subcategory: mortgage-backed IRBA exposures	Retail subcategory: qualified revolving	Retail subcategory: other IRBA retail exposures	Long-term equity investments	Total	Total as of Dec. 31, 2016
%				SMEs	Specialized lending	Receivables purchased	Other						
	ge PD												
	Average LGD	-	-	-	-	-	13.93	-	-	-	-	13.93	13.75
Bulgaria	Average PD	-	-	-	-	-	-	-	-	2.60	-	2.60	97.65
	Average LGD	-	-	-	-	-	-	-	-	55.32	-	55.32	40.64
Cayman Islands	Average PD	-	-	-	-	-	17.40	-	-	-	-	17.40	14.58
	Average LGD	-	-	-	-	-	9.59	-	-	-	-	9.59	10.17
Chile	Average PD	-	-	-	-	-	0.78	0.46	-	-	-	0.78	0.81
	Average LGD	-	-	-	-	-	1.95	3.85	-	-	-	1.96	1.94
China	Average PD	-	-	-	-	-	0.98	1.08	-	3.85	-	0.98	1.40
	Average LGD	-	-	-	-	-	3.18	8.02	-	38.34	-	3.24	3.72
Denmark	Average PD	-	0.05	-	-	-	61.57	1.07	-	12.59	-	25.73	13.37
	Average LGD	-	81.00	-	-	-	18.74	6.12	-	32.34	-	54.25	61.26
Ecuador	Average PD	-	-	-	-	-	-	0.75	-	0.23	-	0.74	0.73
	Average LGD	-	-	-	-	-	-	27.72	-	16.10	-	27.56	28.42
Côte d’Ivoire	Average PD	-	-	-	-	-	-	-	-	100.00	-	100.00	27.45
	Average LGD	-	-	-	-	-	-	-	-	51.49	-	51.49	55.04
Estonia	Average PD	-	-	-	-	-	-	-	-	2.60	-	2.60	0.89
	Average LGD	-	-	-	-	-	-	-	-	55.32	-	55.32	12.17
Faroe Islands	Average PD	-	-	-	-	-	100.00	-	-	-	-	100.00	30.00
	Average LGD	-	-	-	-	-	12.58	-	-	-	-	12.58	1.50
Finland	Average PD	-	-	-	-	-	2.60	9.77	-	3.68	-	2.69	8.98
	Average LGD	-	-	-	-	-	1.86	27.06	-	34.91	-	2.22	1.88
France	Average PD	-	0.05	-	-	-	6.20	7.63	-	3.62	-	4.90	5.21
	Average LGD	-	81.00	-	-	-	4.55	10.04	-	25.27	-	24.07	32.53
Greece	Average PD	-	-	-	-	-	16.55	2.42	-	68.26	-	16.51	4.51
	Average	-	-	-	-	-	3.10	13.30	-	40.09	-	3.23	2.03

Country	Risk parameter	Exposure class											
		Central governments and central banks	Institutions	Corporates, of which:				Retail subcategory: mortgage-backed IRBA exposures	Retail subcategory: qualified revolving	Retail subcategory: other IRBA retail exposures	Long-term equity investments	Total	Total as of Dec. 31, 2016
%				SMEs	Specialized lending	Receivables purchased	Other						
	LGD												
United Kingdom	Average PD	-	0.12	-	-	-	26.56	4.38	-	7.29	-	21.82	5.42
	Average LGD	-	81.00	-	-	-	12.70	10.00	-	29.25	-	23.38	25.79
Guatemala	Average PD	-	-	-	-	-	-	100.00	-	-	-	100.00	100.00
	Average LGD	-	-	-	-	-	-	27.92	-	-	-	27.92	28.36
Guernsey	Average PD	-	-	-	-	-	-	-	-	-	-	-	13.50
	Average LGD	-	-	-	-	-	-	-	-	-	-	-	2.97
Hong Kong	Average PD	-	-	-	-	-	46.65	0.82	-	0.75	-	46.51	41.15
	Average LGD	-	-	-	-	-	17.98	12.50	-	13.34	-	17.96	13.91
India	Average PD	-	-	-	-	-	54.17	0.60	-	-	-	54.06	37.02
	Average LGD	-	-	-	-	-	22.52	3.07	-	-	-	22.48	3.93
Indonesia	Average PD	-	-	-	-	-	13.11	1.10	-	-	-	13.03	8.97
	Average LGD	-	-	-	-	-	2.45	6.83	-	-	-	2.48	2.98
Iran	Average PD	-	-	-	-	-	-	4.00	-	-	-	4.00	4.00
	Average LGD	-	-	-	-	-	-	6.65	-	-	-	6.65	8.48
Ireland	Average PD	-	-	-	-	-	12.72	2.64	-	48.74	-	12.70	7.56
	Average LGD	-	-	-	-	-	4.88	8.03	-	42.58	-	4.88	6.04
Iceland	Average PD	-	-	-	-	-	-	0.50	-	-	-	0.50	1.70
	Average LGD	-	-	-	-	-	-	-	-	-	-	0.00	5.99
Isle of Man	Average PD	-	-	-	-	-	19.14	-	-	-	-	19.14	15.10
	Average LGD	-	-	-	-	-	9.74	-	-	-	-	9.74	6.70
Israel	Average PD	-	-	-	-	-	-	4.26	-	0.15	-	4.09	3.70
	Average LGD	-	-	-	-	-	-	8.84	-	27.28	-	9.57	12.64
Italy	Average PD	-	-	-	-	-	15.99	3.87	-	21.01	-	15.03	8.84
	Average LGD	-	-	-	-	-	2.28	10.46	-	42.17	-	3.32	4.08
Jamaica	Average PD	-	-	-	-	-	-	1.70	-	-	-	1.70	1.10

Country	Risk parameter	Exposure class											
		Central governments and central banks	Institutions	Corporates, of which:				Retail subcategory: mortgage-backed IRBA exposures	Retail subcategory: qualified revolving	Retail subcategory: other IRBA retail exposures	Long-term equity investments	Total	Total as of Dec. 31, 2016
%				SMEs	Specialized lending	Receivables purchased	Other						
	Average LGD	-	-	-	-	-	-	7.51	-	-	-	7.51	17.95
Japan	Average PD	-	-	-	-	-	4.62	0.48	-	1.10	-	4.61	6.07
	Average LGD	-	-	-	-	-	3.28	12.08	-	44.07	-	3.29	3.58
Jersey	Average PD	-	-	-	-	-	12.57	-	-	-	-	12.57	6.87
	Average LGD	-	-	-	-	-	2.08	-	-	-	-	2.08	2.07
Jordan	Average PD	-	-	-	-	-	13.50	-	-	-	-	13.50	13.50
	Average LGD	-	-	-	-	-	2.45	-	-	-	-	2.45	2.97
Canada	Average PD	-	-	-	-	-	8.11	6.33	-	1.08	-	8.09	13.13
	Average LGD	-	-	-	-	-	4.76	7.66	-	49.02	-	4.80	7.90
Qatar	Average PD	-	-	-	-	-	-	0.75	-	-	-	0.75	0.75
	Average LGD	-	-	-	-	-	-	11.76	-	-	-	11.76	13.53
Kenya	Average PD	-	-	-	-	-	-	1.10	-	-	-	1.10	0.75
	Average LGD	-	-	-	-	-	-	8.54	-	-	-	8.54	16.72
Kyrgyzstan	Average PD	-	-	-	-	-	-	-	-	-	-	-	1.10
	Average LGD	-	-	-	-	-	-	-	-	-	-	-	47.97
Colombia	Average PD	-	-	-	-	-	0.75	-	-	-	-	0.75	3.93
	Average LGD	-	-	-	-	-	2.45	-	-	-	-	2.45	2.97
Croatia	Average PD	-	-	-	-	-	-	10.88	-	30.13	-	16.52	14.33
	Average LGD	-	-	-	-	-	-	8.47	-	45.65	-	19.37	10.70
Cuba	Average PD	-	-	-	-	-	-	-	-	0.75	-	0.75	0.50
	Average LGD	-	-	-	-	-	-	-	-	15.38	-	15.38	17.77
Kuwait	Average PD	-	-	-	-	-	9.00	0.98	-	-	-	8.83	8.86
	Average LGD	-	-	-	-	-	2.88	9.33	-	-	-	3.01	1.59
Latvia	Average PD	-	-	-	-	-	-	-	-	0.54	-	0.54	0.43
	Average LGD	-	-	-	-	-	-	-	-	16.01	-	16.01	19.31

		Exposure class											
Country	Risk parameter	Central governments and central banks	Institutions	Corporates, of which:				Retail subcategory: mortgage-backed IRBA exposures	Retail subcategory: qualified revolving	Retail subcategory: other IRBA retail exposures	Long-term equity investments	Total	Total as of Dec. 31, 2016
%				SMEs	Specialized lending	Receivables purchased	Other						
Lebanon	Average PD	-	-	-	-	-	-	1.70	-	-	-	1.70	1.70
	Average LGD	-	-	-	-	-	-	7.95	-	-	-	7.95	9.84
Liberia	Average PD	-	-	-	-	-	11.19	-	-	-	-	11.19	11.58
	Average LGD	-	-	-	-	-	7.16	-	-	-	-	7.16	5.83
Liechtenstein	Average PD	-	-	-	-	-	-	0.61	-	0.16	-	0.53	0.59
	Average LGD	-	-	-	-	-	-	8.35	-	27.79	-	11.92	12.32
Lithuania	Average PD	-	-	-	-	-	-	-	-	-	-	-	6.00
	Average LGD	-	-	-	-	-	-	-	-	-	-	-	55.04
Luxembourg	Average PD	-	-	-	-	-	11.69	10.51	-	15.37	-	11.61	25.95
	Average LGD	-	-	-	-	-	12.29	10.17	-	15.74	-	12.08	11.69
Malaysia	Average PD	-	-	-	-	-	18.37	0.64	-	2.60	-	18.33	36.38
	Average LGD	-	-	-	-	-	7.13	14.11	-	44.07	-	7.15	12.57
Malta	Average PD	-	-	-	-	-	19.99	1.70	-	2.21	-	19.98	20.93
	Average LGD	-	-	-	-	-	11.53	7.36	-	38.71	-	11.53	6.12
Morocco	Average PD	-	-	-	-	-	-	1.10	-	100.00	-	65.19	67.34
	Average LGD	-	-	-	-	-	-	7.08	-	51.49	-	35.86	37.15
Marshall Islands	Average PD	-	-	-	-	-	33.63	-	-	-	-	33.63	26.77
	Average LGD	-	-	-	-	-	12.68	-	-	-	-	12.68	10.63
Mauritius	Average PD	-	-	-	-	-	-	9.00	-	-	-	9.00	13.50
	Average LGD	-	-	-	-	-	-	16.35	-	-	-	16.35	44.36
Macedonia	Average PD	-	-	-	-	-	-	-	-	100.00	-	100.00	-
	Average LGD	-	-	-	-	-	-	-	-	51.49	-	51.49	-
Mexico	Average PD	-	-	-	-	-	20.98	0.15	-	0.23	-	20.96	8.16
	Average LGD	-	-	-	-	-	18.68	13.81	-	3.93	-	18.67	10.18
Mongolia	Average PD	-	-	-	-	-	-	100.00	-	-	-	100.00	100.00
	Avera	-	-	-	-	-	-	43.54	-	-	-	43.54	44.16

		Exposure class											
Country	**Risk parameter**	**Central governments and central banks**	**Institutions**	**Corporates, of which:** SMEs	Specialized lending	Receivables purchased	Other	**Retail subcategory: mortgage-backed IRBA exposures**	**Retail subcategory: qualified revolving**	**Retail subcategory: other IRBA retail exposures**	**Long-term equity investments**	**Total**	**Total as of Dec. 31, 2016**
%													
	Average LGD												
Montenegro	Average PD	-	-	-	-	-	-	1.70	-	-	-	1.70	1.70
	Average LGD	-	-	-	-	-	-	9.00	-	-	-	9.00	12.77
Namibia	Average PD	-	-	-	-	-	-	0.35	-	100.00	-	15.95	0.35
	Average LGD	-	-	-	-	-	-	-	-	39.79	-	6.23	0.00
New Zealand	Average PD	-	-	-	-	-	-	4.07	-	2.89	-	3.88	0.62
	Average LGD	-	-	-	-	-	-	6.84	-	35.00	-	11.43	14.12
Netherlands	Average PD	-	-	-	-	-	41.95	6.09	-	5.08	-	36.44	26.43
	Average LGD	-	-	-	-	-	22.25	11.76	-	28.27	-	20.94	16.26
Nigeria	Average PD	-	-	-	-	-	9.00	2.60	-	-	-	8.97	8.98
	Average LGD	-	-	-	-	-	30.28	8.83	-	-	-	30.18	28.82
Norway	Average PD	-	-	-	-	-	44.15	1.56	-	7.31	-	44.04	20.59
	Average LGD	-	-	-	-	-	19.06	7.08	-	27.70	-	19.03	17.16
Oman	Average PD	-	-	-	-	-	-	0.75	-	-	-	0.75	-
	Average LGD	-	-	-	-	-	-	10.11	-	-	-	10.11	-
Austria	Average PD	-	-	-	-	-	9.00	3.73	-	6.09	-	7.61	7.99
	Average LGD	-	-	-	-	-	1.77	10.89	-	28.24	-	5.10	4.31
Panama	Average PD	-	-	-	-	-	17.25	-	-	0.15	-	17.23	17.66
	Average LGD	-	-	-	-	-	5.55	-	-	27.28	-	5.56	6.52
Philippines	Average PD	-	-	-	-	-	7.91	100.00	-	0.35	-	8.06	9.41
	Average LGD	-	-	-	-	-	2.45	25.84	-	17.24	-	2.49	3.03
Poland	Average PD	-	-	-	-	-	-	9.51	-	39.32	-	20.67	9.48
	Average LGD	-	-	-	-	-	-	9.60	-	37.46	-	20.03	16.75
Portugal	Average PD	-	-	-	-	-	-	0.80	-	8.69	-	6.53	13.73
	Average LGD	-	-	-	-	-	-	2.47	-	29.73	-	22.25	14.66
Romania	Avera	-	-	-	-	-	-	-	-	46.20	-	46.20	60.06

Country	Risk parameter	Exposure class											
		Central governments and central banks	Institutions	Corporates, of which:				Retail subcategory: mortgage-backed IRBA exposures	Retail subcategory: qualified revolving	Retail subcategory: other IRBA retail exposures	Long-term equity investments	Total	Total as of Dec. 31, 2016
%				SMEs	Specialized lending	Receivables purchased	Other						
	ge PD												
	Average LGD	-	-	-	-	-	-	-	-	45.97	-	45.97	44.05
Russia	Average PD	-	-	-	-	-	-	5.58	-	0.75	-	5.53	6.14
	Average LGD	-	-	-	-	-	-	14.12	-	-	-	13.96	22.68
Saudi Arabia	Average PD	-	-	-	-	-	-	-	-	0.15	-	0.15	0.15
	Average LGD	-	-	-	-	-	-	-	-	27.28	-	27.28	29.64
Sweden	Average PD	-	-	-	-	-	9.00	11.27	-	19.29	-	9.09	9.01
	Average LGD	-	-	-	-	-	8.48	8.39	-	33.49	-	8.61	7.11
Switzerland	Average PD	-	0.35	-	-	-	1.15	3.43	-	1.90	-	1.95	2.11
	Average LGD	-	81.00	-	-	-	7.13	11.75	-	27.88	-	14.64	13.60
Serbia and Kosovo	Average PD	-	-	-	-	-	-	-	-	23.23	-	23.23	71.88
	Average LGD	-	-	-	-	-	-	-	-	50.38	-	50.38	46.38
Singapore	Average PD	-	-	-	-	-	21.10	1.62	-	0.15	-	21.04	14.34
	Average LGD	-	-	-	-	-	9.30	12.75	-	27.25	-	9.31	6.24
Slovakia	Average PD	-	-	-	-	-	9.00	-	-	43.42	-	9.20	9.06
	Average LGD	-	-	-	-	-	11.11	-	-	37.98	-	11.27	1.58
Slovenia	Average PD	-	-	-	-	-	-	1.20	-	17.37	-	6.20	4.11
	Average LGD	-	-	-	-	-	-	2.81	-	45.70	-	16.08	17.25
Spain	Average PD	-	-	-	-	-	0.75	5.58	-	2.29	-	1.55	3.25
	Average LGD	-	-	-	-	-	2.45	7.25	-	28.09	-	6.56	6.17
Sri Lanka	Average PD	-	-	-	-	-	-	-	-	-	-	-	8.27
	Average LGD	-	-	-	-	-	-	-	-	-	-	-	7.03
South Africa	Average PD	-	-	-	-	-	-	1.14	-	100.00	-	1.31	0.83
	Average LGD	-	-	-	-	-	-	6.11	-	39.79	-	6.16	10.78
South Korea	Average PD	-	-	-	-	-	11.96	-	-	-	-	11.96	9.85
	Average	-	-	-	-	-	4.24	-	-	-	-	4.24	3.48

Country	Risk parameter	Exposure class											
		Central governments and central banks	Institutions	Corporates, of which:				Retail subcategory: mortgage-backed IRBA exposures	Retail subcategory: qualified revolving	Retail subcategory: other IRBA retail exposures	Long-term equity investments	Total	Total as of Dec. 31, 2016
%				SMEs	Specialized lending	Receivables purchased	Other						
	LGD												
Taiwan	Average PD	-	-	-	-	-	-	0.19	-	-	-	0.19	0.19
	Average LGD	-	-	-	-	-	-	-	-	-	-	0.00	5.35
Thailand	Average PD	-	-	-	-	-	2.60	13.42	-	17.97	-	2.67	2.61
	Average LGD	-	-	-	-	-	8.27	11.06	-	38.15	-	8.32	14.66
Czech Republic	Average PD	-	-	-	-	-	-	4.45	-	6.93	-	4.98	5.11
	Average LGD	-	-	-	-	-	-	16.81	-	18.31	-	17.14	16.00
Tunisia	Average PD	-	-	-	-	-	-	0.35	-	-	-	0.35	0.35
	Average LGD	-	-	-	-	-	-	-	-	-	-	0.00	0.00
Turkey	Average PD	-	-	-	-	-	5.15	2.02	-	43.04	-	5.15	4.24
	Average LGD	-	-	-	-	-	2.36	8.08	-	49.66	-	2.41	2.64
Hungary	Average PD	-	-	-	-	-	-	5.64	-	38.27	-	30.78	9.87
	Average LGD	-	-	-	-	-	-	7.42	-	42.40	-	34.36	25.97
Ukraine	Average PD	-	-	-	-	-	-	0.35	-	-	-	0.35	0.35
	Average LGD	-	-	-	-	-	-	-	-	-	-	0.00	0.00
Uruguay	Average PD	-	-	-	-	-	-	-	-	0.75	-	0.75	0.50
	Average LGD	-	-	-	-	-	-	-	-	13.78	-	13.78	16.36
USA	Average PD	-	-	-	-	-	6.01	3.96	-	4.27	-	6.00	6.54
	Average LGD	-	-	-	-	-	3.23	9.07	-	28.69	-	3.29	3.72
Venezuela	Average PD	-	-	-	-	-	-	30.00	-	-	-	30.00	26.08
	Average LGD	-	-	-	-	-	-	3.65	-	-	-	3.65	5.38
United Arab Emirates	Average PD	-	-	-	-	-	6.56	0.88	-	8.57	-	6.31	3.56
	Average LGD	-	-	-	-	-	2.03	9.46	-	34.53	-	2.40	2.25
Vietnam	Average PD	-	-	-	-	-	9.00	-	-	0.50	-	9.00	13.50
	Average LGD	-	-	-	-	-	4.55	-	-	55.32	-	4.55	2.97
Wallis and Futuna	Average PD	-	-	-	-	-	-	-	-	2.60	-	2.60	2.60

Country	Risk parameter	Exposure class											
		Central governments and central banks	**Institutions**	**Corporates, of which:**				**Retail subcategory: mortgage-backed IRBA exposures**	**Retail subcategory: qualified revolving**	**Retail subcategory: other IRBA retail exposures**	**Long-term equity investments**	**Total**	**Total as of Dec. 31, 2016**
%				SMEs	Specialized lending	Receivables purchased	Other						
	Average LGD	-	-	-	-	-	-	-	-	44.07	-	44.07	44.62
Cyprus	Average PD	-	-	-	-	-	11.42	7.18	-	1.10	-	11.41	17.56
	Average LGD	-	-	-	-	-	11.90	20.25	-	55.32	-	11.93	13.17
Total average PD as of Dec. 31, 2017		**-**	**0.34**	**-**	**-**	**-**	**20.40**	**2.63**	**-**	**4.38**	**-**	**6.83**	
Total average LGD as of Dec. 31, 2017		**-**	**81.00**	**-**	**-**	**-**	**9.09**	**10.32**	**-**	**33.50**	**-**	**14.52**	
Total average PD as of Dec. 31, 2016		-	0.40	-	-	-	15.85	2.75	-	4.39	-		6.66
Total average LGD as of Dec. 31, 2016		-	81.00	-	-	-	8.29	10.26	-	34.94	-		14.65

6.7 Counterparty credit risk

6.7.1 Required qualitative disclosures

(ARTICLE 439 SENTENCE 1 LETTERS A TO D CRR)

The following information on the management of derivative counterparty risk exposure in the banking book and trading book of the DZ BANK banking group can be found in the opportunity and risk report (the relevant section of the opportunity and risk report is shown in parentheses in each case):

- Internal procedure for allocating capital to cover derivative counterparty risk exposures and procedure for determining the upper limits for individual counterparties (section 8.4.4 and section 8.4.5, pages 110 to 112)
- Procedure for obtaining collateral (section 8.4.7 and section 8.6.3, pages 113 to 115 and page 117)
- Handling of correlations of market risk and counterparty risk (section 8.4.6, pages 112 and 113)

Additional contractual obligations (article 439 sentence 1 letter d CRR) were significantly lower than at December 31, 2016. This was largely due to the new collateralization annexes introduced as a result of the European Market Infrastructure Regulation (EMIR). The new collateralization annexes are generally independent of credit ratings, which means a downgrade of DZ BANK's credit rating would not impact on the level of additional contractual obligations.

Consequently, a downgrade of DZ BANK's credit rating would not lead to a notable increase in regulatory counterparty credit risk within the meaning of article 271 et seq. CRR.

6.7.2 Regulatory measures

(ARTICLE 439 SENTENCE 1 LETTERS E, F, AND I CRR)

6.7.2.1 Analysis of counterparty credit risk

Fig. 49 presents the methods used to calculate the regulatory requirements for counterparty credit risk as well as the main parameters of each method.

Fig. 49 – EU CCR1 – ANALYSIS OF COUNTERPARTY CREDIT RISK BY APPROACH

		a	b	c	d	e	f	g
	€ million	**Notional**	**Replacement cost/ current market value**	**Potential future credit exposure**	**Effective expected positive exposure (EEPE)**	**Multiplier**	**EAD after credit risk mitigation**	**RWAs**
1	Mark-to-market method		6,493	4,553			9,644	2,763
2	Original exposure method	-					-	-
3	Standardized Approach		-			-	-	-
4	Internal model method (IMM, for derivatives and securities financing transactions)			-	-	-	-	-
5	of which: securities financing transactions			-	-	-	-	-
6	of which: derivatives and long-settlement transactions			-	-	-	-	-
7	of which: from contractual cross-product netting			-	-	-	-	-
8	Financial collateral simple method (for securities financing transactions)						-	-
9	Financial collateral comprehensive method (for securities financing transactions)						-	-
10	VaR for securities financing transactions						-	-
11	**Total**							**2,763**

6.7.2.2 Capital requirement for adjustment of the credit valuation

(ARTICLE 439 SENTENCE 1 LETTERS E AND F CRR)

The exposure value and the risk-weighted asset amount for transactions subject to capital requirements for credit valuation adjustments must be disclosed separately. Based on the requirements in the CRR, Fig. 50 shows the regulatory calculations for adjustment of the credit valuation (broken down into the foundation and advanced approaches).

FIG. 50 – EU CCR2 – CVA CAPITAL CHARGE

		a	b
	€ million	**Exposure value**	**RWAs**
1	Total portfolios subject to the advanced method	-	-
2	i) VaR component (including the 3x multiplier)	-	-
3	ii) Stressed VaR component (SVaR, including the 3x multiplier)	-	-
4	All portfolios subject to the standardized method	3,285	1,423
EU4	Based on the original exposure method	-	-
5	**Total subject to the CVA capital charge**	**3,285**	**1,423**

6.7.2.3 Exposures to central counterparties

(ARTICLE 439 SENTENCE 1 LETTERS E AND F CRR)

Specific information about credit risk arising from derivatives with central counterparties (CCPs) and the associated exposures are shown in Fig. 51, which provides a comprehensive picture of the DZ BANK banking group's exposures. Only exposures to qualifying CCPs are included.

Fig. 51 – EU CCR8 – EXPOSURES TO CCPS

		a	b
	€ million	EAD after credit risk mitigation	RWAs
1	**Total exposures to qualified CCPs**		**367**
2	Exposures for trades at qualified CCPs (excluding initial margin and default fund contributions); of which:	2,824	127
3	i) OTC derivatives	162	73
4	ii) Exchange-traded derivatives	2,658	53
5	iii) Securities financing transactions	4	0
6	iv) Netting sets where cross-product netting has been approved	-	-
7	Segregated initial margin	-	
8	Non-segregated initial margin	1,633	240
9	Prefunded default fund contributions	55	1
10	Alternative calculation of capital requirements for exposures		-
11	**Total exposures to non-qualified CCPs**		**42**
12	Exposures for trades at non-qualified CCPs (excluding initial margin and default fund contributions); of which:	42	42
13	i) OTC derivatives	42	42
14	ii) Exchange-traded derivatives	-	-
15	iii) Securities financing transactions	-	-
16	iv) Netting sets where cross-product netting has been approved	-	-
17	Segregated initial margin	-	
18	Non-segregated initial margin	-	-
19	Prefunded default fund contributions	-	-
20	Unfunded default fund contributions	-	-

6.7.3 Regulatory risk weightings

(ARTICLE 444 SENTENCE 1 LETTER E AND ARTICLE 452 SENTENCE 1 LETTER E IN CONJUNCTION WITH ARTICLE 92 SENTENCE 3 LETTER F CRR)

The information about counterparty credit risk under the Standardized Approach and the IRB approach can be found in sections 6.7.3.1 and 6.7.3.2.

6.7.3.1 Counterparty credit risk exposures: Standardized Approach

(ARTICLE 444 SENTENCE 1 LETTER E IN CONJUNCTION WITH ARTICLE 92 SENTENCE 3 LETTER F CRR)

Fig. 52 shows the counterparty credit risk exposures after credit risk mitigation, broken down by portfolio (type of counterparty) and risk weighting (risk content attributed according to the Standardized Approach).

Fig. 52 – EU CCR3 – STANDARDIZED APPROACH – COUNTERPARTY CREDIT RISK EXPOSURES BY REGULATORY PORTFOLIO AND RISK

Exposure class € million		Risk weighting											Total	of which: unrated
		0%	2%	4%	10%	20%	50%	70%	75%	100%	150%	Other		
1	Central governments or central banks	10	-	-	-	-	-	-	-	-	-	-	10	7
2	Regional governments or local authorities	311	-	-	-	3	-	-	-	-	-	-	314	36
3	Public-sector entities	254	-	-	-	-	-	-	-	-	-	-	254	191
4	Multilateral development banks	-	-	-	-	-	-	-	-	-	-	-	-	-
5	International organizations	2	-	-	-	-	-	-	-	-	-	-	2	2
6	Institutions	2,945	-	-	-	632	1	-	-	-	-	-	3,578	3,038
7	Corporates	-	-	-	-	314	244	-	-	966	-	-	1,524	959
8	Retail business	-	-	-	-	-	-	-	-	-	-	-	-	-
9	Institutions and corporates with a short-term credit assessment	-	-	-	-	-	-	-	-	-	-	-	-	-
10	Other items	-	-	-	-	-	-	-	-	-	-	-	-	-
11	Secured by mortgages on immovable property	-	-	-	-	-	22	-	-	-	-	-	-	-
12	Exposures in default	-	-	-	-	-	-	-	-	0	0-	-	-	-
13	Exposures associated with particularly high risk	-	-	-	-	-	-	-	-	-	-	-	-	-
14	Covered bonds	-	-	-	-	-	-	-	-	-	-	-	-	-
15	CIUs	-	-	-	-	-	-	-	-	-	-	-	-	-
16	Equity exposures	-	-	-	-	-	-	-	-	-	-	-	-	-
17	Total	3,521	-	-	-	950	267	-	-	966	0	-	5,682	4,232

6.7.3.2 Counterparty credit risk exposures: IRB approach

(ARTICLE 452 SENTENCE 1 LETTER E IN CONJUNCTION WITH ARTICLE 92 SENTENCE 3 LETTER F CRR)

Fig. 53 and Fig. 54 show key parameters used to calculate the capital requirements for counterparty credit risk in the IRB models.

Fig. 53 – EU CCR4 – FIRB APPROACH – COUNTERPARTY CREDIT RISK EXPOSURES BY PORTFOLIO AND PD SCALE

€ million (unless indicated otherwise)	a	b	c	d	e	f	g
PD scale by exposure class	EAD after credit risk mitigation	Average PD (%)	Number of borrowers	Average LGD (%)	Average maturity (days)	RWAs	RWA density (%)
Central governments and central banks							
0.00 to < 0.15	124	0.01	6	45.00	900	10	7.98
0.15 to < 0.25	-	-	-	-	-	-	-
0.25 to < 0.50	-	-	-	-	-	-	-
0.50 to < 0.75	-	-	-	-	-	-	-
0.75 to < 2.50	-	-	-	-	-	-	-
2.50 to < 10.00	-	-	-	-	-	-	-
10.00 to < 100.00	-	-	-	-	-	-	-
100.00 (default)	-	-	-	-	-	-	-
Subtotal	124	0.01	6	45.00	900	10	7.98
Institutions							
0.00 to < 0.15	2,665	0.36	141	35.95	869	755	28.31
0.15 to < 0.25	783	0.81	65	31.65	863	305	38.87
0.25 to < 0.50	323	0.89	26	30.78	886	177	54.72
0.50 to < 0.75	386	2.78	18	12.72	859	103	26.60
0.75 to < 2.50	44	0.77	16	18.46	900	19	43.92
2.50 to < 10.00	4	4.26	5	14.06	900	3	60.97
10.00 to < 100.00	12	13.76	3	0.85	900	1	5.01
100.00 (default)	-	-	-	-	-	-	-
Subtotal	4,217	0.75	274	32.33	869	1,361	32.27
Corporates – SMEs							
0.00 to < 0.15	0	0.10	4	45.00	900	0	22.04
0.15 to < 0.25	3	0.21	34	45.00	900	1	40.25

€ million (unless indicated otherwise)	a	b	c	d	e	f	g
PD scale by exposure class	EAD after credit risk mitigation	Average PD (%)	Number of borrowers	Average LGD (%)	Average maturity (days)	RWAs	RWA density (%)
0.25 to < 0.50	2	0.35	24	45.00	900	1	54.79
0.50 to < 0.75	1	0.50	33	45.00	900	1	62.80
0.75 to < 2.50	12	0.97	98	45.00	900	9	79.78
2.50 to < 10.00	6	4.29	35	44.90	900	7	124.22
10.00 to < 100.00	0	13.50	2	45.00	900	0	198.05
100.00 (default)	1	100.00	7	45.00	900	-	-
Subtotal	25	4.10	237	44.98	900	20	79.62
Corporates – specialized lending							
0.00 to < 0.15	4	0.09	10	44.95	900	1	29.99
0.15 to < 0.25	41	0.21	23	45.00	900	19	47.87
0.25 to < 0.50	25	0.35	24	44.98	900	15	62.26
0.50 to < 0.75	24	0.50	36	44.94	900	17	73.69
0.75 to < 2.50	78	1.06	100	44.70	900	75	96.66
2.50 to < 10.00	5	2.73	5	44.91	900	7	132.11
10.00 to < 100.00	0	30.00	1	45.00	900	1	263.75
100.00 (default)	17	100.00	14	45.00	900	-	-
Subtotal	194	9.31	213	44.86	900	137	70.71
Corporates – other							
0.00 to < 0.15	851	0.04	235	41.11	900	173	20.33
0.15 to < 0.25	174	0.19	119	42.51	900	80	45.82
0.25 to < 0.50	52	0.35	96	34.38	900	25	48.29
0.50 to < 0.75	95	0.50	104	42.65	900	66	70.08
0.75 to < 2.50	151	0.90	220	45.00	900	150	99.74
2.50 to < 10.00	28	2.77	39	45.00	900	37	133.25
10.00 to < 100.00	-	-	-	-	-	-	-
100.00 (default)	6	100.00	15	45.00	900	-	-
Subtotal	1,357	0.68	828	41.67	900	532	39.19
Long-term equity investments							
0.00 to < 0.15	-	-	-	-	-	-	-
0.15 to < 0.25	-	-	-	-	-	-	-
0.25 to < 0.50	-	-	-	-	-	-	-
0.50 to < 0.75	-	-	-	-	-	-	-
0.75 to < 2.50	-	-	-	-	-	-	-
2.50 to < 10.00	-	-	-	-	-	-	-
10.00 to < 100.00	-	-	-	-	-	-	-
100.00 (default)	-	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-	-
Total (all portfolios)	5,916	1.01	1,558	35.20	877.61	2,059	34.81

Fig. 54 – EU CCR4 – AIRB APPROACH – COUNTERPARTY CREDIT RISK EXPOSURES BY PORTFOLIO AND PD SCALE

€ million (unless indicated otherwise)	a	b	c	d	e	f	g
PD scale	EAD after credit risk mitigation	Average PD (%)	Number of borrowers	Average LGD (%)	Average maturity (days)	RWAs	RWA density (%)
Central governments and central banks							
0.00 to < 0.15	-	-	-	-	-	-	-
0.15 to < 0.25	-	-	-	-	-	-	-
0.25 to < 0.50	-	-	-	-	-	-	-
0.50 to < 0.75	-	-	-	-	-	-	-
0.75 to < 2.50	-	-	-	-	-	-	-
2.50 to < 10.00	-	-	-	-	-	-	-
10.00 to < 100.00	-	-	-	-	-	-	-
100.00 (default)	-	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-	-
Institutions							
0.00 to < 0.15	568	0.09	8	81.00	1,462	203	35.75
0.15 to < 0.25	48	0.20	2	81.00	1,738	25	51.45

€ million (unless indicated otherwise)	a	b	c	d	e	f	g
PD scale	EAD after credit risk mitigation	Average PD (%)	Number of borrowers	Average LGD (%)	Average maturity (days)	RWAs	RWA density (%)
0.25 to < 0.50	54	0.35	1	81.00	433	39	70.98
0.50 to < 0.75	19	0.50	2	81.00	1,217	38	199.27
0.75 to < 2.50	-	-	-	-	-	-	-
2.50 to < 10.00	-	-	-	-	-	-	-
10.00 to < 100.00	-	-	-	-	-	-	-
100.00 (default)	-	-	-	-	-	-	-
Subtotal	690	0.13	13	81.00	1,394	304	44.14
Corporates – SMEs							
0.00 to < 0.15	-	-	-	-	-	-	-
0.15 to < 0.25	-	-	-	-	-	-	-
0.25 to < 0.50	-	-	-	-	-	-	-
0.50 to < 0.75	-	-	-	-	-	-	-
0.75 to < 2.50	-	-	-	-	-	-	-
2.50 to < 10.00	-	-	-	-	-	-	-
10.00 to < 100.00	-	-	-	-	-	-	-
100.00 (default)	-	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-	-
Corporates – specialized lending							
0.00 to < 0.15	-	-	-	-	-	-	-
0.15 to < 0.25	-	-	-	-	-	-	-
0.25 to < 0.50	-	-	-	-	-	-	-
0.50 to < 0.75	-	-	-	-	-	-	-
0.75 to < 2.50	-	-	-	-	-	-	-
2.50 to < 10.00	-	-	-	-	-	-	-
10.00 to < 100.00	-	-	-	-	-	-	-
100.00 (default)	-	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-	-
Corporates – other							
0.00 to < 0.15	10	0.16	4	56.19	1,549	9	91.88
0.15 to < 0.25	3	0.35	5	13.91	988	1	21.48
0.25 to < 0.50	-	-	-	-	-	-	-
0.50 to < 0.75	1	2.14	3	5.50	1,492	0	14.71
0.75 to < 2.50	3	7.32	15	14.49	1,773	2	64.73
2.50 to < 10.00	1	21.25	5	20.26	1,095	1	117.44
10.00 to < 100.00	2	100.00	2	91.61	1,104	-	-
100.00 (default)	-	-	-	-	-	-	-
Subtotal	20	12.20	34	43.12	1,441	13	65.26
Retail business – SMEs, secured by mortgages on immovable property							
0.00 to < 0.15	-	-	-	-	-	-	-
0.15 to < 0.25	-	-	-	-	-	-	-
0.25 to < 0.50	-	-	-	-	-	-	-
0.50 to < 0.75	-	-	-	-	-	-	-
0.75 to < 2.50	-	-	-	-	-	-	-
2.50 to < 10.00	-	-	-	-	-	-	-
10.00 to < 100.00	-	-	-	-	-	-	-
100.00 (default)	-	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-	-
Retail business – non-SMEs, secured by mortgages on immovable property							
0.00 to < 0.15	-	-	-	-	-	-	-
0.15 to < 0.25	-	-	-	-	-	-	-
0.25 to < 0.50	-	-	-	-	-	-	-
0.50 to < 0.75	-	-	-	-	-	-	-
0.75 to < 2.50	-	-	-	-	-	-	-
2.50 to < 10.00	-	-	-	-	-	-	-
10.00 to < 100.00	-	-	-	-	-	-	-
100.00 (default)	-	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-	-
Retail business – qualified revolving							
0.00 to < 0.15	-	-	-	-	-	-	-
0.15 to < 0.25	-	-	-	-	-	-	-

€ million (unless indicated otherwise)	a	b	c	d	e	f	g
PD scale	EAD after credit risk mitigation	Average PD (%)	Number of borrowers	Average LGD (%)	Average maturity (days)	RWAs	RWA density (%)
0.25 to < 0.50	-	-	-	-	-	-	-
0.50 to < 0.75	-	-	-	-	-	-	-
0.75 to < 2.50	-	-	-	-	-	-	-
2.50 to < 10.00	-	-	-	-	-	-	-
10.00 to < 100.00	-	-	-	-	-	-	-
100.00 (default)	-	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-	-
Retail business – other SMEs							
0.00 to < 0.15	-	-	-	-	-	-	-
0.15 to < 0.25	-	-	-	-	-	-	-
0.25 to < 0.50	-	-	-	-	-	-	-
0.50 to < 0.75	-	-	-	-	-	-	-
0.75 to < 2.50	-	-	-	-	-	-	-
2.50 to < 10.00	-	-	-	-	-	-	-
10.00 to < 100.00	-	-	-	-	-	-	-
100.00 (default)	-	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-	-
Retail business – other non-SMEs							
0.00 to < 0.15	-	-	-	-	-	-	-
0.15 to < 0.25	-	-	-	-	-	-	-
0.25 to < 0.50	-	-	-	-	-	-	-
0.50 to < 0.75	-	-	-	-	-	-	-
0.75 to < 2.50	-	-	-	-	-	-	-
2.50 to < 10.00	-	-	-	-	-	-	-
10.00 to < 100.00	-	-	-	-	-	-	-
100.00 (default)	-	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-	-
Other non-credit-obligation assets							
0.00 to < 0.15	-	-	-	-	-	-	-
0.15 to < 0.25	-	-	-	-	-	-	-
0.25 to < 0.50	-	-	-	-	-	-	-
0.50 to < 0.75	-	-	-	-	-	-	-
0.75 to < 2.50	-	-	-	-	-	-	-
2.50 to < 10.00	-	-	-	-	-	-	-
10.00 to < 100.00	-	-	-	-	-	-	-
100.00 (default)	-	-	-	-	-	-	-
Subtotal	-	-	-	-	-	-	-
Total (all portfolios)	**710**	**0.47**	**47**	**79.93**	**1,395.15**	**317**	**44.73**

6.7.4 Further information on counterparty credit risk

(ARTICLE 439 SENTENCE 1 LETTERS E, G, AND H CRR)

6.7.4.1 Impact of netting and collateral held on exposure values

(ARTICLE 439 LETTER E CRR)

Fig. 55 shows the aggregate derivative counterparty risk exposure in the banking book and trading book in the form of positive fair values before and after the offsetting of net derivatives exposures and collateral.

Exposures that are processed directly via a central counterparty (clearing house) are not shown in Fig. 55,

which therefore primarily shows over-the-counter (OTC) derivatives and listed derivatives that are traded via an intermediary, such as a broker. Derivative positions arising from securitizations are disclosed solely in Fig. 63.

Fig. 55 – EU CCR5-A – IMPACT OF NETTING AND COLLATERAL HELD ON EXPOSURE VALUES

	€ million	a Gross positive fair value or net carrying amount	b Netting benefits	c Netted current credit exposure	d Collateral held	e Net credit exposure
1	Derivatives	28,447	20,396	8,050	3,840	4,210
2	Securities financing transactions	-	-	-	-	-
3	Cross-product netting	-	-	-	-	-
4	**Total**	**28,447**	**20,396**	**8,050**	**3,840**	**4,210**

There is no material concentration of individual exposures or instruments.

6.7.4.2 Composition of collateral for exposures subject to counterparty credit risk

(ARTICLE 439 LETTER E CRR)

Fig. 56 provides a breakdown for all types of collateral (cash collateral, sovereign debt, corporate bonds, etc.) posted or received by DZ BANK or the DZ BANK banking group in order to reduce counterparty credit risk related to derivatives transactions or securities financing transactions, including transactions cleared through a central counterparty.

Fig. 56 – EU CCR5-B – COMPOSITION OF COLLATERAL FOR EXPOSURES TO COUNTERPARTY CREDIT RISK

	a	b	c	d	e	f
	Collateral used in derivatives transactions				**Collateral used in securities financing transactions**	
	Fair value of collateral received		**Fair value of collateral posted**		Fair value of collateral received	Fair value of collateral posted
€ million	Segregated	Unsegregated	Segregated	Unsegregated		
Derivatives	-	1,154	-	8,696	-	-
of which: cash collateral	-	211	-	-	-	-
of which: bonds of non-German borrowers	-	26	-	-	-	-
of which: other bonds	-	55	-	-	-	-
of which: long-term equity investments	-	81	-	-	-	-
of which: other collateral	-	40	-	7,287	-	-
Securities financing transactions	-	-	-	-	-	-
Cross-product netting	-	-	-	-	-	-
Total	**-**	**1,154**	**-**	**8,696**	**-**	**-**

6.7.4.3 Exposures secured by credit derivatives

(ARTICLE 439 LETTERS G AND H CRR)

Fig. 57 shows the notional amounts of credit derivatives bought and sold, broken down by type of credit derivative. As at the end of the previous year, no credit derivatives from the intermediary operations of DZ BANK banking group entities were held as of December 31, 2017.

Fig. 57 – EU CCR6 – CREDIT DERIVATIVES EXPOSURES

	a	b	c	d
	Credit derivative hedges		Other credit derivatives	Intermediary operations
€ million	Protection bought	Protection sold		
Notionals				
Single-name credit default swaps	-	-	13,855	-
Index credit default swaps	-	-	-	-
Total return swaps	-	-	-	-
Credit options	-	-	-	-
Other credit derivatives	-	-	-	-
Total notionals	**-**	**-**	**13,855**	**-**
Fair values				
Positive fair values (assets)	-	-	19,253	-
Negative fair values (equity and liabilities)	-	-	-	-
Total fair value	**-**	**-**	**19,253**	**-**

7 Securitizations

7.1 Scope, objectives, and risks of securitization

(ARTICLE 449 SENTENCE 1 LETTERS A, D, E, AND I CRR)

The securitization activities of the DZ BANK banking group comprise not only asset-backed commercial paper (ABCP) programs but also investing, trading, and funding activities involving asset-backed securities (ABSs). In the first half of 2017, DZ BANK opened up its credit risk strategy to new investments in ABSs, albeit with significant restrictions, in order to give itself greater flexibility when investing in high-quality liquid assets (HQLAs). Investing activities continue to include the legacy portfolios of investor-related exposures dating back to the period prior to the financial crisis. As before, ABSs are held as part of trading activities in order to pass on exposures within a short space of time and funding activities are still carried out for selected customers.

As a sponsor, DZ BANK uses special-purpose entities, which are funded by issuing money market-linked ABCP. The ABCP programs are made available for DZ BANK customers who in turn securitize their own assets via these companies. In these programs, the customers sell their assets to a separate special-purpose entity, normally with a purchase price reduction. The purchase of the assets is funded by issuing money market-linked ABCP and using liquidity lines of DZ BANK. The redemption of the ABCP is covered by the asset pool in the program. The contractual structure of the transactions ensures that the assets are not included in the asset seller's insolvency proceedings.

The CORAL ABCP program has been set up to provide securitization of assets predominantly from European entities. This program is funded by liquidity lines and by the issuance of ABCP. DZ BANK is also the sponsor of the AUTOBAHN ABCP program, which offers securitization for assets from North American customers and is funded by ABCP issues and liquidity lines.

DZ BANK's investor-related exposures are assigned to the banking book, and to a lesser extent to the trading book, and are actively managed with the aim of optimizing the portfolio, risk, and own funds.

Fig. 58 provides an overview of DZ BANK's securitization activities as sponsor in accordance with article 449 sentence 1 letter i CRR. The DZ BANK banking group no longer acts as an originator and, at the moment, does not plan to do so in the future.

Fig. 58 – SECURITIZATION EXPOSURES AS ORIGINATOR AND SPONSOR

Entity / transaction	Type of transaction	Role	Purpose of transaction	Type of assets	Volume[1]		Retained exposures		Explanatory notes
€ million					Dec. 31, 2017	Dec. 31, 2016	Dec. 31, 2017	Dec. 31, 2016	
DZ BANK									
CORAL	ABCP conduit	Sponsor	Generation of commission income	Loans and advances to European corporates	1,671	1,478	Commitments of 1,671, of which 926 has been utilized	Commitments of 1,478, of which 873 has been utilized	Provision of liquidity lines
AUTOBAHN	ABCP conduit	Sponsor	Generation of commission income	Loans and advances to North American customers	1,976	2,412	Commitments of 1,976, of which 96 has been utilized	Commitments of 2,412, of which 123 has been utilized	Provision of liquidity lines

DZ BANK does not advise or manage any entities that are invested in securitization exposures originated by the DZ BANK banking group or by special-purpose entities sponsored by DZ BANK.(article 449 sentence 1 letter i CRR).

7.2 Risk management in respect of securitizations

(ARTICLE 449 SENTENCE 1 LETTERS B, C, F, AND G CRR)

Exposures to ABSs, which constitute investor-related exposures within the meaning of the CRR, are managed by the relevant group entities and are subject to the groupwide risk management standards. One of the requirements in these standards is that securitization exposures are analyzed individually and have separate limits.

The structure of transactions is analyzed and the external credit ratings awarded by the rating agencies are validated as part of a defined process. Furthermore, all major ABS asset classes at DZ BANK are subjected to an annual portfolio analysis process that assesses the macroeconomic and asset-class-specific risks involved.

At sectoral level, portfolio risk exposures are included each quarter in the credit risk report submitted to the credit risk management function and to DZ BANK's Board of Managing Directors. This reporting process covers the total exposure and provides the basis for managing the risks incurred from structured products.

Securitization exposures are monitored independently of whether they are assigned to the banking book or the trading book. In addition to continuous monitoring of external credit ratings, exposures are classified on a quarterly basis using stress tests specific to each asset class. A particular feature of the tests is that factors such as payment delays, defaults, and degree of loss are balanced against the existing credit enhancements in each transaction. If an exposure does not pass a stress test, the expected loss is determined using a model particular to the asset class concerned.

The credit risk arising in connection with the transactions in the ABCP programs is monitored using performance reports prepared at least monthly by the asset seller. The purchased assets are generally subject to regular due diligence in the form of random sample tests.

Re-securitization exposures are monitored in much the same way as other asset classes. Expected losses on these exposures are modeled using portfolio models from rating agencies that particularly factor in the range of ratings in the securitized portfolio and the assumptions made by the agencies with regard to the extent of losses and industry correlations. When modeling the expected losses, DG HYP looks through the securitized portfolio.

The economic stress tests encompass both the credit risk and the spread risk arising from the Bank sector's entire securitization exposure.

7.2.1 Management of credit risk arising from securitizations

Credit risk in connection with securitizations in the banking book arises primarily from investments in securitizations and the provision of liquidity facilities for ABCP.

The liquidity facilities provided as part of the ABCP programs are managed in the banking book. The resulting risk largely depends on the quality of the asset pool.

In the context of the portfolio as a whole, the re-securitization exposures and related risks are of minor significance. Re-securitizations are structures in which the securitized exposure in turn comprises one or more other securitization exposures.

7.2.2 Management of market risk arising from securitizations

For the purposes of internal management, market risk associated with securitizations (for example, interest-rate risk, spread risk, or currency risk) is included in DZ BANK and DG HYP's internal market risk models, regardless of whether the securitizations are posted in the banking book or the trading book. The regulatory capital requirement for general price risk is also calculated for securitizations in DZ BANK's trading book using the internal model.

At DZ BANK, the risk exposure arising from securitizations in the banking book and the trading book forms an integral part of the daily market risk report and is reflected in the values used for the weekly stress scenario calculations for market risk.

For securitizations, extreme scenarios are also simulated for the weighted average lifetime and recovery assumptions. DG HYP holds all securitizations in its banking book. They are included in the daily measurement of market risk and in reporting.

7.2.3 Management of other risk arising from securitizations

In addition to credit risk and market risk, the securitization activities of the DZ BANK banking group also give rise to liquidity risk and operational risk. These risks form an integral part of the group's standard risk management system. Disclosures related to these risks have been included in the relevant sections of the opportunity and risk report, as follows:

- Liquidity risk management: section 6 (pages 92 to 98) in the opportunity and risk report
- Operational risk management: section 14 (pages 144 to 151) in the opportunity and risk report.

7.2.4 Risk mitigation

In individual cases and only on a small scale, DZ BANK uses credit derivatives to mitigate the risk from individual investor-related exposures. The counterparties in these derivatives are investment-grade financial institutions. In ABCP programs managed exclusively in the banking book, the risk arising from some of the purchased asset portfolios is covered by credit insurance in addition to the discount on the purchase price already referred to above.

As the DZ BANK banking group has no securitization exposures where it acts as originator, which means no hedging operations are necessary, this risk report does not contain any disclosures pursuant to article 449 letter g CRR.

7.3 Accounting policies applied to securitizations

7.3.1 Recognition methods

(ARTICLE 449 SENTENCE 1 LETTER J (I), (III), (IV), AND (VI) CRR)

The accounting treatment of securitizations does not distinguish between the regulatory categories of banking book and trading book. As required by IAS 39, the DZ BANK banking group's investor-related exposures to securitizations are either classified as financial instruments held for trading and thus measured at fair value through profit and loss, classified as available-for-sale financial assets and thus measured at fair value via the revaluation reserve, or classified as loans and receivables at amortized cost.

Drawn liquidity facilities are measured at amortized cost as loans and advances to customers. Undrawn liquidity facilities and loan guarantees are not recognized on the balance sheet; if they give rise to any imminent risks, provisions are recognized in the amount of the estimated loss in accordance with IAS 37 if they are likely to be utilized and their amount can be reliably estimated. Instruments such as swaps that are used to hedge interest-rate or currency risks are classified as derivatives in accordance with IAS 39 in the category 'Financial instruments held for trading' and measured at fair value.

The special-purpose entities involved in the ABCP programs are unconsolidated structured entities. According to IFRS 10, an investor controls an entity and must consolidate the entity if the investor directs relevant activities, is exposed to variable returns from its involvement, and has the ability to manage those returns through its power over the investee. As of December 31, 2017, the DZ BANK banking group did not exercise control as defined in IFRS 10 over the special-purpose entities involved in the ABCP programs.

Legal asset sales – which are known as true-sale securitizations – are derecognized from the balance sheet to the extent that the opportunities and risks arising from the asset portfolio have been transferred to the buyer. There are currently no true-sale securitizations that have been originated by an entity in the DZ BANK banking group. Consequently, no gains on sale are recognized.

There are no liabilities arising from obligations to support securitized assets.

7.3.2 Measurement methods

(ARTICLE 449 SENTENCE 1 LETTER J (II) AND (V) CRR)

Over the course of 2017, the positive trend in the securitizations market that had started in 2012 continued. As well as stable demand for securitizations in the secondary market, along with a significant narrowing of spreads, the primary market also held steady. The two markets continue to be supported and strengthened by the ECB's ABS purchase program (ABSPP).

Securitizations are measured on the basis of externally available market data. The validity of the measurement method used can be verified by regular comparison with the external market prices offered by other market participants. This ensures that an appropriate measurement method based on level 2 input data in the fair value hierarchy is used to determine the fair value of securitizations. Cash CDOs are measured using a copula model based on the underlying assets, which largely comprise corporate loans.

There are currently no exposures at DZ BANK for which securitization is planned. The valuation methods used for this purpose are therefore not presented in this report.

7.4 Regulatory treatment of securitizations

7.4.1 Procedure for determining risk-weighted exposures

(ARTICLE 449 SENTENCE 1 LETTER H CRR)

When acting as sponsor, the DZ BANK banking group uses the IAA specified in article 259 CRR, which has been both tested and approved by BaFin for calculating the risk-weighted exposure of securitizations in ABCP programs for which there is no external credit rating. To a lesser extent, the Standardized Approach to credit risk as specified in articles 251 to 258 CRR and the IRB approach specified in article 261 CRR are also used to determine the capital requirement for exposures forming part of the group's activities as a sponsor.

Most of the investor-related exposures in the banking book are subject to the Standardized Approach to credit risk in accordance with articles 251 to 258 CRR, in particular the look-through approach as specified in article 253 CRR within the context of the Standardized Approach to credit risk. To a lesser extent, the IRB approach in accordance with article 261 CRR, the Supervisory Formula Method in accordance with article 262 CRR, or the IAA in accordance with article 259 CRR are also used.

The capital requirements for investor-related exposures assigned to the trading book are determined using the internal model that has been approved by BaFin for calculating capital requirements. These exposures are factored into the capital requirements for market risk and therefore are not disclosed as credit risk exposures as defined in the CRR.

Since December 31, 2011, it has been a requirement to use the regulatory Standardized Market Risk Approach to assess the specific risk of investor-related securitization positions held in the trading book.

The **Standardized Approach** is based on the securitization risk weightings in the banking book. These exposures are rated for regulatory purposes using the Standardized Approach to credit risk, the IRB approach, the Supervisory Formula Method, or the IAA with the corresponding rating categories and risk weightings. Securitization exposures with an external rating below the defined second-best rating are not weighted but deducted from own funds. The minimum thresholds are BB- for Standard & Poor's, Ba3 for Moody's, and BB- for Fitch. Under the regulatory Standardized Approach, the total of long and short positions is backed by own funds.

A modified Standardized Approach is available for the CTP in addition to the Standardized Approach. For regulatory purposes, only securitizations and nth-to-default credit derivatives must be allocated to the CTP. Under the modified Standardized Approach, the capital requirement for the CTP is always calculated on the basis of the higher of the eligible amounts for long positions or short positions.

7.4.2 External ratings

(ARTICLE 449 SENTENCE 1 LETTER K CRR)

During its securitization activities, the DZ BANK banking group uses the classifications prescribed by the rating agencies Standard & Poor's, Moody's, and Fitch for rating the following regulatory asset classes:

- Receivables from home loans
- Lease receivables originated or purchased (retail and commercial)
- Other receivables from retail loans
- Receivables from loans on wholly or partially commercial real estate
- Other receivables from corporate loans.

External credit ratings awarded by these recognized rating agencies are applied to the securitization exposure of the DZ BANK banking group in accordance with the requirements of article 251 et seq. CRR (under the Standardized Approach to credit risk) and article 259 CRR (under the IRB approach). Competing external ratings are included in the calculation of risk-weighted exposures in accordance with articles 138 and 139 CRR. Figure 23 in section 8.4.1 (page 110) of the opportunity and risk report shows a reconciliation of external and internal ratings and Fig. 59 below shows a reconciliation of external and internal ratings for ABSs.

Fig. 59 – RECONCILIATION OF EXTERNAL AND INTERNAL ABS RATINGS

Asset class

External rating	ABSs	US RMBSs	RoW RMBSs	CMBSs & CLOs	CDOs excl. CLOs
AAA	1A	3B	1C	1C	3B
AA+	1A	3C	1E	1E	3B
AA	1B	3C	2B	2A	3C
AA-	1C	3D	2B	2A	3C
A+	1E	3D	2B	2A	3D
A	2A	3E	2C	2B	3D
A-	2C	3E	2C	2C	3E
BBB+	2D	4A	2C	2D	3E
BBB+	2E	4A	2D	2E	4A
BBB-	3A	4B	3A	3A	4A
BB+	3B	4B	3B	3B	4B
BB	3C	4C	3D	3C	4B
BB-	3E	4C	4A	3D	4C
B+	4A	4D	4B	3E	4C
B	4B	4E	4C	4A	4C
B-	4C	4E	4D	4C	4D
CCC+ or lower	4E	4E	4E	4E	4E

7.4.3 Internal ratings

(ARTICLE 449 SENTENCE 1 LETTER L CRR)

The IAA in accordance with article 259 CRR, which has been tested and approved by the supervisory authority, is used to determine ratings for liquidity facilities provided for ABCP programs if such facilities have not been rated by external agencies. This arrangement relates solely to the banking book because the entities in the DZ BANK banking group do not have any such exposures in the trading book.

When used to assess risk in accordance with regulatory requirements, the IAA closely follows the models used by external rating agencies. Depending on the assets securitized in an ABCP transaction, one of a number of submodels within the IAA may be used to ensure that the measurement is appropriate to the risk. Lease receivables, trade receivables, and other items are securitized. In compliance with article 259 CRR, the stress factors used to measure the relevant cushions against potential loss and the resulting rating categories are at least as conservative as those used by external rating agencies. The stress factors used for determining internal ratings are used in a similar way by the rating agencies in their procedures. In addition, the IAA is used for portfolios of individually assessed loans and advances. Likewise, the resulting credit ratings in this case are no less conservative than would be expected from the use of credit portfolio models by external rating agencies. Besides being used for determining capital requirements, the IAA is also used for the purposes of internal risk management and pricing in the lending business.

The IAA is comprehensively validated each year. The employees responsible for this task receive extensive training and are familiar with current developments relating to the area of securitization. Suitable organizational structures are in place to ensure that front office, back office, and model validation are segregated. Credit procedures and rating models are also subject to regular review by both internal and external auditors.

7.5 Securitization exposure and capital requirements

7.5.1 Total amount of asset securitizations

(ARTICLE 449 SENTENCE 1 LETTERS N (I), M, AND Q CRR)

There are no longer any activities with the DZ BANK banking group as originator. The transactions at DG HYP have been closed out completely. There were neither true-sale securitizations in the banking book, nor were there any securitizations of assets associated with market risk exposures in the trading book. Fig. 60 therefore shows the total amount of sponsorship activities. If granted lines are drawn, exposures to the CORAL and AUTOBAHN special-purpose entities arise.

The year-on-year change in sponsor exposures was largely due to new transactions and the expansion of exposures.

Fig. 60 – TOTAL AMOUNT OF SECURITIZATIONS WITH DZ BANK BANKING GROUP AS ORIGINATOR AND SPONSOR

	Securitizations in the banking book	
€ million	Sponsor	
Exposure class	Dec. 31, 2017	Dec. 31, 2016
Liquidity facilities [1]	3,651	3,913
Derivatives (e.g. for hedging purposes)	26	49
Total	3,677	3,962

[1] Total amount, with no distinction between loan facility and drawdown.

7.5.2 Impaired securitizations, securitizations in arrears, and losses realized during the reporting period

(ARTICLE 449 SENTENCE 1 LETTERS P AND M CRR)

At present there are no activities with the DZ BANK as originator but solely as sponsor. Consequently, no disclosures on the portions of the group's own asset securitizations that are past due or at risk of default are provided, nor are the losses on such exposures realized during the reporting year presented.

Fig. 61 – IMPAIRED SECURITIZATIONS, OWN SECURITIZATIONS IN ARREARS, AND LOSSES REALIZED DURING THE REPORTING PERIOD

€ million	Past-due or non-performing assets		Losses during the reporting period				
Exposure class	Dec. 31, 2017	Dec. 31, 2016	2017	2016	2015	2014	2013
Receivables from home loans	-	-	-	-	-	8	-
Receivables from other retail loans	-	-	-	-	-	4	-
Receivables from loans on wholly or partially commercial real estate	-	-	-	-	-	-	-
Receivables from corporate loans	-	-	-	-	-	-	-
Lease receivables originated or purchased	-	-	-	-	-	-	-
Receivables from vehicle finance (excluding leases)	-	-	-	-	-	-	-
Receivables from CDOs and ABSs	-	-	-	-	-	-	-
Re-securitizations	-	-	-	-	-	-	-
Other exposure reported on the balance sheet	-	-	-	-	-	-	-
Total	-	-	-	-	-	12	-

7.5.3 Securitizations during the reporting period

(ARTICLE 449 SENTENCE 1 LETTERS N (VI) AND M CRR)

No assets were effectively securitized with the DZ BANK banking group as originator during 2017. There are no securitization structures with an early amortization approach.

In the reporting period, the DZ BANK banking group did not provide any implicit support within the meaning of article 248 CRR.

7.5.4 Retained, purchased or off-balance-sheet securitization exposures

(ARTICLE 449 SENTENCE 1 LETTERS N (II) AND M CRR)

Fig. 62 shows the securitization exposures retained, purchased, or held off balance sheet by the entities in the DZ BANK banking group in their capacity as sponsor or investor, broken down by the type of securitization. Securitization exposure is recognized at its risk-weighted carrying amount. The underlying receivables are classified according to the categories used for internal management purposes.

Fig. 62 – RETAINED, PURCHASED OR OFF-BALANCE-SHEET SECURITIZATION EXPOSURES

€ million	Banking book				Trading book		Total	
Securitization exposure	Standardized Approach to credit risk		IRB approach					
Exposure reported on the balance sheet	Dec. 31, 2017	Dec. 31, 2016	Dec. 31, 2017	Dec. 31, 2016	Dec. 31, 2017	Dec. 31, 2016	Dec. 31, 2017	Dec. 31, 2016
Receivables from home loans	1,647	1,866	-	-	96	185	1,743	2,051
Receivables from other retail loans	19	4	-	-	34	45	52	49
Receivables from loans on wholly or partially commercial real estate	-	13	120	178	-	-	120	191
Receivables from corporate loans	-	19	36	-	124	42	160	61
Lease receivables originated or purchased	30	108	119	-	19	18	168	125
Receivables from vehicle finance (excluding leases)	184	117	45	-	185	207	413	324
Receivables from CDOs and ABSs	-	-	-	-	-	-	-	-
Re-securitizations	0	2	3	24	4	33	7	59
Other exposure reported on the balance sheet	-	-	-	-	-	-	-	-
Receivables from special-purpose entities and other credit enhancements reported on the balance sheet	77	40	1,131	1,214	-	-	1,209	1,254
Total exposure reported on the balance sheet	**1,957**	**2,169**	**1,453**	**1,416**	**462**	**530**	**3,872**	**4,115**
Exposure not reported on the balance sheet								
Liquidity facilities	307	456	2,515	2,421	-	-	2,822	2,877
Derivatives (e.g. for hedging purposes)	8	114	29	-	-	-	37	114
Exposure specific to synthetic transactions	-	-	-	-	-	-	-	-
Re-securitizations	-	-	-	152	-	-	-	152
Other exposure not reported on the balance sheet	3	3	197	92	3	3	200	98
Total exposure not reported on the balance sheet	**314**	**574**	**2,741**	**2,665**	**3**	**3**	**3,058**	**3,242**
Sum total	**2,272**	**2,743**	**4,194**	**4,080**	**465**	**533**	**6,930**	**7,356**

7.5.5 Exposures and capital requirements for retained or purchased securitizations broken down by the approach used to calculate the capital requirement

(ARTICLE 449 SENTENCE 1 LETTERS O (I) AND M CRR)

Fig. 63 shows the securitization exposures and the respective capital requirements for the banking book and the trading book. This includes a breakdown by the approach used to calculate the capital requirement and by the risk-weighting band for regulatory purposes.

The level of securitization exposures fell significantly compared with December 31, 2016 due to redemptions/sales and fluctuations in the US dollar exchange rate.

Fig. 63 – EXPOSURES AND CAPITAL REQUIREMENTS FOR RETAINED OR PURCHASED SECURITIZATIONS

	Banking book											
€ million	**Securitizations**				**Re-securitizations**				**Total**			
Regulatory approach	Exposures		Capital requirement		Exposures		Capital requirement		Exposures		Capital requirement	
Risk-weighting band	Dec. 31, 2017	Dec. 31, 2016	Dec. 31, 2017	Dec. 31, 2016	Dec. 31, 2017	Dec. 31, 2016	Dec. 31, 2017	Dec. 31, 2016	Dec. 31, 2017	Dec. 31, 2016	Dec. 31, 2017	Dec. 31, 2016
Standardized Approach	1,880	2,317	230	291	0	2	0	0	1,880	2,320	230	291
20%	926	1,085	15	17	-	-	-	-	926	1,085	15	17
40%	-	-	-	-	-	-	-	-	-	-	-	-
50%	587	627	23	25	-	-	-	-	587	627	23	25
100%	142	280	11	22	0	2	0	0	143	283	11	23
225%	-	-	-	-	-	-	-	-	-	-	-	-
350%	62	137	17	38	-	-	-	-	62	137	17	38
650%	-	-	-	-	-	-	-	-	-	-	-	-
1,250%	163	188	163	188	-	-	-	-	163	188	163	188
Standardized Approach, look-through	23	108	1	7	-	-	-	-	23	108	1	7
Rating-based approach	684	314	128	136	3	24	0	23	687	338	128	159
≤ 10%	213	4	1	0	-	-	-	-	213	4	1	0
> 10% ≤ 20%	65	-	1	-	-	-	-	-	65	-	1	-
> 20% ≤ 50%	264	108	8	3	2	-	0	-	266	108	8	3
> 50% ≤ 100%	9	41	1	3	-	-	-	-	9	41	1	3
> 100% ≤ 250%	0	-	0	-	-	-	-	-	0	-	0	-
> 250% ≤ 650%	0	-	0	-	-	-	-	-	0	-	0	-
> 650% ≤ 1,250%	134	161	117	129	0	24	0	23	134	185	118	152
Supervisory Formula Method	315	194	13	8	-	-	-	-	315	194	13	8
Internal Assessment Approach	3,192	3,668	111	76	-	194	-	10	3,192	3,862	111	86
Capital deduction	-	-	-	-	-	-	-	-	-	-	-	-
Total	**6,094**	**6,603**	**484**	**518**	**3**	**220**	**0**	**33**	**6,097**	**6,823**	**484**	**550**

	Trading book															
€ million	Securitizations				Re-securitizations				Total				Sum total			
Regulatory approach	Exposures		Capital requirement		Exposures		Capital requirement		Exposures		Capital requirement		Exposures		Capital requirement	
Risk-weighting band	Dec. 31, 2017	Dec. 31, 2016	Dec. 31, 2017	Dec. 31, 2016	Dec. 31, 2017	Dec. 31, 2016	Dec. 31, 2017	Dec. 31, 2016	Dec. 31, 2017	Dec. 31, 2016	Dec. 31, 2017	Dec. 31, 2016	Dec. 31, 2017	Dec. 31, 2016	Dec. 31, 2017	Dec. 31, 2016
Standardized Approach	315	501	5	9	-	33	-	1	315	533	5	10	2,195	2,853	236	301
20%	305	483	5	8	-	-	-	-	305	483	5	8	1,231	1,568	20	25
40%	-	-	-	-	-	33	-	1	-	33	-	1	-	33	-	1
50%	10	11	0	0	-	-	-	-	10	11	0	0	597	639	24	26
100%	-	6	-	0	-	-	-	-	-	6	-	0	143	289	11	23
225%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
350%	-	-	-	-	-	-	-	-	-	-	-	-	62	137	17	38
650%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,250%	-	-	-	-	-	-	-	-	-	-	-	-	163	188	163	188
Standardized Approach, look-through	-	-	-	-	-	-	-	-	-	-	-	-	23	108	1	7
Rating-based approach	145	-	1	-	4	-	0	-	149	-	2	-	836	338	129	159
≤ 10%	89	-	1	-	-	-	-	-	89	-	1	-	302	4	1	0
> 10% ≤ 20%	51	-	1	-	-	-	-	-	51	-	1	-	116	-	2	-
> 20% ≤ 50%	5	-	0	-	4	-	0	-	9	-	0	-	275	108	8	3
> 50% ≤ 100%	-	-	-	-	-	-	-	-	-	-	-	-	9	41	1	3
> 100% ≤ 250%	-	-	-	-	-	-	-	-	-	-	-	-	0	-	0	-
> 250% ≤ 650%	-	-	-	-	-	-	-	-	-	-	-	-	0	-	0	-
> 650% ≤ 1,250%	-	-	-	-	-	-	-	-	-	-	-	-	134	185	118	152
Supervisory Formula Method	-	-	-	-	-	-	-	-	-	-	-	-	315	194	13	8
Internal Assessment Approach	-	-	-	-	-	-	-	-	-	-	-	-	3,192	3,862	111	86
Capital deduction	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	461	501	7	9	4	33	0	1	465	533	7	10	6,561	7,356	491	560

7.5.6 Securitization exposures and deductions from own funds

(ARTICLE 449 SENTENCE 1 LETTER N (V) AND M CRR)

Fig. 64 shows the securitization exposures to be deducted from own funds in accordance with article 36 (1) letter k (ii) CRR or to be factored with a securitization risk weighting of 1,250 percent in determining regulatory own funds. The figures shown are the exposure carrying amounts. Market risk exposures in the trading book are factored into the table as net interest-rate exposures.

Securitization exposures with a risk weighting of 1,250 percent fell significantly compared with December 31, 2016 due to redemptions/sales and fluctuations in the US dollar exchange rate.

Fig. 64 – DEDUCTIONS FROM OWN FUNDS AND SECURITIZATION EXPOSURES WITH A RISK WEIGHTING OF 1,250 PERCENT BY ASSET CLASS

€ million Asset class	Banking book		Trading book		Total	
	Dec. 31, 2017	Dec. 31, 2016	Dec. 31, 2017	Dec. 31, 2016	Dec. 31, 2017	Dec. 31, 2016
Exposure reported on the balance sheet						
Receivables from home loans	163	188	-	-	163	188
Receivables from loans on wholly or partially commercial real estate	41	54	-	-	41	54
Receivables from corporate loans	0	-	-	-	0	-
Lease receivables originated or purchased	-	-	-	-	-	-
Receivables from vehicle finance (excluding leases)	-	-	-	-	-	-
Receivables from CDOs and ABSs	-	-	-	-	-	-
Re-securitizations	0	24	-	-	0	24
Other exposure reported on the balance sheet	-	-	-	-	-	-
Receivables from special-purpose entities and other credit enhancements reported on the balance sheet	7	18	-	-	7	18
Total exposure reported on the balance sheet	211	284	-	-	211	284
Exposure not reported on the balance sheet						
Liquidity facilities	85	90	-	-	85	90
Derivatives (e.g. for hedging purposes)	-	-	-	-	-	-
Exposure specific to synthetic transactions	-	-	-	-	-	-
Re-securitizations	-	-	-	-	-	-
Other exposure not reported on the balance sheet	1	-	-	-	1	-
Total exposure not reported on the balance sheet	86	90	-	-	86	90
Sum total	**297**	**373**	**-**	**-**	**297**	**373**

7.5.7 Re-securitization exposures and collateralization amounts

(ARTICLE 449 SENTENCE 1 LETTERS O (II) AND M CRR)

Fig. 65 discloses the retained or purchased re-securitization exposures before and after offsetting of any collateralization or insurance, together with the extent of collateral provided by guarantors, broken down by guarantor credit rating. Again, the figures shown are the exposure carrying amounts. Market risk exposures in the trading book are factored into the table as net interest-rate exposures.

The level of re-securitizations fell significantly compared with December 31, 2016 due to redemptions/sales.

Fig. 65 – RE-SECURITIZATION EXPOSURES AND COLLATERALIZATION AMOUNTS

	Banking book		Trading book		Total	
€ million	Dec. 31, 2017	Dec. 31, 2016	Dec. 31, 2017	Dec. 31, 2016	Dec. 31, 2017	Dec. 31, 2016
Re-securitizations before collateralization	3	220	4	33	7	252
Collateralized by guarantee	-	-	-	-	-	-
of which: guarantor rated AAA to A	-	-	-	-	-	-
Guarantor rated below A	-	-	-	-	-	-
Other collateral	-	-	-	-	-	-
Re-securitizations after collateralization	3	220	4	33	7	252

7.5.8 Planned securitizations

(ARTICLE 449 SENTENCE 1 LETTER N (III) CRR)

As of December 31, 2017, there were no plans for any securitizations.

8 Market risk

Market risk is defined in section 2.3.2, fig. 8 (page 72) of the opportunity and risk report.

8.1 Market risk management

(ARTICLE 435 (1) CRR)

The principles and objectives of market risk management and the methods used to manage risk are presented in sections 10.1, 10.2, and 10.6 (pages 133 to 135 and 138 to 139) of the opportunity and risk report. The structure and organization of the market risk management function are described in section 10.3.1 (page 135) of the opportunity and risk report. Information on the scope and nature of the market risk measurement systems are provided in sections 10.3.2, 10.4.1, 10.4.3, and 10.5 (pages 135, 135 to 136, 136, and 138) of the opportunity and risk report. Sections 10.4.2 to 10.4.5 and 10.5 (pages 136 to 138) of the opportunity and risk report set out the strategies for hedging and mitigating market risk and strategies and processes for monitoring the ongoing effectiveness of the measures taken to hedge market risk.

8.2 Required qualitative disclosures on market risk

(ARTICLE 445 AND ARTICLE 455 CRR IN CONJUNCTION WITH ARTICLE 435 (1) LETTERS A, B, AND D AND ARTICLE 448 CRR)

For regulatory purposes, DZ BANK is classified as a trading book institution. It conducts trading activities as part of its role as a central institution in the cooperative financial network and – on this basis – as a corporate bank for customers outside the cooperative financial network.

In line with the requirements in articles 102 to 104 CRR, DZ BANK has defined clear rules on the delimitation and the running and management of the trading book. The trading book is defined using criteria relating to the intention to trade and generate returns, maturities, tradability, the ability to mitigate risk, and the characteristics of the financial instruments. A clear decision-making path for the assignment of an exposure to either the trading book or the banking book is also mandatory.

When a transaction is entered into, its purpose must be documented in a verifiable manner by recognizing it in a specific portfolio – trading book or banking book – so that it is clearly assigned. Compliance with the assignment rules is regularly monitored within a defined process. The assignment to the trading book or banking book can only be changed subsequently in accordance with defined rules as part of a reallocation process.

The handling of risk in the trading book is documented in DZ BANK's trading strategy. The rules for running and managing the trading book, the definition of the trading book, and the trading strategy are reviewed and, if necessary, updated at least once a year.

DZ BANK generally manages market risk on a decentralized, portfolio basis. The traders responsible for managing a portfolio bear responsibility for its risk and performance.

Exposures in the trading book are, where available, measured daily using liquid market prices available in active markets (marked-to-market). These exposures are mainly liquid securities (bonds and equities) and exchange-traded derivatives. If there are no liquid market prices available, the exposures are measured with customary valuation models using predominantly observable market data (marked-to-model). Calibration of the valuation models to observable market data ensures that measurement reflects the market. The extent of unobservable market parameters that influence value is always kept as small as possible in the measurement. Generally, unobservable market parameters are derived from similar instruments or data that is not observable on a daily basis. As a rule, they are included in the calculation of gains and losses with an adjustment to the instrument's measurement that is appropriate to the degree of imprecision in the measurement. A description of the valuation methods and measurement adjustments can be found in the notes to the financial statements in DZ BANK's Annual Report, part E 'Financial instruments and fair value disclosures' in the 'Fair value measurements within Levels 2 and 3' section.

Pursuant to articles 34 and 105 CRR and Delegated Regulation (EU) No. 2016/101, DZ BANK calculates regulatory write-downs for all exposures recognized at fair value in accordance with the core approach and deducts them from Common Equity Tier 1 capital. Measurement is based on the methods and models used to measure fair value under commercial law; measurement uncertainties relating to market prices, market parameters, and model selection are reflected by taking the 90 percent quantile into account. Additional write-downs for operational risk, future administrative expenses, and exposure concentrations are recognized in accordance with the prescribed methodology and deducted from Tier 1 capital.

8.3 Market risk under the Standardized Approach

(ARTICLE 445 CRR)

Fig. 66 contains the disclosures on the capital requirements for market risk according to article 92 (3) letters b and c CRR under the Standardized Approach. The capital requirement for specific interest-rate risk relating to securitization exposures pursuant to article 445 sentence 2 CRR is also disclosed here.

Fig. 66 – EU MR1 – MARKET RISK UNDER THE STANDARDIZED APPROACH

		Dec. 31, 2017	
		a	b
€ million		RWAs	Capital requirements
	Outright products		
1	Interest-rate risk (general and specific)	29	2
2	Equity risk (general and specific)	0	0
3	Currency risk	1,354	108
4	Commodity risk	10	1
5	**Options**		
6	Simplified approach	0	0
7	Delta-plus method	-	-
8	Scenario approach	-	-
9	**Securitization (specific risk)**	97	8
10	**Total**	**1,491**	**146**

Currency risk rose significantly compared with December 31, 2016. The increase was due to currency risk attaching to investment funds being included in the look-through approach for the first time.

8.4 Internal market risk model

8.4.1 Qualitative information on the internal market risk model

(ARTICLE 455 SENTENCE 1 LETTERS A (I) AND B CRR)

Following the amalgamation of the portfolios of the former WGZ BANK and the pre-merger DZ BANK into DZ BANK portfolios, the model approved by BaFin for calculating the regulatory capital requirements for general and specific market risk pursuant to the CRR is now used for all portfolios of DZ BANK. Once the portfolios had been migrated, the former WGZ BANK's internal model was discontinued.

DZ BANK's internal model is used to calculate **value-at-risk** and **stressed value-at-risk** (crisis risk amount) on a daily basis with a unilateral confidence level of 99.00 percent over a one-year observation period and a holding period of 10 trading days. A historical simulation is used to generate market data scenarios.

DESCRIPTION OF THE CRISIS SCENARIOS USED, PURSUANT TO ARTICLE 455 SENTENCE 1 LETTER A (III) CRR

Risks arising from extreme market situations are primarily recorded using **stress tests**. The crisis scenarios underlying the stress tests for market risk and market liquidity risk include the simulation of significant fluctuations in risk factors and serve to highlight potential losses not generally recognized in the value-at-risk approach. Stress tests are based on extreme market fluctuations that have actually occurred in the past together with crisis scenarios that – regardless of market data history – are considered to be relevant. The crisis scenarios used in this case are constantly reviewed and updated to ensure they are appropriate. Reverse stress tests are also used to identify scenarios that could pose a potential threat to the institution.

Additional default and migration risk (incremental risk charge)

(ARTICLE 455 SENTENCE 1 LETTER A (II) CRR)

Since December 2011, DZ BANK has been using an internal risk model approved by the supervisory authority to determine the capital requirements related to the additional default and migration risk in the trading book (incremental risk charge, IRC). In this model, sudden market changes arising from rating migrations or default by an issuer are specifically factored into the regulatory risk calculation. Potential losses from migrations and defaults are measured on the basis of a one-sided prediction interval with a confidence level of 99.90 percent and a prediction horizon of one year. A factor-based portfolio model is used. Calculations assume a constant risk position over the forecast period.

Measurement undertaken independently of the trading function, and model validation

(ARTICLE 455 SENTENCE 1 LETTERS A (IV) AND G CRR)

Independently of the trading function, exposures are measured daily using current market parameters. To this end, the market data is largely collected by Risk Controlling itself and the **measurement methods and models** are developed largely independently of the trading units and validated entirely independently. An independent price verification process takes place where market parameters are not used independently of the trading function. Any discrepancies identified through comparison with data from external suppliers of market data are recognized as a valuation reserve.

The internal market risk model is subject to continuous operational review as part of standard processes. The review is carried out by market risk control using analyses of the value-at-risk and evaluations of the backtesting and stress test results.

In addition, the internal market risk model is audited regularly by internal audit during annual audits. Refinements to the model are reported monthly to the Board of Managing Directors of DZ BANK.

At least once a year, an enhanced review of the model (appropriateness test) is carried out, including a comprehensive analysis of time series, parameterization, stress test scenarios, processes, and a review of the time period for calculating the stressed value-at-risk. This analysis includes technical elements, such as delivery times and the quality of the value-at-risk figure, and statistical figures, for example backtesting anomalies in the value-at-risk and quantile time series at different portfolio levels.

Market risk model validation consists of five key components: daily risk analysis, daily backtesting, monthly validation, risk self-assessment, and the annual appropriateness test.

Validation governance stipulates that the results of the daily risk analysis and backtesting are used to compile a monthly validation report, with additional analysis and validation as required, and communicated to the Board of Managing Directors.

The results of the monthly validations are aggregated in the annual appropriateness test, which also includes an assessment of the processes connected with the preparation of key risk indicators, analysis of the stress tests implemented, statistical tests to check the predictive quality of the risk model, and portfolio-level examination of anomalies (if they have not already been noted in the monthly reports).

The risk self-assessment is carried out once a year, or whenever required, with the aim of creating a standard, structured list of known failings in the market risk model, setting logical validation priorities, and defining and monitoring improvement measures.

Required disclosures on the use of VaR models and sVaR models

(ARTICLE 455 SENTENCE 1 LETTERS A (I), (III), (IV) AND B CRR)

Within the DZ BANK banking group, only DZ BANK has a **market risk model** that has been approved by the supervisory authority. The other entities use the **Standardized Approach**.

Portfolio and market data is updated each trading day. Risk is measured using a historical simulation for a 250-day, equally weighted review period. In the context of risk measurement, financial instruments are mostly remeasured in full.

The **VaR model** used for regulatory purposes is also used for internal management, largely using the same methods and processes. The only differences in the VaR model used for internal management are as follows:

- The holding period used is shorter (1 day, 99 percent quantile).
- All asset classes are taken into account, including in the banking book.
- Separate equity event risk is ignored.
- Differences may arise in relation to add-ons or buffers for risks that are not contained in the model.

Risk factor changes are directly derived from 10-day changes observed in the past.

An integrated view of the general and specific risk factors is taken in the historical scenarios.

Risk factors are generally varied on a relative basis unless it is acceptable to assume negative values. Therefore all interest-rate and spread risk factors, in particular, are varied on an absolute basis.

The **sVaR model** uses the same methods and processes as the VaR model. Only the historical market data from the stress period is fed into the sVaR model. The stress period chosen was August 25, 2008 to August 7, 2009 because, in the entire historical period since October 2007, this gives the biggest value for the 99 percent quantile for DZ BANK's current portfolio. The stress period is reviewed in the first quarter of each year using a complete historical simulation from October 2007 to the review date in question.

Required disclosures on the use of an IRC model for determining the capital requirement

(ARTICLE 455 SENTENCE 1 LETTER A (II) (III), AND (IV) CRR)

To determine the additional default and migration risk (IRC), a portfolio model is used in which credit rating changes are determined depending on systematic risk factors and using credit rating transition matrices. The

credit rating transition matrices, the factor weightings, and the correlations between the systematic risk factors are derived from detailed data supplied by the major rating agencies on migrations and defaults and using established procedures. A constant risk position up to the prediction horizon of one year is assumed, i.e. no individual liquidity horizon is required. The modeling covers DZ BANK's entire trading book, although securitizations and the CTP are explicitly excluded. The risk measure is the gain and loss distribution of the value-at-risk generated by the model with a confidence level of 99.9 percent.
An extensive program of stress testing is regularly conducted for the model. The stress tests include, but are not limited to, analysis of concentration risk, the correlation parameters, and credit rating transition matrices as well as macroeconomic scenarios and their impact on additional default and migration risk.

An annual appropriateness test is conducted on the model for determining the additional default and migration risk. The main aspects covered by this test are as follows:

– Adequacy of the model design and numerical procedures used
– Influence of single borrower concentrations and systematic risk concentrations
– Appropriateness of the correlation assumptions, the credit rating transition matrices, the LGD rates, and the modeling of recovery risk
– Analysis of the stress tests implemented
– Quality of the processes relating to risk reporting
– Appropriateness of the model documentation and compliance with the regulatory requirements.

Required disclosures on the use of internal models for correlation activities for determining the capital requirement

(ARTICLE 455 SENTENCE 1 LETTER A (II) CRR)

The DZ BANK banking group does not use internal models for correlation activities for determining the capital requirement.

8.4.2 Quantitative information on the internal market risk model

(ARTICLE 455 SENTENCE 1 LETTER E CRR)

The capital requirement for market risk at DZ BANK is determined using the internal market risk model described in section 8.3.1. This is based on a historical simulation with a holding period of 10 trading days and an observation period of one year; the following risk factor classes are examined for all subportfolios of DZ BANK: interest rates, spreads, equities, foreign currencies, and commodities.

Fig. 67 shows the components of the capital requirement under the internal models approach for market risk.

Fig. 67 – EU MR2-A – MARKET RISK UNDER THE INTERNAL MODELS APPROACH

	Dec. 31, 2017	a	b
	€ million	RWAs	Capital requirements
1	**VaR (higher of values 1a) and 1b))**	**627**	**50**
(a)	Previous day's VaR (article 365 (1) CRR (VaR t-1))	177	14
(b)	Average of the daily VaR (article 365 (1) CRR) on each of the preceding 60 business days (VaRavg) x multiplication factor (mc) in accordance with article 366 CRR	627	50
2	**sVaR (higher of values 2a) and 2b))**	**3,774**	**302**
(a)	Latest SVaR (article 365 (2) CRR (sVaR t-1))	974	78
(b)	Average of the daily sVaR (article 365 (2) CRR) on each of the preceding 60 business days (sVaRavg) x multiplication factor (ms) in accordance with article 366 CRR	3,774	302
3	**IRC (higher of values a) and b))**	**886**	**71**
(a)	Most recent IRC value (additional default and migration risks calculated in accordance with articles 370 and 371 CRR)	824	66
(b)	Average of the IRC number over the preceding 12 weeks	886	71
4	**Internal model for correlation trading activities (higher of values a), b), and c))**	-	-
(a)	Most recent risk number for the correlation trading portfolio (article 377 CRR)	-	-
(b)	Average of the risk number for the correlation trading portfolio over the preceding 12 weeks	-	-
(c)	8% of the capital requirements in the Standardized Approach on the most recent risk number for the correlation trading portfolio (article 338 (4) CRR)	-	-
5	**Other**	-	-
6	**Total**	**5,287**	**423**

Fig. 68 is a flow statement explaining variations in the RWAs for market risk. The RWAs are derived from the internal models approach (IMA, e.g. VaR, sVaR) and have to be determined in accordance with Part 3 Title IV Chapter 5 CRR (IMA).

Fig. 68 – EU MR2-B – RWA FLOW STATEMENTS OF MARKET RISK EXPOSURES UNDER THE IMA

		a	b	c	d	e	f	g
	€ million	VaR	sVaR	IRC	Internal model for correlation trading activities	Other	Total risk-weighted assets (RWAs)	Total capital requirements
1	**RWAs as of the end of the previous quarter**	**611**	**3,495**	**1,004**	**.**	**.**	**5,110**	**409**
1(a)	Regulatory adjustment	-471	-2,817	-	-	-	-3,288	-263
1(b)	RWAs as of the end of the previous quarter	140	678	1,004	-	-	1,821	146
2	**Movement in risk levels**	**36**	**287**	**-180**	**-**	**-**	**143**	**11**
3	Model updates/changes	-	-	-	-	-	-	-
4	Methodology and policy	-	-	-	-	-	-	-
5	**Acquisitions and disposals**	-	-	-	-	-	-	-
6	Foreign exchange movements	1	9	-	-	-	10	1
7	Other	-	-	-	-	-	-	-
8(a)	RWAs as of the end of the reporting period (end of the day)	177	974	824	-	-	1,974	158
8(b)	Regulatory adjustment	451	2,800	61	-	-	3,312	265
8	**RWAs as of the end of the reporting period**	**627**	**3,774**	**886**	**-**	**-**	**5,287**	**423**

Further quantitative disclosures
(ARTICLE 455 SENTENCE 1 LETTERS D, G, AND F CRR)

The value-at-risk for portfolios in the trading book, for which the capital requirement is determined using the internal modeling approach in accordance with section 363 et seq. CRR, and the potential stressed value-at-risk are disclosed in Fig. 69.

This table also shows the extent of the additional default and migration risk measured in relation to the total trading book and in relation to the relevant subportfolios as specified in articles 372 to 376 CRR. As in the previous year, this calculation is based on the assumption of a constant exposure over a risk horizon of one year. This disclosure is pursuant to article 455 sentence 1 letter f CRR.

FIG. 69 – EU MR3 – IMA VALUES FOR TRADING PORTFOLIOS

€ million		
VaR (10 days, 99%)		
1	Maximum value	16
2	Average value	7
3	Minimum value	5
4	Period end	9
sVaR (10 days, 99%)		
1	Maximum value	123
2	Average value	51
3	Minimum value	26
4	Period end	63
IRC (99%)		
1	Maximum value	115
2	Average value	85
3	Minimum value	59
4	Period end	66
Internal model for correlation trading activities		
1	Maximum value	-
2	Average value	-
3	Minimum value	-
4	Period end	-

In accordance with article 455 (1) letter a CRR, the VaR and sVaR are allocated to interest-rate, currency, equity, commodity, and credit spread risk as shown below.

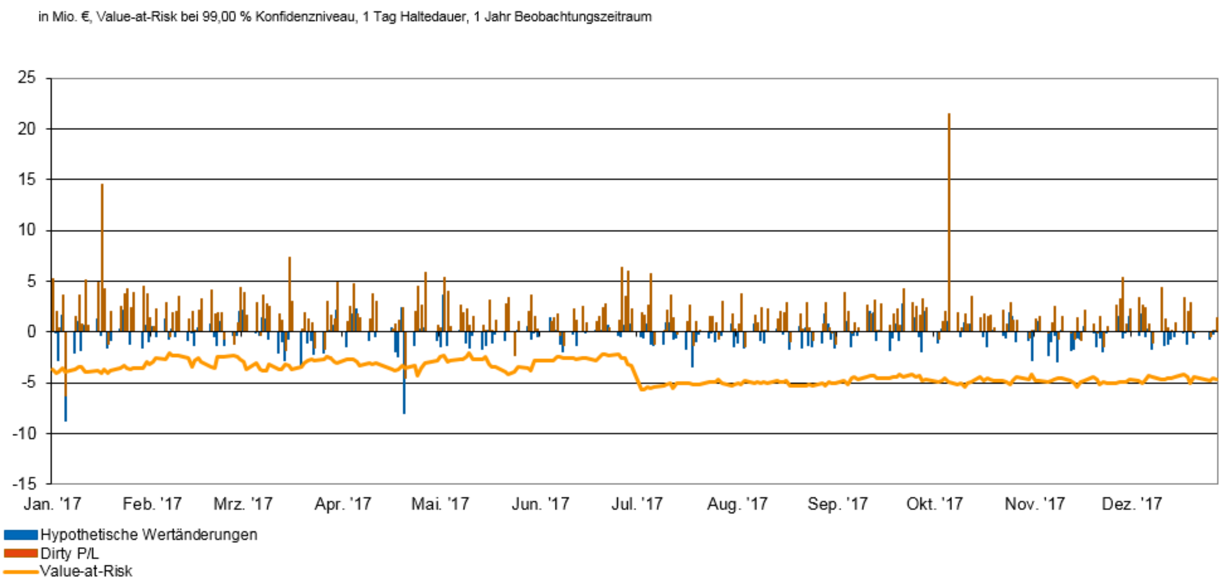
Fig. 70 – IMA VALUES FOR EACH SUBPORTFOLIO

€ million		Total VaR	Interest-rate VaR	Currency VaR	Equity VaR	Commodity VaR	Credit spread VaR
VaR (10 days, 99%)							
1	Maximum value	16	8	9	14	2	17
2	Average value	7	5	6	4	1	7
3	Minimum value	5	3	4	1	0	2
4	Period end	9	5	4	5	1	2
sVaR (10 days, 99%)							
1	Maximum value	123	58	37	58	9	77
2	Average value	51	23	23	22	3	60
3	Minimum value	26	9	6	5	1	45
4	Period end	63	17	9	16	4	65

The disclosures on backtesting pursuant to article 455 sentence 1 letter g CRR are shown in Fig. 71.

The disclosures on value-at-risk and hypothetical changes in fair value in the opportunity and risk report (see fig. 46 in section 10.7.2 of that report), which are comparable with the disclosures in Fig. 71, relate to DZ BANK's trading portfolios and therefore reflect the way in which the portfolios are delineated for internal management purposes. Differences in the scope of application have resulted in discrepancies between the values disclosed in the two risk reports.

Fig. 71 – EU MR4 – COMPARISON OF VAR ESTIMATES FOR MARKET RISK IN THE TRADING BOOK AND CURRENCY RISK AND COMMODITY RISK IN THE BANKING BOOK UNDER THE INTERNAL MODELING APPROACH AND HYPOTHETICAL CHANGES IN FAIR VALUE WITH GAINS/LOSSES AT DZ BANK



The hypothetical and actual changes in fair value, which also reflect all reserves, exceeded the forecast risk value on two trading days in 2017: by €4.9 million/€2.4 million on January 6 and by €3.5 million/€0.9 million on April 21. Both of these overruns were due to marked changes in market parameters. The number of overruns was within expectations.

8.5 Interest-rate risk on exposures not included in the trading book

(ARTICLE 448 SENTENCE 1 LETTER A CRR, BAFIN CIRCULAR 11/2011)

At DZ BANK, interest-rate risk in the banking book mainly arises in the cover pool, from loans eligible as cover assets, from funding and money market business, from unsecured issuance activity, the unsecured funding business, the lending business, in the liquidity pool, in the investment book, from the ABS exposures, and from the management of the Tier 1 and Tier 2 capital of DZ BANK and the banking group.

DZ BANK does not use any approaches for modeling customer behavior with an impact on interest-rate risk – particularly assumptions about early repayment of loans and behavior relating to open-ended deposits..

DZ BANK consciously takes on these risks, calculates them daily, and takes them into account in its risk-bearing capacity.

When calculating interest-rate risk, the DZ BANK banking group distinguishes between trading portfolios and non-trading portfolios. Interest-rate risk is measured as part of an integrated process. Specific information on the calculation of interest-rate exposure in the trading book and banking book in conjunction with article 448 sentence 1 letter a CRR, including the type of interest-rate risk, key assumptions made, and frequency of risk measurement, is disclosed in section 10.4 (pages 135 to 138) of the opportunity and risk report.

Article 448 sentence 1 letter b CRR requires disclosure of the interest-rate exposure in the banking book. DZ BANK calculates this exposure as a value-at-risk figure at banking group level as part of its internal management of market risk.

The DZ BANK banking group's interest-rate risk in the banking book and trading book as determined using the method specified by senior management is disclosed in the opportunity and risk report (see section 10.7, page 139).

From a regulatory perspective, the impact of interest-rate shocks on the economic value of the banking book is simulated on a quarterly basis. The supervisory authority has set the changes in interest rates to be used at plus 200 basis points (rising interest rates) and minus 200 basis points (falling interest rates), both being a parallel shift of the interest-rate curve. At the end of 2017, a potential gain of €252 million was calculated for the plus 200 basis points scenario (potential loss of €247 million at the end of 2016) and a potential loss of €269 million was calculated for the minus 200 basis points scenario (potential loss of €250 million at the end of 2016). These figures include the DZ BANK banking group's exposures. Fig. 72 below shows the changes in present values broken down by main currencies.

Fig. 72 – INTEREST-RATE RISK IN THE BANKING BOOK

Interest-rate shock on trade date				
Gain and loss (€ million)	**Fall in interest rates (– 200bp)**		**Rise in interest rates (+ 200bp)**	
Currency	**Dec. 31, 2017**	Dec. 31, 2016	**Dec. 31, 2017**	Dec. 31, 2016
EUR	-301	-255	258	-270
USD	53	32	-41	-16
GBP	-42	-35	60	54
CHF	19	2	-24	-10
Other	2	6	-1	-5
Total	**-269**	**-250**	**252**	**-247**

Some of the entities in the DZ BANK banking group use behavior-based models to measure interest-rate risk. They help to accurately reflect the optionalities in traditional lending business and in home savings deposits business. Examples of these include options for drawing down loans or credit lines, termination options, and special repayment options and other options. Behavior-based models are mainly used in the BSH and TeamBank management units. Contractual and statutory termination rights are generally taken into account in the modeling of loans. A holding period of one day is assumed for open-ended deposits in DZ BANK's market risk model, while BSH uses behavior-based modeling in the context of collective simulation.

9 Operational risk

(ARTICLE 435 (1) AND ARTICLE 446 CRR)

Operational risk is defined in section 2.3.2, fig. 7 and fig. 8 (page 70 to 72) of the opportunity and risk report.

The principles for the management of operational risk and the strategies and processes in respect of operational risk management (article 435 (1) CRR) are presented in section 14.2 (page 145) of the opportunity and risk report. Information on the structure and organization of the risk management function is provided in section 14.3 (page 145) of this report, while the scope and nature of the risk measurement systems are described in sections 14.3, 14.4.1, and 14.4.3 (pages 145 and 146) of the opportunity and risk report. Sections 14.4.3 and 14.4.4 (page 146) of the opportunity and risk report outline the strategies for hedging and mitigating operational risk as well as details of the strategies and processes for monitoring the ongoing effectiveness of the measures taken to hedge operational risk.

For the purposes of determining regulatory capital requirements, the potential loss arising from operational risk was primarily estimated at DZ BANK using the Standardized Approach in accordance with article 317 CRR. As of December 31, 2017, the banking group's capital requirements for operational risk amounted to €883.7 million.

Due to its definition, the 'gross income' indicator used in this approach enables only very limited risk-sensitive management of operational risk. In contrast, the operational-risk instruments 'internal and external loss data' and 'scenario-based risk self-assessments' used in the economic capital model show historical and future components of operational risk and, in conjunction with a risk-sensitive capital allocation, enable the economic measurement and management of operational risk.

In respect of the economic capital requirements, a statistical model is used for the management units that satisfies the criteria for an Advanced Measurement Approach (AMA). The results from this portfolio model, combined with the materiality limits for collation of loss data, scenario-based risk self-assessments, and risk indicators, are used to manage operational risk.

10 Reputational risk

(ARTICLE 435 (1) CRR)

Reputational risk is defined in section 2.3.2, fig. 7 (page 70) of the opportunity and risk report.

The principles for the management of reputational risk and the strategies and processes in respect of reputational risk management (article 435 (1) CRR) are presented in sections 13.2 and 13.4 (page 144) of the opportunity and risk report. The structure and organization of the reputational risk management function are described in section 13.2 (page 144) of the opportunity and risk report. Details of the scope and nature of the reputational risk measurement systems, the strategies for hedging and mitigating reputational risk, and the monitoring thereof can be found in section 13.3 (page 144) of the opportunity and risk report.

11 Risk on long-term equity investments not included in the trading book

11.1 Management of risks regarding long-term equity investments

(ARTICLE 435 (1) CRR)

Objectives and principles as well as strategies and methods underlying the management of risks regarding long-term equity investments held in the banking book are described in section 9 (pages 132 to 133) of the opportunity and risk report. In section 9.1 (page 132) of the opportunity and risk report, equity investment risk is defined as the risk of losses arising from negative changes in the fair value of that part of the long-term equity investments portfolio for which the risks are not included in other types of risk.

Equity investment risk arises primarily at DZ BANK, BSH, and DVB.

11.2 Accounting policies applied to long-term equity investments

(ARTICLE 447 (1) LETTER A CRR)

Long-term equity investments and shares in affiliated companies are measured at amortized cost or, if expected to be permanently impaired, at the lower of cost and fair value. If the reasons for a previous write-down no longer exist, the write-down is reversed so that the asset is measured at fair value. However, the reversal must not result in a carrying amount higher than the original cost.

International Accounting Standard (IAS) 39 applies to shareholdings that are neither fully consolidated nor recognized under the equity method at DZ BANK. These investments are classified as available-for-sale financial instruments and recognized at their fair value in accordance with IAS 39.9. Any fluctuations in fair value arising from the fair value measurement subsequent to initial recognition are taken to other comprehensive income and recognized in the revaluation reserve. If an investment is permanently impaired (impairment) as defined in IAS 39.58 et seq., an impairment loss is recognized in income. Reversals of impairment losses previously recognized in income are taken to other comprehensive income and recognized in the revaluation reserve. The fair value of investments is measured at the end of each month. The relevant closing share price at the reporting date is used to measure the fair value of publicly traded investments held in the banking book.

The enterprise value of long-term equity investments that are not publicly traded is determined by discounting their future financial surpluses as of the measurement date. The figure used to determine the discount rate is the return on a risk-free capital market investment. A risk premium is added to this base interest rate to reflect the greater uncertainty about the level of future financial surpluses associated with an investment in shares of the company being measured compared with an investment in a risk-free interest-bearing security. The relevant beta factor (multiplier that expresses company-specific and industry-specific risk in relation to general market risk) is individually determined using an appropriate benchmarking method based on listed peer companies.

The enterprise values of companies at which a transaction has recently taken place are validated on the basis of the transaction price. If, rather than pursuing any (direct) financial objectives, the company in question focuses on providing services or promoting the public good (for example in the case of guarantee banks), the net asset value of this company as a going concern should be calculated instead. Alternatively, the value of the pro-rata equity available can be used. Real-estate finance companies are subjected to a property-related measurement.

11.3 Long-term equity investment exposures held in the banking book

(ARTICLE 447 SENTENCE 1 LETTERS B TO E CRR)

The equity investment risk of exposures disclosed in Fig. 73 distinguishes the carrying amounts under commercial law from the current market value of these exposures. The recognition of unrealized gains and losses on long-term equity investments in the DZ BANK banking group's own funds is shown in Fig. 74.

The regulatory report on investments held in the banking book covers conventional investments as well as securities, derivatives on investment exposures, and investment funds. The DZ BANK banking group recognizes the investment funds held in its banking book using the transparency method and breaks them down into the primary exposure classes of the individual investment fund units. These exposures are therefore included in the Standardized Approach to credit risk and IRBA tables rather than the equity investment risk tables. The equity exposures in the investment funds are classified with a risk weighting of 100 percent under the Standardized Approach to credit risk (see Fig. 31; under the IRB approach, they fall into the long-term equity investments exposure class (see Fig. 38 and Fig. 40)).

Fig. 73 shows the long-term equity investments in the banking book that are risk-weighted (and consequently not consolidated, either in full or on a pro-rata basis) or are subject to a capital deduction. These are broken down by groups of equity exposures and various carrying amounts. The classification of investments is based on the financial nature of the equity exposure concerned. The carrying amount is the carrying amount determined in accordance with IFRS. The exposures shown as 'traded equity investments' are those that are listed on a stock exchange. The market value is defined as the cash settlement price of the investment at the reporting date.

Fig. 73 – MEASUREMENT OF EQUITY EXPOSURES

€ million	IFRS carrying amount		Fair value		Market value	
Category of equity exposure	**Dec. 31, 2017**	Dec. 31, 2016	**Dec. 31, 2017**	Dec. 31, 2016	**Dec. 31, 2017**	Dec. 31, 2016
Investments in credit institutions	57	29	54	29	0	0
of which: exchange traded	-	0	0	0	0	0
not exchange traded but part of a diversified portfolio	57	25	54	25	-	-
Other	0	4	0	4	-	-
Investments in finance companies	331	53	217	45	-	0
of which: exchange traded	-	0	-	0	-	0
not exchange traded but part of a diversified portfolio	61	6	34	6	-	-
Other	270	47	183	39		
Investments in insurance companies	5,662	5,304	3,033	3,031	-	-
of which: exchange traded	-	-	-	-	-	-
not exchange traded but part of a diversified portfolio	5,658	5,301	3,029	3,028	-	-
Other	4	4	4	4	-	-
Investment funds held as investments in banking book	8	1,600	8	1,600	-	-
of which: exchange traded	-	-	-	-	-	-
not exchange traded but part of a diversified portfolio	7	-	7	-	-	-
Other	0	1,600	0	1,600	-	-
Investments in corporates	101	400	87	401	-	0
of which: exchange traded	-	0	-	0	-	0
not exchange traded but part of a diversified portfolio	51	33	36	33	-	-
Other	51	367	51	368	-	-
Total	**6,159**	**7,387**	**3,398**	**5,107**	**0**	**0**

Fig. 74 shows the realized and unrealized gains and losses arising from the long-term equity investments held in the banking book in accordance with IFRS. The table only includes equity investments that are risk-weighted and, consequently, are not fully or proportionately consolidated or are subject to a capital deduction.

The capital requirement related to equity exposures is included in Fig. 15. Consequently, no separate disclosure is provided.

Fig. 74 – REALIZED AND UNREALIZED GAINS AND LOSSES ON EQUITY EXPOSURES IN ACCORDANCE WITH IFRS

€ million	Realized gains and losses on disposals	Unrealized gains and losses on equity exposures: Total amount	Unrealized gains and losses on equity exposures: of which: amounts recognized in Tier 1 capital
Dec. 31, 2017	12	-2,761	-
Dec. 31, 2016	94	-2,281	-

12 Macroprudential regulatory measures

12.1 Countercyclical capital buffer

(ARTICLE 440 CRR)

In accordance with Delegated Regulation (EU) No. 2015/1555, information about compliance with the prescribed countercyclical capital buffer has had to be disclosed since December 31, 2016.

BaFin specifies the capital buffer rate for Germany, taking account of any recommendations made by the Ausschuss für Finanzstabilität [Financial Stability Committee]. BaFin did not see a need to increase Germany's countercyclical capital buffer rate for 2017, which therefore remained unchanged year on year at 0 percent.

The institution-specific countercyclical capital buffer provides an additional capital buffer consisting of Common Equity Tier 1 capital that is used to contain excessive growth in lending. It can be drawn on in times of crisis and is designed to stop banks limiting their lending too much. Since March 31, 2016, the capital buffer has had to be determined at the end of each quarter for each banking group individually. In accordance with section 10d (2) KWG, the banking-group-specific buffer rate is the weighted average of the ratios for the countercyclical capital buffers that apply in the following regions: member state, other countries in the European Economic Area, and in non-EEA countries as well as European and non-European countries, territories, and legal jurisdictions belonging to them in which the banking group's significant exposures are located (defined in accordance with section 36 SolvV). Fig. 75 shows the geographical distribution of the relevant credit risk exposures.

Fig. 76 shows the level of the banking-group-specific countercyclical capital buffer and the requirement under the transitional guidance.

For the calculation of the institution-specific countercyclical capital buffer as of December 31, 2017, a country-specific buffer rate of more than 0 percent was stipulated for the following six countries by their supervisory authority:

- Hong Kong: 2.50 percent
- Sweden: 2.00 percent
- Norway: 2.00 percent
- Czech Republic: 0.50 percent
- Iceland: 1.25 percent
- Slovakia: 0.50 percent.

The calculation for all other countries was based on a country-specific buffer rate of 0 percent. As of December 31, 2017, the institution-specific buffer rate, taking account of the applicable transitional provision pursuant to section 64r KWG, amounted to 0.021 percent (December 31, 2016: 0.023 percent taking account of the transitional provision). The capital requirement for the countercyclical capital buffer, calculated as the product of the institution-specific buffer rate and the total relevant exposures, came to approximately €27 million (December 31, 2016: approximately €27 million).

Fig. 75 – GEOGRAPHICAL DISTRIBUTION OF THE CREDIT EXPOSURES RELEVANT TO THE CALCULATION OF THE COUNTERCYCLICAL CAPITAL BUFFER

In column 120 of this table, the dash ‘ - ’ means either ‘no figure available’ or ‘capital buffer rate of 0 percent’.

		General credit risk exposures		Exposures in the trading book		Securitization exposures		Capital requirements						
	€ million	Exposure (CRSA)	Exposure (IRB)	Total long and short positions in the trading book	Value of the exposure in the trading book (internal models)	Exposure (CRSA)	Exposure (IRB)	of which: general credit risk exposures	of which: exposures in the trading book	of which: securitization exposures	Total	Weighting of capital requirements	Rate of the countercyclical capital buffer as of Dec. 31, 2017 (%)	Rate of the countercyclical capital buffer as of Dec. 31, 2016 (%)
		010	020	030	040	050	060	070	080	090	100	110	120	120
010	Breakdown by country													
	Germany	9,402	59,880	27	2,069	26	150	7,306	166	15	**7,488**	0.77	-	-
	Egypt	-	12	-	-	-	-	0	-	-	**0**	0.00	-	-
	Ethiopia	1	-	-	-	-	-	0	-	-	**0**	0.00	-	-
	Algeria	-	-	-	-	-	-	0	-	-	**0**	0.00	-	-
	Andorra	0	0	-	-	-	-	0	-	-	**0**	0.00	-	-
	Angola	-	-	-	-	-	-	0	-	-	**0**	0.00	-	-
	Argentina	3	-	-	-	-	-	0	-	-	**0**	0.00	-	-
	Armenia	3	-	-	-	-	-	0	-	-	**0**	0.00	-	-
	Azerbaijan	-	-	-	-	-	-	0	-	-	**0**	0.00	-	-
	Australia	0	615	1	-	25	-	32	0	9	**41**	0.00	-	-
	Bahamas	-	148	-	-	-	-	1	-	-	**1**	0.00	-	-
	Bahrain	0	37	-	-	-	-	1	-	-	**1**	0.00	-	-
	Bangladesh	3	-	-	-	-	-	0	-	-	**0**	0.00	-	-
	Barbados	-	-	-	-	-	-	0	-	-	**0**	0.00	-	-
	Belgium	94	243	1	-	-	-	15	0	-	**16**	0.00	-	-
	Bermuda	0	870	-	-	-	-	26	-	-	**26**	0.00	-	-
	Bolivia	0	-	-	-	-	-	0	-	-	**0**	0.00	-	-
	Bosnia and Herzegovina	0	-	-	-	-	-	0	-	-	**0**	0.00	-	-
	Botswana	0	-	-	-	-	-	0	-	-	**0**	0.00	-	-
	Brazil	4	115	-	-	-	-	14	-	-	**14**	0.00	-	-
	British Virgin Islands	9	279	-	-	-	-	4	-	-	**4**	0.00	-	-
	Bulgaria	0	8	-	-	-	-	1	-	-	**1**	0.00	-	-
	Cayman Islands	9	1,052	-	-	2	44	34	-	8	**41**	0.00	-	-
	Chile	0	91	-	-	-	-	0	-	-	**0**	0.00	-	-
	China	11	272	-	-	-	-	32	-	-	**32**	0.00	-	-
	Cook Islands	55	1,004	-	-	-	-	79	-	-	**79**	0.01	-	-
	Costa Rica	0	-	-	-	-	-	0	-	-	**0**	0.00	-	-
	Curaçao	0	3	-	-	-	-	0	-	-	**0**	0.00	-	-
	Denmark	0	361	-	-	-	5	17	-	0	**17**	0.00	-	-
	Dominica	-	-	-	-	-	-	0	-	-	**0**	0.00	-	-
	Dominican Republic	0	-	-	-	-	-	0	-	-	**0**	0.00	-	-
	Ecuador	-	0	-	-	-	-	0	-	-	**0**	0.00	-	-
	Côte d’Ivoire	-	-	-	-	-	-	0	-	-	**0**	0.00	-	-
	El Salvador	0	-	-	-	-	-	0	-	-	**0**	0.00	-	-
	Estonia	-	-	-	-	-	-	0	-	-	**0**	0.00	-	-
	Faroe Islands	-	10	-	-	-	-	0	-	-	**-**	-	-	-
	Finland	40	72	-	-	-	-	9	-	-	**9**	0.00	-	-
	France	114	1,203	34	-	20	-	74	0	0	**75**	0.01	-	-
	Gabon	-	-	-	-	-	-	0	-	-	**0**	0.00	-	-
	Georgia	-	-	-	-	-	-	0	-	-	**0**	0.00	-	-
	Ghana	-	4	-	-	-	-	0	-	-	**0**	0.00	-	-
	Greece	4	112	-	-	-	-	3	-	-	**3**	0.00	-	-
	United Kingdom	433	1,670	161	-	435	103	109	3	16	**127**	0.01	-	-
	Guatemala	-	-	-	-	-	-	0	-	-	**0**	0.00	-	-
	Guernsey	7	31	-	-	-	8	2	-	0	**2**	0.00	-	-
	Honduras	-	-	-	-	-	-	0	-	-	**0**	0.00	-	-
	Hong Kong	65	522	-	2	-	-	8	0	-	**9**	0.00	0.025	0.025
	India	101	486	-	-	-	-	9	-	-	**9**	0.00	-	-
	Indonesia	99	14	-	-	-	-	1	-	-	**1**	0.00	-	-
	Iraq	-	-	-	-	-	-	0	-	-	**0**	0.00	-	-

		General credit risk exposures		Exposures in the trading book		Securitization exposures		Capital requirements						
	€ million	Exposure (CRSA)	Exposure (IRB)	Total long and short positions in the trading book	Value of the exposure in the trading book (internal models)	Exposure (CRSA)	Exposure (IRB)	of which: general credit risk exposures	of which: exposures in the trading book	of which: securitization exposures	Total	Weighting of capital requirements	Rate of the countercyclical capital buffer as of Dec. 31, 2017 (%)	Rate of the countercyclical capital buffer as of Dec. 31, 2016 (%)
		010	020	030	040	050	060	070	080	090	100	110	120	120
010	Breakdown by country													
	Iran	0	5	-	-	-	-	0	-	-	0	0.00	-	-
	Ireland	17	2,107	117	-	104	532	55	1	41	97	0.01	-	-
	Iceland	-	-	-	-	-	-	0	-	-	0	0.00	0.0125	-
	Isle of Man	0	233	-	-	-	-	2	-	-	2	0.00	-	-
	Israel	-	39	-	-	-	-	0	-	-	0	0.00	-	-
	Italy	38	115	91	-	78	9	26	1	3	30	0.00	-	-
	Jamaica	-	-	-	-	-	-	0	-	-	0	0.00	-	-
	Japan	0	622	-	-	-	-	10	-	-	10	0.00	-	-
	Jersey	5	224	-	-	-	1,517	6	-	54	61	0.01	-	-
	Jordan	-	53	-	-	-	-	1	-	-	1	0.00	-	-
	Cameroon	-	-	-	-	-	-	0	-	-	0	0.00	-	-
	Canada	120	552	-	-	-	-	23	-	-	23	0.00	-	-
	Kazakhstan	0	-	-	-	-	-	0	-	-	0	0.00	-	-
	Qatar	14	78	-	-	-	-	6	-	-	6	0.00	-	-
	Kenya	0	-	-	-	-	-	0	-	-	0	0.00	-	-
	Colombia	-	12	-	-	-	-	0	-	-	0	0.00	-	-
	Croatia	2	-	-	-	-	-	0	-	-	0	0.00	-	-
	Cuba	-	-	-	-	-	-	0	-	-	0	0.00	-	-
	Kuwait	-	39	-	-	-	-	1	-	-	1	0.00	-	-
	Latvia	0	-	-	-	-	-	0	-	-	0	0.00	-	-
	Lebanon	0	-	-	-	-	-	0	-	-	0	0.00	-	-
	Liberia	37	1,314	-	-	-	-	35	-	-	35	0.00	-	-
	Liechtenstein	0	7	-	-	-	-	0	-	-	0	0.00	-	-
	Lithuania	0	-	-	-	-	-	0	-	-	0	0.00	-	-
	Luxembourg	826	3,094	70	-	163	166	217	3	3	223	0.02	-	-
	Malaysia	3	69	-	-	-	-	2	-	-	2	0.00	-	-
	Malta	2	502	-	-	-	-	20	-	-	20	0.00	-	-
	Morocco	-	-	-	-	-	-	0	-	-	0	0.00	-	-
	Marshall Islands	64	4,189	-	-	-	-	81	-	-	81	0.01	-	-
	Mauritius	0	-	-	-	-	-	0	-	-	0	0.00	-	-
	Macedonia	-	-	-	-	-	-	0	-	-	0	0.00	-	-
	Mexico	9	116	-	-	-	-	15	-	-	15	0.00	-	-
	Mongolia	-	0	-	-	-	-	0	-	-	0	0.00	-	-
	Montenegro	-	-	-	-	-	-	0	-	-	0	0.00	-	-
	Myanmar	-	4	-	-	-	-	0	-	-	0	0.00	-	-
	Namibia	1	-	-	-	-	-	0	-	-	0	0.00	-	-
	New Zealand	18	49	-	-	-	-	2	-	-	2	0.00	-	-
	Netherlands	762	1,924	59	-	161	20	168	1	8	177	0.02	-	-
	Nigeria	-	33	-	-	-	-	5	-	-	5	0.00	-	-
	Norway	1	1,311	-	1	-	-	56	0	-	56	0.01	0.020	0.015
	Oman	-	30	-	-	-	-	2	-	-	2	0.00	-	-
	Austria	91	853	2	-	2	-	68	-	0	68	0.01	-	-
	Pakistan	-	-	-	-	-	-	0	-	-	0	0.00	-	-
	Panama	0	465	-	-	-	-	9	-	-	9	0.00	-	-
	Papua New Guinea	0	-	-	-	-	-	0	-	-	0	0.00	-	-
	Paraguay	1	-	-	-	-	-	0	-	-	0	0.00	-	-
	Peru	3	29	-	-	-	-	2	-	-	2	0.00	-	-
	Philippines	0	112	-	-	-	-	1	-	-	1	0.00	-	-
	Poland	66	95	-	-	-	-	12	-	-	12	0.00	-	-
	Portugal	68	27	28	-	30	-	9	-	2	11	0.00	-	-
	Rwanda	-	-	-	-	-	-	0	-	-	0	0.00	-	-
	Romania	-	50	-	-	-	-	1	-	-	1	0.00	-	-
	Russia	3	146	-	-	-	-	2	-	-	2	0.00	-	-
	Zambia	-	-	-	-	-	-	0	-	-	0	0.00	-	-
	Saint Kitts and Nevis	-	-	-	-	-	-	0	-	-	0	0.00	-	-

	€ million	General credit risk exposures		Exposures in the trading book		Securitization exposures		Capital requirements						
		Exposure (CRSA)	Exposure (IRB)	Total long and short positions in the trading book	Value of the exposure in the trading book (internal models)	Exposure (CRSA)	Exposure (IRB)	of which: general credit risk exposures	of which: exposures in the trading book	of which: securitization exposures	Total	Weighting of capital requirements	Rate of the countercyclical capital buffer as of Dec. 31, 2017 (%)	Rate of the countercyclical capital buffer as of Dec. 31, 2016 (%)
		010	020	030	040	050	060	070	080	090	100	110	120	120
010	Breakdown by country													
	Saudi Arabia	3	96	-	-	-	-	2	-	-	2	0.00	-	-
	Sweden	39	391	-	2	-	-	15	0	-	16	0.00	0.020	0.015
	Switzerland	119	611	-	-	-	-	41	-	-	41	0.00	-	-
	Senegal	-	-	-	-	-	-	0	-	-	0	0.00	-	-
	Serbia and Kosovo	-	-	-	-	-	-	0	-	-	0	0.00	-	-
	Zimbabwe	-	-	-	-	-	-	0	-	-	0	0.00	-	-
	Singapore	23	1,275	-	-	-	-	36	-	-	36	0.00	-	-
	Slovenia	-	2	-	-	-	-	0	-	-	0	0.00	-	-
	Slovakia	-	13	-	-	-	-	38	-	-	38	0.00	0.005	-
	Spain	60	124	18	-	625	3	23	0	90	113	0.01	-	-
	Sri Lanka	0	-	-	-	-	-	0	-	-	0	0.00	-	-
	South Africa	0	-	-	-	-	-	0	-	-	0	0.00	-	-
	South Korea	11	151	-	-	-	-	5	-	-	5	0.00	-	-
	Tajikistan	-	-	-	-	-	-	0	-	-	0	0.00	-	-
	Taiwan	-	-	-	-	-	-	0	-	-	0	0.00	-	-
	Tanzania	-	-	-	-	-	-	0	-	-	0	0.00	-	-
	Thailand	1	117	-	-	-	-	5	-	-	5	0.00	-	-
	Czech Republic	3	19	-	0	-	-	35	0	-	35	0.00	0.005	-
	Tunisia	0	-	-	-	-	-	0	-	-	0	0.00	-	-
	Turkey	73	395	-	-	-	-	6	-	-	6	0.00	-	-
	Turkmenistan	-	-	-	-	-	-	0	-	-	0	0.00	-	-
	Trinidad and Tobago	0	-	-	-	-	-	0	-	-	0	0.00	-	-
	Ukraine	1	-	-	-	-	-	0	-	-	0	0.00	-	-
	Hungary	0	48	-	-	-	-	41	-	-	41	0.00	-	-
	Uruguay	1	0	-	-	-	-	0	-	-	0	0.00	-	-
	USA	315	4,548	11	-	602	1,636	147	-	247	394	0.04	-	-
	Venezuela	1	-	-	-	-	-	0	-	-	0	0.00	-	-
	United Arab Emirates	7	113	-	-	-	-	5	-	-	5	0.00	-	-
	Vietnam	-	140	-	-	-	-	3	-	-	3	0.00	-	-
	Wallis and Futuna	-	-	-	-	-	-	0	-	-	0	0.00	-	-
	Belarus	-	-	-	-	-	-	0	-	-	0	0.00	-	-
	Cyprus	10	227	-	-	-	-	7	-	-	7	0.00	-	-
	Other countries	-	-	-	-	-	-	2	-	-	2	0.00	-	-
020	**Total**	**13,280**	**112,406**	**619**	**2,075**	**2,272**	**4,194**	**7,598**	**175**	**496**	**9,703**	**1.00**	**0.0875**	**0.055**

Fig. 76 – LEVEL OF THE INSTITUTION-SPECIFIC COUNTERCYCLICAL BUFFER

€ million	Amount of the institution-specific countercyclical capital buffer	Dec. 31, 2017	Dec. 31, 2016
010	Total exposure	131,567	118,462
020	Institution-specific countercyclical capital buffer rate (as a percentage of total exposure)	0.021	0.023
030	Institution-specific countercyclical capital buffer requirement	27	27

12.2 Indicators of global systemic importance

(ARTICLE 441 CRR)

The DZ BANK banking group's total exposure measure within the meaning of article 429 (4) CRR exceeds €200 billion. In accordance with section 10f (4) KWG, DZ BANK therefore is obliged to conduct an annual quantitative analysis of the indicators for determining global systemic importance on the basis of the technical standard EBA/ITS/2016/01 and to disclose the resulting values.

BaFin confirmed following its annual review pursuant to section 10g (2) KWG that DZ BANK continues to be classified as an 'other systemically important institution' (O-SII) with its note dated December 11, 2017. Fig. 77 below shows the key figures relevant for determining global systemic importance. They are disclosed on DZ BANK's website in the Investor Relations section under Reports.

Fig. 77 – KEY FIGURES FOR GLOBAL SYSTEMIC IMPORTANCE

Indicator	**Key figure**
Size	Total exposure
Interconnectedness	Intra-financial system assets
	Intra-financial system liabilities
	Securities outstanding
Substitutability /financial institution infrastructure	Payments activity (financial year)
	Assets under custody
	Underwritten transactions (financial year)
Complexity	Notional amount of OTC derivatives
	Trading and available-for-sale securities
	Level 3 assets
Cross-jurisdictional activity	Cross-jurisdictional claims
	Cross-jurisdictional liabilities

13 Leverage ratio

13.1 Leverage pursuant to the CRR framework

(ARTICLE 451 (1) LETTERS A, B, C, D, AND E CRR)

The **leverage ratio (LR)** shows the ratio of a banking group's or bank's Tier 1 capital to its total exposure and thus represents an additional, risk-neutral capital ratio.

In contrast to risk-based capital requirements for which the assumptions are derived from models, the individual exposures in the leverage ratio are not given their own risk weighting but are generally included in the total exposure without a weighting. The object is to limit leverage in the banking industry. A low leverage ratio therefore indicates a high level of debt in relation to Tier 1 capital. At the European level, it has not yet been decided whether a binding minimum ratio of 3 percent will be implemented as early as January 1, 2019. Additional graduated markups on the minimum ratio may potentially be introduced for global and other systemically important institutions and banking groups. This could affect DZ BANK as it is classified an other systemically important institution.

Disclosure is based on Delegated Regulation (EU) No. 2015/62 and Implementing Regulation (EU) No. 2016/200 and has been carried out at consolidated level. In accordance with article 499 (1) letter b CRR, the capital measure is based on Tier 1 capital, taking account of the transitional guidance (phase-in).

The DZ BANK banking group's leverage ratio pursuant to the CRR transitional guidance was 4.64 percent as of December 31, 2017 (June 30, 2017: 4.37 percent). Applying the CRR in full, the ratio was 4.38 percent (June 30, 2017: 4.11 percent). Fig. 78 shows the reconciliation of the total assets of the DZ BANK Group to the leverage ratio total exposure measure of the DZ BANK banking group.

Fig. 78 – SUMMARY RECONCILIATION OF ASSETS ON THE BALANCE SHEET TO THE LEVERAGE RATIO TOTAL EXPOSURE MEASURE

Summary reconciliation of total assets and total exposure measure		Applicable amounts	
€ million		Dec. 31, 2017	Jun. 30, 2017
1	Total assets as per published financial statements	505,594	513,358
2	Adjustment for entities that are consolidated for accounting purposes but are outside the scope of regulatory consolidation	-88,618	-86,471
3	Adjustment for trust assets recognized on the balance sheet pursuant to the applicable accounting framework but excluded from the leverage ratio total exposure measure in accordance with article 429 (13) of Regulation (EU) No. 575/2013	-	-
4	Adjustments for derivatives	-8,413	-12,343
5	Adjustments for securities financing transactions (SFTs)	344	299
6	Adjustment for off-balance-sheet items (i.e. conversion to credit equivalent amounts of off-balance-sheet exposures)	26,112	26,843
EU-6a	Adjustment for intragroup exposures excluded from the leverage ratio total exposure measure in accordance with article 429 (7) of Regulation (EU) No. 575/2013	-	-
EU-6b	Adjustment for exposures excluded from the leverage ratio total exposure measure in accordance with article 429 (14) of Regulation (EU) No. 575/2013	-	-
7	Other adjustments	-2,899	-1,066
8	**Leverage ratio total exposure measure**	**432,119**	**440,621**

Fig. 79 shows individual components of the total exposure measure, Tier 1 capital, and the DZ BANK banking group's resulting leverage ratio as of December 31, 2017, applying the CRR transitional guidance.

Fig. 79 – LEVERAGE RATIO COMMON DISCLOSURE

€ million

Leverage ratio exposures		Dec. 31, 2017	Jun. 30, 2017
On-balance-sheet exposures (excluding derivatives and SFTs)			
1	On-balance-sheet items (excluding derivatives, SFTs, and trust assets but including collateral)	386,419	392,929
2	Asset amounts deducted in determining Tier 1 capital	-785	-766
3	**Total on-balance-sheet exposures (excluding derivatives, SFTs, and trust assets) (sum of lines 1 and 2)**	**385,635**	**392,163**
Derivative exposures			
4	Replacement cost associated with all derivatives transactions (i.e. net of eligible cash variation margin)	6,738	7,491
5	Add-on amounts for PFE associated with all derivatives transactions (mark-to-market method)	9,859	9,097
EU-5a	Exposure determined under Original Exposure Method	-	-
6	Gross-up for derivatives collateral provided where deducted from the balance sheet assets pursuant to the applicable accounting framework	-	-
7	Deductions of receivables assets for cash variation margin provided in derivatives transactions	-5,777	-6,871
8	Exempted CCP leg of client-cleared SFT exposure	-1,035	-1,662
9	Adjusted effective notional amount of written credit derivatives	16,581	18,344
10	Adjusted effective notional offsets and add-on deductions for written credit derivatives	-12,659	-13,789
11	**Total derivatives exposures (sum of lines 4 to 10)**	**13,707**	**12,611**
SFT exposures			
12	Gross SFT assets (with no recognition of netting), after adjusting for sales accounting transactions	10,244	13,230
13	Netted amounts of cash payables and cash receivables of gross SFT assets	-	-
14	Counterparty credit risk exposure for SFT assets	344	328
EU-14a	Derogation for SFTs: Counterparty credit risk exposure in accordance with articles 429b (4) and 222 of Regulation (EU) No. 575/2013	-	-
15	Agent transaction exposures	-	-
EU-15a	Exempted CCP leg of client-cleared SFT exposure	-	-
16	**Total securities financing transaction exposures (sum of lines 12 to 15a)**	**10,588**	**13,559**
Other off-balance-sheet exposures			
17	Off-balance-sheet exposures at gross notional amount	60,729	59,219
18	Adjustments for conversion to credit equivalent amounts	-38,540	-36,931
19	Other off-balance-sheet exposures (sum of lines 17 and 18)	**22,189**	**22,288**
Exempted exposures in accordance with article 429 (14) of Regulation (EU) No. 575/2013 (on and off balance sheet)			
EU-19a	Intragroup exposures (solo basis) exempted in accordance with article 429 (7) of Regulation (EU) No. 575/2013 (on and off balance sheet)	-	-
EU-19b	Exempted exposures in accordance with article 429 (14) of Regulation (EU) No. 575/2013 (on and off balance sheet)	-	-
Capital and total exposure measure			
20	Tier 1 capital	20,041	19,258
21	Leverage ratio total exposure measure (sum of lines 3, 11, 16, 19, EU-19a, and EU-19b)	**432,119**	**440,621**
Leverage ratio			
22	Leverage ratio according to CRR transitional guidance (%)	**4.64**	**4.37**
Choice of transitional guidance and amount of derecognized trust items			
EU-23	Choice of transitional guidance for the definition of the capital measure	**Transitional guidance**	
EU-24	Amount of derecognized trust assets in accordance with article 429 (13) of Regulation (EU) No. 575/2013	-	-

Fig. 80 shows the components for calculating the leverage ratio in accordance with the CRR transitional guidance and after application of the CRR in full.

Fig. 80 – LEVERAGE RATIO ACCORDING TO THE CRR TRANSITIONAL GUIDANCE AND AFTER FULL APPLICATION OF THE CRR

	Leverage ratio according to CRR transitional guidance		Leverage ratio after full application of the CRR	
	Dec. 31, 2017	Sep. 30, 2017	Dec. 31, 2017	Sep. 30, 2017
Regulatory Tier 1 capital (€ million)	20,041	18,802	18,916	17,642
Total exposure measure (€ million)	432,119	451,713	432,104	451,697
Leverage ratio as of the balance sheet date (%)	4.64	4.16	4.38	3.91

Fig. 81 provides an alternative breakdown by regulatory category of the exposures reported on the balance sheet.

Fig. 81 – BREAKDOWN OF ON-BALANCE-SHEET EXPOSURES (EXCLUDING DERIVATIVES, SFTS AND EXEMPTED EXPOSURES)

€ million	Leverage ratio exposures	Dec. 31, 2017	Jun. 30, 2017
EU-1	Total on-balance-sheet exposures (excluding derivatives, SFTs, and exempted exposures)	380,331	392,929
EU-2	of which: Trading book exposures	11,326	13,041
EU-3	Banking book exposures, of which:	369,006	379,889
EU-4	Covered bonds	9,002	9,742
EU-5	Exposures treated as sovereigns	103,098	104,715
EU-6	Exposures to regional governments, multilateral development banks, international organizations, and public-sector entities not treated as sovereigns	1,310	1,379
EU-7	Institutions	81,218	88,489
EU-8	Secured by mortgages on immovable property	74,753	71,915
EU-9	Retail exposures	18,823	19,201
EU-10	Corporates	60,342	64,418
EU-11	Exposures in default	3,222	3,428
EU-12	Other exposures (e.g. long-term equity investments, securitizations, and other non-credit-obligation assets)	17,236	16,601

13.2 Description of the process for monitoring the risk of excessive leverage

(ARTICLE 451 SENTENCE 1 LETTER D CRR)

In the strategic planning process, the Board of Managing Directors sets out the bank's overall strategy and the allocation of resources for the individual management units. Within these guidelines, the Treasury and Capital Committee operates with the aim of monitoring the optimization of resource efficiency during the year. Therefore, it carries a out detailed plan-versus-actual analysis for all relevant management units to determine where the actual resource situation has deviated from the original projection and highlights the factors driving these deviations. In its management role, the Treasury and Capital Committee identifies the action required and instigates mitigation steps or optimization measures. These tasks are accomplished either by means of a direct decision or a recommendation being made and, where necessary, the matter is referred to the Board of Managing Directors.

13.3 Factors influencing the leverage ratio during the reporting period

(ARTICLE 451 SENTENCE 1 LETTER E CRR)

The DZ BANK banking group's leverage ratio pursuant to the CRR transitional guidance was 4.64 percent as of December 31, 2017 (September 30, 2017: 4.16 percent). This was based on Tier 1 capital of €20,041 million (September 30, 2017: €18,802 million) compared with the total exposure measure of €432,119 million (September 30, 2017: €451,713 million).

The DZ BANK banking group's leverage ratio in accordance with the CRR transitional guidance increased by 0.47 percentage points between September 30, 2017 and December 31, 2017. This was the result of a decrease of €19,593 million in the total exposure measure and a rise of €1,274 million in Tier 1 capital. Details of the main drivers of the change in Tier 1 capital can be found in section 5 'Capital adequacy', subsection 5.2 'Own funds' of this report.

The decrease in the total exposure measure of the DZ BANK banking group over the course of 2017 was mainly due to the following effects: a reduction in securities financing transactions in normal business activities (particularly at DZ BANK) and a small drop in derivative and off-balance-sheet transactions. On-balance-sheet exposures only rose slightly.

The following balance sheet assets, which DZ BANK believes should be exempted from the calculation of the leverage ratio, represent a material proportion of the leverage ratio total exposure measure:

- **Pass-through development loans:** As they are passed through various institutions, development loans are weighted more than once in Germany in the context of the leverage ratio. This involvement of different institutions (including central institutions) is essential in multilevel banking systems, not only for reasons of efficiency but also to ensure that development funds are provided throughout the country. Multiple counting of one transaction obviously conflicts with the government's desire to provide development support, such as for renewable energies. Both trust loans and pass-through loans merely constitute transactions that are redirected to the primary institutions of a financial network, which disburse the development loans to end customers. An exemption, which would mitigate the described restrictive effects and has already been included in the most recent draft of CRR II (expected to be applied for the first time in late 2020/early 2021), would change the leverage ratio as shown in Fig. 82.

Fig. 82 – CHANGE TO THE LEVERAGE RATIO IF PASS-THROUGH DEVELOPMENT LOANS ARE EXCLUDED

Leverage ratio of the DZ BANK banking group	Application of transitional guidance		Full application of CRR	
%	Dec. 31, 2017	Sep. 30, 2017	Dec. 31, 2017	Sep. 30, 2017
Pursuant to the delegated act	4.64	4.16	4.38	3.91
If pass-through development loans are excluded	5.24	4.68	4.94	4.39
Change	0.60	0.52	0.56	0.48

- Exposures within the cooperative financial network that are exempt from inclusion in risk-based capital requirements pursuant to article 113 (7) CRR: In the interest of consistency between risk-based capital requirements and the leverage ratio – with the exception of items that by definition differ between these capital ratios (e.g. credit-rating-related risk weightings and internal valuation-model approaches) – these exposures should also be omitted from the leverage ratio. An exception would raise the leverage ratio – both applying the transitional guidance and applying the CRR in full – as shown in fig. 83 below.

Fig. 83 – CHANGE TO THE LEVERAGE RATIO IF EXPOSURES WITHIN THE COOPERATIVE FINANCIAL NETWORK ARE EXCLUDED

Leverage ratio of the DZ BANK banking group	Application of transitional guidance		Full application of CRR	
%	Dec. 31, 2017	Sep. 30, 2017	Dec. 31, 2017	Sep. 30, 2017
Pursuant to the delegated act	4.64	4.16	4.38	4.11
If exposures within the cooperative financial network are excluded	5.68	5.06	5.36	5.01
Change	1.04	0.90	0.98	0.90

- Given the significant overlap between the two aforementioned exemptions (a very high proportion of the loans and advances in the pass-through development lending business are due from the Volksbanken Raiffeisenbanken cooperative financial network), the combined effect of the two items on the leverage ratio would be as shown in Fig. 84.

Fig. 84 – CHANGE TO THE LEVERAGE RATIO IF THE EXCLUSIONS IN FIG. 82 AND FIG. 83 ARE APPLIED CUMULATIVELY

Leverage ratio of the DZ BANK banking group	Application of transitional guidance		Full application of CRR	
%	Dec. 31, 2017	Sep. 30, 2017	Dec. 31, 2017	Sep. 30, 2017
Pursuant to the delegated act	**4.64**	4.16	**4.38**	3.91
Cumulative effect of applying the exclusions in Fig. 82 and Fig. 83	**5.68**	5.06	**5.36**	4.74
Change	**1.04**	0.90	**0.98**	0.83

14 Asset encumbrance

(ARTICLE 443 CRR)

According to the regulatory disclosure requirements in article 443 CRR in conjunction with EBA/GL/2014/03, which was transposed into German law by means of BaFin circular 06/2016 dated August 30, 2016, information on encumbered and unencumbered assets (asset encumbrance) has to be disclosed. These disclosure requirements are defined in more detail in Delegated Regulation (EU) No. 2017/2295 dated December 13, 2017. The following disclosure of asset encumbrance is based on the requirements in this Delegated Regulation.

The encumbered and unencumbered assets are disclosed for the companies consolidated for regulatory purposes pursuant to article 18 CRR.

For the purposes of the DZ BANK banking group's reporting and disclosure, the carrying amounts of encumbered and unencumbered assets are calculated according to the provisions of International Financial Reporting Standards (IFRS). There are no significant differences between the calculation methods applied to the encumbered assets for the asset encumbrance reporting and to the assets presented in accordance with IFRS in the notes to the financial statements in the Annual Report that have been pledged or transferred.

Accordingly, assets that have been pledged as collateral or are the subject of any agreement to collateralize or credit enhance any on-balance-sheet or off-balance-sheet transaction must be treated as encumbered. In addition to the disclosures in the notes to the consolidated financial statements in the Annual Report, the DZ BANK banking group's cover pools held in trust and the derivative receivables in netting master agreements, for which there are equivalent derivative liabilities, are included as encumbered assets in the asset encumbrance reporting.

FINREP validation also takes place as part of asset encumbrance reporting. This ensures that the totals of the unencumbered and encumbered assets in the asset encumbrance reporting match those of the assets in the FINREP reporting.

The following disclosures are based on the DZ BANK banking group's asset encumbrance reporting in 2017. The carrying amounts and fair values of the encumbered and unencumbered assets are disclosed. The received collateral is disclosed at its repledged fair value. For each line item, the median values at the end of each of the four past quarters are presented (reporting dates in 2017: March 31, June 30, September 30, and December 31). Attention should be paid to the fact that the totals are calculated from the median values at the end of the four past quarters in the asset encumbrance reporting. Consequently, the totals disclosed may vary from the totals calculated from the individual values.

The DZ BANK banking group's asset encumbrance ratio for 2017 was 39.87 percent. This is the ratio of the median values shown for the totals of the encumbered assets recognized on the balance sheet plus collateral received and re-used to the median values for the total assets plus collateral received.

Fig. 85 – ASSET ENCUMBRANCE

€ million	Carrying amount of encumbered assets	Fair value of encumbered assets	Carrying amount of unencumbered assets	Fair value of unencumbered assets
Assets of the reporting institution	168,112		263,905	
Equity instruments	123		2,639	
Debt securities	19,966	20,133	47,704	47,630
of which: covered bonds	1,654	1,604	6,858	6,918
of which: asset-backed securities	269	268	1,732	1,744
of which: issued by general governments	12,497	12,513	20,778	20,922
of which: issued by financial corporations	6,910	6,955	22,562	22,423
of which: issued by non-financial corporations	656	689	4,207	4,095
Other assets	148,101		214,067	
of which: loans that can be terminated on demand	6,968		46,510	
of which: loans and advances other than loans that can be terminated on demand	126,506		144,748	

Fig. 86 – COLLATERAL RECEIVED

€ million	Fair value of encumbered collateral received or own debt securities issued	Fair value of collateral received or own debt securities issued available for encumbrance
Collateral received by the reporting institution	12,746	8,811
Loans that can be terminated on demand	-	359
Equity instruments	44	1,538
Debt securities	12,721	6,752
of which: covered bonds	580	1,062
of which: asset-backed securities	-	-
of which: issued by general governments	7,272	3,563
of which: issued by financial corporations	4,342	3,110
of which: issued by non-financial corporations	943	143
Loans and advances other than loans that can be terminated on demand	-	-
Other collateral received	-	60
Own debt securities issued other than own covered bonds or asset-backed securities	-	10,041
Own covered bonds and asset-backed securities issued and not yet pledged		1,879
Total assets, collateral received, and own debt securities issued	**181,300**	

Fig. 87 – SOURCES OF ENCUMBRANCE

€ million	Matching liabilities, contingent liabilities, or securities lent	Assets, collateral received, and own debt securities issued other than covered bonds and ABSs encumbered
Carrying amount of selected financial liabilities	153,399	166,256
of which: derivatives	20,909	23,935
of which: deposits	106,527	111,063
of which: sale and repurchase agreements	12,409	12,774
of which: collateralized deposits excluding repurchase agreements	95,920	100,648
of which: bonds issued	22,895	27,754

The business model's influence on the degree of encumbrance and the importance of encumbrance to the DZ BANK banking group's funding model are explained below. The DZ BANK banking group's main sources of encumbrance result from the following business activities:

- DZ BANK, DG HYP, DVB, and WL BANK obtain some of their funding by issuing covered bonds. The corresponding cover pools of these institutions led to encumbrance of €71,706 million in 2017. The average weighted overcollateralization ratio for the DZ BANK banking group's cover pools was 34.24 percent in 2017. This overcollateralization comprised the excess cover required by law, the excess covered required by the rating agencies, and the voluntary excess cover; it contributed €18,289 million to the aforementioned total encumbrance.

- The entities in the DZ BANK banking group hold covered bonds issued by other group entities, for which there is a corresponding cover pool volume of €7,812 million. From a consolidated group perspective, these assets do not result in asset encumbrance.

- After the cover pools, development lending business with cooperative banks and end customers represents the second biggest factor in the DZ BANK banking group's encumbrance ratio, with pass-through loan receivables of €53,689 million assigned to development banks. This volume of encumbrance is mainly attributable to business at DZ BANK, DG HYP, and WL BANK.

- Securities lending transactions and funding via sale and repurchase agreements are further major sources of encumbrance for the DZ BANK banking group and predominantly result from transactions of DZ BANK, DZ PRIVATBANK, and WL BANK.

- Both unsecured derivative transactions with netting master agreements (International Swaps and Derivatives Association (ISDA) and Deutscher Rahmenvertrag (DRV) [German Master Agreement]) and derivative transactions backed by collateral agreements (Credit Support Annex to the ISDA Master Agreement and Collateralization Annex to the German Master Agreement for Financial Futures) are considered to be encumbrances.

- The longer-term funding of DZ BANK and DG HYP in the form of open-market operations via central banks results in additional encumbrance of assets-side business.

There are also assets that are encumbered because they are pledged to entities in the DZ BANK banking group. In particular, these arise from sale and repurchase agreements, derivative transactions backed by collateral agreements, and covered bonds held within the group. The main reason for conducting these transactions is the centralized provision of funding to the individual subsidiaries by DZ BANK (group funding). All transactions between entities in the DZ BANK banking group are recognized on a consolidated basis at group level.

The DZ BANK banking group's own securitizations (asset-backed securities, ABSs) were not relevant to the entities consolidated for regulatory purposes in 2017 and therefore do not represent a source of encumbrance for the purpose of asset encumbrance reporting.

The majority of the DZ BANK banking group's encumbered assets are denominated in euros. There are also encumbered assets denominated in US dollars, which is also deemed a significant currency for the DZ BANK banking group. The encumbered assets denominated in US dollars mainly result from the issuance of covered bonds and from derivatives business. The volume of encumbered assets denominated in US dollars stood at €2,222 million as of December 31, 2017. US-dollar-denominated collateral received and re-used amounted to €27 million. The sources of encumbrance denominated in US dollars came to €1,438 million.

The majority of the unencumbered securities in the portfolios of the DZ BANK banking group are eligible for central bank borrowing and are available in the normal course of business as collateral for potential encumbrance. The unencumbered other assets line item includes assets such as property, plant and equipment, long-term equity investments and investments in other entities, intangible assets, deferred tax assets, and unencumbered derivatives that are not available in the normal course of business for potential encumbrance.

Within the total encumbered loans and advances, the volume of encumbered mortgages amounted to €41,730 million in 2017. Encumbrance predominantly results from the issuance of covered bonds by DZ BANK, DG HYP, and WL BANK.

15 Remuneration policy

15.1 General disclosures

(ARTICLE 450 CRR)

Pursuant to section 16 of the Regulation to Amend the German Regulation Governing Remuneration at Institutions (InstitutsVergV) dated July 25, 2017, DZ BANK is required to disclose information about its remuneration policy and practices. As an institution subject to the CRR, DZ BANK is subject to the disclosure requirements specified by article 450 CRR in conjunction with EBA/GL/2015/22 dated June 27, 2016 and sections 16 and 28 (3) InstitutsVergV.

Pursuant to article 450 CRR, the bank must disclose certain quantitative and qualitative information for categories of employees whose activities have a material impact on its risk profile (risk takers).

As required by InstitutsVergV, DZ BANK and the subordinated management units BSH, DG HYP, DVB, DZ PRIVATBANK, TeamBank, VR-LEASING, and WL BANK identified the employees whose activities have a material influence on DZ BANK's overall risk profile as part of an annual standardized process. Risk takers were identified based on Commission Delegated Regulation (EU) No. 604/2014 of March 4, 2014 supplementing Directive 2013/36/EU of the European Parliament and of the Council with regard to regulatory technical standards with respect to qualitative and appropriate quantitative criteria to identify categories of staff whose professional activities have a material impact on an institution's risk profile. Special requirements apply to the assessment of risk takers' performance and the arrangements for payment of their variable remuneration.

Section 15.2 outlines the remuneration systems for risk takers at DZ BANK and the subordinated management units for 2017 in accordance with the requirements of article 450 (1) letters a to f CRR.

The quantitative information pursuant to article 450 (1) letters g to j CRR is published after all bonus payments have been calculated. The information disclosed for 2017 pursuant to article 450 CRR for the DZ BANK Group will therefore be updated in a separate report in the second quarter. This report disclosing the remuneration policy can be found on DZ BANK's website in the Investor Relations section under Reports.

15.2 Remuneration systems for risk takers

15.2.1 Remuneration systems for members of the Board of Managing Directors and divisional managers

All members of the Board of Managing Directors and divisional managers at DZ BANK and the aforementioned subordinated entities were classified as risk takers in 2017.

The **remuneration of the members of the Board of Managing Directors** comprises a fixed salary and variable remuneration based on a target bonus system. The level of the bonus depends not only on the groupwide remuneration strategy but also on the individual entity's corporate strategy and the strategic and operational planning. The quantitative and qualitative targets for the members of the Board of Managing Directors are based on targets for the group, entity, and area of board responsibility. The individual contribution to profits is also linked to these targets.

The majority of the targets for the **divisional managers** are derived from the entity and division targets; individual targets are also set. In some subordinated entities, it is also possible for the Board of Managing Directors or the divisional managers to be awarded a discretionary bonus. For all members of the Board of Managing Directors, the majority of the targets are measured over a period of several years.

At DZ BANK and some of the subordinated entities, the maximum bonus achievable by the members of the Board of Managing Directors and divisional managers is equal to the target bonus. In some of the subordinated entities, the remuneration systems for these persons are designed to enable the maximum bonus amount to exceed the target bonus, subject to targets being achieved.

The level of the bonus for the members of the Board of Managing Directors and divisional managers at DZ BANK and the subordinated entities for the financial year is determined in accordance with the provisions of InstitutsVergV. While 20 percent of the bonus achieved is paid immediately in the following year, payment of the remaining 80 percent of the bonus is spread out over a period of up to four years, taking into account deferral and retention periods. All amounts earmarked for deferred payment are linked to the long-term performance of the entity in question because, as a rule, they are pegged to its share price. Negative contributions to profits are taken into account when setting bonuses and pro-rata deferrals, which may cause the variable remuneration to be reduced or not be paid.

The Supervisory Board of DZ BANK and the Supervisory Board of each subordinated entity are responsible for determining the remuneration systems for the Board of Managing Directors. The relevant Board of Managing Directors is responsible for determining the remuneration systems for risk takers below the level of the Board of Managing Directors. The Supervisory Board with the support of the Remuneration Control Committee and the remuneration officer ensure that the remuneration systems are appropriate. In 2017, the Remuneration Control Committee at DZ BANK held five meetings for this purpose. Since 2014, the majority of the subordinated entities have also had a remuneration control committee in place. The number of meetings held ranges from one to three, depending on the entity.

15.2.2 Remuneration systems for risk takers below divisional management level

The risk takers below the level of divisional manager were identified at DZ BANK and some of the subordinated entities in 2017.

In all cases, these risk takers receive variable remuneration in addition to their fixed salary. It is mostly based on an individually agreed target bonus and depends on how many of the pre-agreed targets are met in terms of the profit made by the relevant entity, the profit attributable to the relevant division, and personal performance. In three entities, there is also the option of paying a discretionary bonus.

Bonuses for risk takers below the level of divisional manager at DZ BANK and the subordinated entities were granted in accordance with the requirements in the new version of InstitutsVergV dated July 25, 2017. A maximum of 30 percent of the bonus achieved will be paid immediately in the following year. Payment of the remaining bonus components will be spread out over a period of up to four years, taking into account deferral and retention periods. All amounts earmarked for deferred payment are linked to the long-term performance of the entity in question because, as a rule, they are pegged to its share price. Negative contributions to profits are taken into account when setting bonuses and the deferred variable remuneration, which may cause the variable remuneration to be reduced or not be paid. Variable remuneration is not permitted to exceed fixed remuneration at DZ BANK and the subordinated entities. In some cases, variable remuneration has been capped at well below fixed remuneration.

For DVB Bank, a resolution adopted by the Annual General Meeting in 2014 capped the variable remuneration for a strictly limited group of employees at 200 percent of their fixed remuneration.

As and when required, external consultants and interest groups are involved in the design of the remuneration systems. In 2017, individual subordinated entities engaged remuneration consultants to advise on designing the remuneration systems in accordance with the statutory requirements. External consultants were also called in to provide legal advice, particularly in relation to the adaptation of the contractual templates to the new regulatory requirements.

16 Annex 1: Structure of own funds during transition period – column B

Fig. 88 – ANNEX 1: SUPPLEMENT TO FIG. 10: REFERENCES REQUIRED IN IMPLEMENTING REGULATION (EU) NO. 1423/2013, ANNEX VI, COLUMN B

Line	**(B)** **Reference to CRR article**
1	26 (1), 27, 28, 29 EBA list 26 (3)
1a	EBA list 26 (3)
1b	EBA list 26 (3)
1c	EBA list 26 (3)
2	26 (1) (c)
3	26 (1)
3a	26 (1) (f)
4	486 (2)
4a	483 (2)
5	84, 479, 480
5a	26 (2)
6	●
7	34, 105
8	36 (1) (b), 37, 472 (4)
9	●
10	36 (1) (c), 38, 472 (5)
11	33 (a)
12	36 (1) (d), 40, 159, 472 (6)
13	32 (1)
14	33 (1) (b)
15	36 (1) (e), 41, 472 (7)
16	36 (1) (f), 42, 472 (8)
17	36 (1) (g), 44, 472 (9)
18	36 (1) (h), 43, 45, 46, 49 (2) and (3), 79, 472 (10)
19	36 (1) (i), 43, 45, 47, 48 (1) (b), 49 (1) to (3), 79, 470, 471 (11)
20	●
20a	36 (1) (k)
20b	36 (1) (k) (i), 89, 91
20c	36 (1) (k) (ii), 243 (1) (b), 244 (1) (b), 258
20d	36 (1) (k) (iii), 379 (3)
21	36 (1) (c), 38, 48 (1) (a), 470, 472 (5)
22	48 (1)
23	36 (1) (i), 48 (1) (b), 470, 472 (11)
24	●
25	36 (1) (c), 38, 48 (1) (a), 470, 472 (5)
25a	36 (1) (a), 472 (2)
25b	36 (1) (l)
26	●
26a	467, 468
26a.1	467
26a.2	468
26b	481
27	36 (1) (j)
27a	●
28	●
29	●
30	51, 52
31	●
32	●
33	486 (3)
33a	85, 86, 480
34	85, 86, 480
35	486 (3)
36	●
37	52 (1) (b), 56 (a), 57, 475 (2)
38	56 (b), 58, 475 (3)
39	56 (c), 59, 60, 79, 475 (4)

Line	**(B)** **Reference to CRR article**
40	56 (d), 59, 79, 475 (4)
41	●
41a	472, 472 (3) (a), 472 (4), 472 (6), 472 (8) (a), 472 (9), 472 (10) (a), 472 (11) (a)
41a.1	472 (3) (a)
41a.2	472 (4)
41a.3	472 (6)
41a.4	472 (8) (a)
41a.5	472 (9)
41a.6	472 (10)
41a.7	472 (11)
41b	477, 477 (3), 477 (4) (a)
41b.1	●
41b.2	●
41c	467, 468, 481
41c.1	467
41c.2	468
41c.3	481
42	56 (e)
43	●
44	●
45	●
46	62, 63
47	486 (4)
48	87, 88
49	486 (4)
50	62 (c) and (d)
51	●
52	63 (b) (i), 66 (a), 67, 477 (2)
53	66 (b), 68, 477 (3)
54	66 (c), 69, 70, 79, 477 (4)
54a	●
54b	●
55	66 (d), 69, 79, 477 (4)
56	472, 472 (3) (a), 472 (4), 472 (6), 472 (8) (a), 472 (9), 472 (19) (a), 472 (11) (a)
56a	●
56a.1	●
56a.2	●
56a.3	●
56b	475, 475 (2) (a), 475 (3), 475 (4) (a)
56b.1	●
56b.2	●
56c	467, 468, 481
56c.1	467
56c.2	468
56d	●
57	●
58	●
59	●
59a	●
59a.1	472, 472 (5), 472 (8) (b), 472 (10) (b), 472 (11) (b)
59a.1.1	●
59a.1.2	●
59a.1.3	●
59a.1.4	●
59a.2	472, 475 (2) (b), 475 (2) (c), 475 (4) (b)
59a.2.1	●

Line	(B) Reference to CRR article
59a.2.2	●
59a.2.3	●
59a.3	477, 477 (2) (b), 477 (2) (c), 477 (4) (b)
59a.3.1	●
59a.3.2	●
59a.3.3	●
60	●
61	92 (2) (a), 465
62	92 (2) (b), 465
63	92 (2) (c)
64	CRD 128, 129, 130
65	●
66	●
67	●
67a	CRD IV 131
68	CRD IV 128
69	●
70	●
71	●
72	36 (1) (h), 45, 46, 472 (10), 56 (c), 59, 60, 475 (4), 66 (c), 69, 70, 477 (4)
73	36 (1) (i), 45, 48, 470, 472 (11)
74	●
75	36 (1) (c), 38, 48, 470, 472 (5)
76	62
77	62
78	62
79	62
80	484 (3), 486 (2) and (5)
81	484 (3), 486 (2) and (5)
82	484 (4), 486 (3) and (5)
83	484 (4), 486 (3) and (5)
84	484 (5), 486 (4) and (5)
85	484 (5), 486 (4) and (5)

17 Annex 2: Geographical breakdown of exposures

Fig. 89 – ANNEX 2: SUPPLEMENT TO FIG. 20 – EU CRB-C – GEOGRAPHICAL BREAKDOWN OF EXPOSURES IN DETAIL

		a	b	c	d	e	f	g
	€ million	**Germany**	**Other industrialized countries**	France	Netherlands	United Kingdom	Luxembourg	Austria
1	Central governments or central banks	203	6,539	32	75	-	-	183
2	Institutions	9,639	17,079	3,157	927	3,582	336	479
3	Corporates	68,275	22,620	1,190	1,941	1,811	3,136	976
3a	of which: specialized lending	20,196	6,251	301	616	550	2,604	193
3b	of which: SMEs	8,699	20	0	1	0	0	8
4	Retail business	65,807	361	49	44	15	21	55
4a	Exposures secured by mortgages on immovable property	52,160	262	42	39	12	18	47
	of which: SMEs	-	-	-	-	-	-	-
	of which: non-SMEs	52,160	262	42	39	12	18	47
4b	Qualified revolving	-	-	-	-	-	-	-
4c	Other retail business	13,647	99	7	5	3	3	8
	of which: SMEs	2	-	-	-	-	-	-
	of which: non-SMEs	13,645	99	7	5	3	3	8
5	Equity exposures	5,736	22	-	-	0	11	0
	Other non-credit-obligation assets	624	230	-	1	19	0	-
6	Total amount under IRB approach	150,283	46,851	4,428	2,988	5,427	3,504	1,692
7	Central governments or central banks	37,721	6,293	600	0	210	393	1,036
8	Regional governments or local authorities	36,119	2,993	-	-	-	-	36
9	Public-sector entities	9,958	911	167	-	0	-	-
10	Multilateral development banks	-	28	-	-	-	16	-
11	International organizations	-	-	-	-	-	-	-
12	Institutions	88,979	1,629	0	25	941	9	38
13	Corporates	10,841	3,248	151	698	792	460	130
13a	of which: SMEs	2,234	24	0	6	0	6	2
14	Retail business	5,485	712	4	0	2	1	700
14a	of which: SMEs	1,257	3	-	-	-	-	3
15	Secured by mortgages on immovable property	3,590	253	0	28	35	128	18
15a	of which: SMEs	2,537	196	0	28	4	103	18
16	Exposures in default	103	55	35	0	0	0	5
17	Exposures associated with particularly high risk	828	61	-	-	-	10	-
18	Covered bonds	27	170	13	9	32	20	-
19	Exposures to institutions and corporates with a short-term credit assessment	-	-	-	-	-	-	-
20	CIUs	355	2,124	359	212	391	92	27
21	Equity exposures	144	194	0	144	-	0	0
22	Other items	153	40	-	-	-	22	-
23	Total amount under Standardized Approach	194,302	18,711	1,329	1,116	2,403	1,152	1,989
24	**Total**	**344,585**	**65,562**	**5,756**	**4,104**	**7,830**	**4,656**	**3,681**

	€ million	Switzerland	United States	Other countries	**Advanced economies**	Malta	Czech Republic	Slovakia
1	Central governments	5,527	534	188	732	-	514	-

	or central banks							
2	Institutions	1,021	1,351	6,227	634	-	99	-
3	Corporates	750	4,798	8,019	2,762	480	19	13
3a	of which: specialized lending	128	570	1,288	147	53	-	-
3b	of which: SMEs	6	1	4	1	-	-	-
4	Retail business	118	18	41	2,056	0	2,045	0
4a	Exposures secured by mortgages on immovable property	54	16	34	1,618	0	1,608	-
	of which: SMEs	-	-	-	-	-	-	-
-	of which: non-SMEs	54	16	34	1,618	0	1,608	-
4b	Qualified revolving	-	-	-	-	-	-	-
4c	Other retail business	64	2	8	438	0	438	0
	of which: SMEs	-	-	-	-	-	-	-
	of which: non-SMEs	64	2	8	438	0	438	0
5	Equity exposures	-	0	11	-	-	-	-
	Other non-credit-obligation assets	0	2	207	17	-	12	-
6	Total amount under IRB approach	7,416	6,704	14,693	6,200	480	2,690	13
7	Central governments or central banks	207	-	3,846	361	-	17	222
8	Regional governments or local authorities	247	236	2,474	-	-	-	-
9	Public-sector entities	-	-	744	4	0	-	4
10	Multilateral development banks	-	13	-	-	-	-	-
11	International organizations	-	-	-	-	-	-	-
12	Institutions	451	73	91	115	-	8	53
13	Corporates	126	280	610	169	3	13	-
13a	of which: SMEs	2	5	2	50	-	1	-
14	Retail business	3	0	1	665	-	0	654
14a	of which: SMEs	-	-	-	11	-	-	-
15	Secured by mortgages on immovable property	37	-	7	48	-	-	45
15a	of which: SMEs	37	-	7	2	-	-	-
16	Exposures in default	0	16	0	18	-	0	18
17	Exposures associated with particularly high risk	50	-	0	-	-	-	-
18	Covered bonds	37	-	60	-	-	-	-
19	Exposures to institutions and corporates with a short-term credit assessment	-	-	-	-	-	-	-
20	CIUs	80	191	772	26	-	4	-
21	Equity exposures	2	47	1	12	-	-	-
22	Other items	18	-	0	14	-	-	14
23	Total amount under Standardized Approach	1,260	855	8,607	1,432	3	42	1,010
24	**Total**	**8,675**	**7,559**	**23,300**	**7,631**	**483**	**2,732**	**1,023**

	€ million	Singapore	Korea	Hong Kong	Other countries	**Emerging markets**	Turkey	Hungary
1	Central governments or central banks	188	16	5	8	989	0	-
2	Institutions	40	390	46	59	1,770	457	2
3	Corporates	1,293	150	431	376	9,007	397	34
3a	of which: specialized lending	94	-	-	-	610	100	33
3b	of which: SMEs	1	-	-	0	3	-	-
4	Retail business	3	-	1	6	23	1	0
4a	Exposures secured by mortgages on immovable property	3	-	1	6	20	1	0
	of which: SMEs	-	-	-	-	-	-	-
	of which: non-SMEs	3	-	1	6	20	1	0
4b	Qualified revolving	-	-	-	-	-	-	-
4c	Other retail business	0	-	0	0	3	0	0
	of which: SMEs	-	-	-	-	-	-	-
	of which: non-SMEs	0	-	0	0	3	0	0
5	Equity exposures	-	-	-	-	1	-	-
	Other non-credit-obligation assets	4	-	-	0	229	-	-
6	Total amount under IRB approach	1,528	556	483	449	12,019	855	36
7	Central governments or central banks	91	0	-	30	1,020	-	497
8	Regional governments or local authorities	-	-	-	-	2	2	0
9	Public-sector entities	-	-	-	-	-	-	-
10	Multilateral development banks	-	-	-	-	-	-	-
11	International organizations	-	-	-	-	-	-	-
12	Institutions	-	-	54	0	76	-	14
13	Corporates	45	11	92	5	596	92	22
13a	of which: SMEs	5	-	40	4	73	-	-
14	Retail business	6	0	4	0	390	0	292
14a	of which: SMEs	6	-	4	-	-	-	-
15	Secured by mortgages on immovable property	-	-	0	2	1,330	-	798
15a	of which: SMEs	-	-	-	2	-	-	-
16	Exposures in default	0	-	0	0	33	-	12
17	Exposures associated with particularly high risk	-	-	-	-	-	-	-
18	Covered bonds	-	-	-	-	-	-	-
19	Exposures to institutions and corporates with a short-term credit assessment	-	-	-	-	-	-	-
20	CIUs	2	8	8	4	156	17	0
21	Equity exposures	12	-	-	0	60	-	-
22	Other items	-	-	-	-	20	-	8
23	Total amount under Standardized Approach	156	20	159	42	3,682	111	1,642
24	**Total**	**1,684**	**576**	**642**	**491**	**15,701**	**965**	**1,679**

€ million	Liberia	Bermuda	China	Marshall Islands	Other countries	**Supranational organizations**	Other European institutions, governing bodies, and organizations
1 Central governments or central banks	-	-	-	-	989	468	-
2 Institutions	0	-	371	-	941	35	-
3 Corporates	1,291	823	272	3,471	2,719	-	-
3a of which: specialized lending	-	-	-	27	450	-	-
3b of which: SMEs	-	-	-	-	3	-	-
4 Retail business	-	-	3	-	19	-	-
4a Exposures secured by mortgages on immovable property	-	-	3	-	16	-	-
of which: SMEs	-	-	-	-	-	-	-
of which: non-SMEs	-	-	3	-	16	-	-
4b Qualified revolving	-	-	-	-	-	-	-
4c Other retail business	-	-	0	-	2	-	-
of which: SMEs	-	-	-	-	-	-	-
of which: non-SMEs	-	-	0	-	2	-	-
5 Equity exposures	-	-	-	-	1	-	-
Other non-credit-obligation assets	-	-	-	229	-	-	-
6 Total amount under IRB approach	1,291	823	646	3,700	4,668	502	-
7 Central governments or central banks	-	-	161	-	362	-	-
8 Regional governments or local authorities	-	-	-	-	0	-	-
9 Public-sector entities	-	-	-	-	-	-	-
10 Multilateral development banks	-	-	-	-	-	398	-
11 International organizations	-	-	-	-	-	898	466
12 Institutions	-	-	35	-	27	-	-
13 Corporates	37	0	108	63	274	-	-
13a of which: SMEs	-	-	2	-	71	-	-
14 Retail business	-	-	97	-	1	-	-
14a of which: SMEs	-	-	-	-	-	-	-
15 Secured by mortgages on immovable property	-	-	532	-	0	-	-
15a of which: SMEs	-	-	-	-	-	-	-
16 Exposures in default	-	-	1	0	20	0	-
17 Exposures associated with particularly high risk	-	-	-	-	-	-	-
18 Covered bonds	-	-	-	-	-	-	-
19 Exposures to institutions and corporates with a short-term credit assessment	-	-	-	-	0	-	-
20 CIUs	-	0	14	0	124	1	1
21 Equity exposures	-	-	-	-	60	-	-
22 Other items	-	-	12	-	-	5	-
23 Total amount under Standardized Approach	37	0	960	64	868	1,302	467
24 Total	**1,328**	**823**	**1,607**	**3,764**	**5,536**	**1,804**	**467**

	€ million	European Investment Bank	European Financial Stability Facility	European Stability Mechanism	Other countries	**Not allocated to a geographical area**	Countries and areas not considered	Other countries
1	Central governments or central banks	468	-	-	0	**-**	-	-
2	Institutions	35	-	-	0	**-**	-	-
3	Corporates	-	-	-	-	**-**	-	-
3a	of which: specialized lending	-	-	-	-	**-**	-	-
3b	of which: SMEs	-	-	-	-	**-**	-	-
4	Retail business	-	-	-	-	**0**	-	0
4a	Exposures secured by mortgages on immovable property	-	-	-	-	**0**	-	0
	of which: SMEs	-	-	-	-	**-**	-	-
	of which: non-SMEs	-	-	-	-	**0**	-	0
4b	Qualified revolving	-	-	-	-	**-**	-	-
4c	Other retail business	-	-	-	-	**-**	-	-
	of which: SMEs	-	-	-	-	**-**	-	-
	of which: non-SMEs	-	-	-	-	**-**	-	-
5	Equity exposures	-	-	-	-	**-**	-	-
	Other non-credit-obligation assets	-	-	-	-	**1,004**	-	1,004
6	**Total amount under IRB approach**	**502**	**-**	**-**	**0**	**1,004**	-	1,004
7	Central governments or central banks	-	-	-	-	**14**	-	14
8	Regional governments or local authorities	-	-	-	-	**6**	-	6
9	Public-sector entities	-	-	-	-	**-**	-	-
10	Multilateral development banks	334	-	-	63	**-**	-	-
11	International organizations	-	244	36	152	**-**	-	-
12	Institutions	-	-	-	-	**-**	-	-
13	Corporates	-	-	-	-	**-**	-	-
13a	of which: SMEs	-	-	-	-	**-**	-	-
14	Retail business	-	-	-	-	**-**	-	-
14a	of which: SMEs	-	-	-	-	**-**	-	-
15	Secured by mortgages on immovable property	-	-	-	-	**-**	-	-
15a	of which: SMEs	-	-	-	-	**-**	-	-
16	Exposures in default	-	-	-	-		-	-
17	Exposures associated with particularly high risk	-	-	-	-	**-**	-	-
18	Covered bonds	-	-	-	-	**-**	-	-
19	Exposures to institutions and corporates with a short-term credit assessment	-	-	-	-	**-**	-	-
20	CIUs	-	-	-	0	**-**	-	-
21	Equity exposures	-	-	-	-	**-**	-	-
22	Other items	-	5	-	-	**72**	0	72
23	**Total amount under Standardized Approach**	**334**	**249**	**36**	**216**	**92**	**0**	**92**
24	**Total**	**837**	**249**	**36**	**216**	**1,096**	**0**	**1,096**

18 Annex 3: List of other countries

Fig. 90 – ANNEX 3: SUPPLEMENT TO FIG. 89 – LIST OF COUNTRIES CATEGORIZED AS 'OTHER COUNTRIES'

Non-material countries	
Other industrialized countries	Andorra, Australia, Belgium, Bonaire, Saba and Sint Eustatius, British Virgin Islands, Canada, Cayman Islands, Curaçao, Denmark, Faroe Islands, Finland, Gibraltar, Guernsey, Ireland, Isle of Man, Italy, Japan, Jersey, Latvia, Liechtenstein, Lithuania, New Zealand, Norway, Portugal, Spain, Sweden
Advanced economies	Cyprus, Estonia, Greece, Iceland, Israel, Slovenia, Taiwan
Emerging markets	Algeria, Angola, Argentina, Armenia, Azerbaijan, Bahamas, Bahrain, Bangladesh, Barbados, Belarus, Belize, Bolivia, Bosnia and Herzegovina, Botswana, Brazil, Bulgaria, Cameroon, Cape Verde, Chile, Colombia, Cook Islands, Costa Rica, Côte d'Ivoire, Croatia, Cuba, Democratic Republic of the Congo, Dominica, Dominican Republic, Ecuador, Egypt, El Salvador, Ethiopia, Gabon, Georgia, Ghana, Guatemala, Honduras, India, Indonesia, Iran, Iraq, Jamaica, Jordan, Kazakhstan, Kenya, Kuwait, Lebanon, Malaysia, Macedonia, Mauritius, Mexico, Moldova, Mongolia, Montenegro, Morocco, Myanmar, Namibia, Nigeria, Oman, Pakistan, Panama, Papua New Guinea, Paraguay, Peru, Philippines, Poland, Qatar, Romania, Russia, Rwanda, Saint Kitts and Nevis, Saint Lucia, Saudi Arabia, Senegal, Serbia and Kosovo, South Africa, Sri Lanka, Sudan, Tanzania, Thailand, Togo, Trinidad and Tobago, Tunisia, Turkmenistan, Ukraine, United Arab Emirates, Uruguay, Venezuela, Vietnam, Wallis and Futuna, Zambia
Supranational organizations	International Bank for Reconstruction and Development, International Development Association (Washington, USA), International Finance Corporation (Washington, USA), European Central Bank (Frankfurt am Main, Germany), Bank for International Settlements (Basel, Switzerland), Inter-American Development Bank (Washington, USA), European Bank for Reconstruction and Development (London, UK), other international organizations (financial institutions), European Broadcasting Union, African Export-Import Bank

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