Disclosure Report

In acc. with Regulation (EU) No. 575/2013 (CRR)

As of 31 Dezember 2017

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1 Introduction

With the present Disclosure Report Deutsche Pfandbriefbank AG (pbb) implements the disclosure requirements under part 8 of Regulation (EU) No. 575/2013 (Capital Requirements Regulation; CRR) for pbb and its downstream affiliates (pbb Group) as of 31 December 2017. pbb is the parent company of the regulatory group as defined in Section 10a of the German Banking Act (KWG) in conjunction with Article 11 et seq. CRR and is thus responsible for regulatory disclosure requirements.

The disclosure requirements are set out in Articles 431 to 455 CRR, additional requirements can be found in Section 26a (1), sentence 1 of the German Banking Act (Kreditwesengesetz, “KWG”). In order to comply with these disclosure requirements, the present Disclosure Report contains numerous innovations compared with the previous-year report:

- The guidelines EBA/GL/2016/11 of the European Banking Authority (EBA) which relate to precise details of the disclosure requirements in accordance with part 8 of the CRR, and which since 31 December 2017 have been applicable only for global system-relevant institutions (G-SII) and other system-relevant institutions (O-SII), are applied by pbb on a voluntary basis in accordance with point 10 of these guidelines.
- The guidelines EBA/GL/2017/01 regarding the disclosure of the liquidity coverage ratio in addition to the disclosure of liquidity risk management in accordance with Article 435 CRR, which have also been applicable since 31 December 2017, are also disclosed by pbb on a voluntary basis.
- The Delegated Regulation (EU) 2017/2295 relating to the regulatory technical standard EBA/RTS/2017/03 for the disclosure of encumbered and unencumbered assets in accordance with Article 443 CRR was published on 13 December 2017 in the Official Journal of the European Union, and came into force on 2 January 2018 (additional regulations regarding quality indicators for the assets will only come into force one year later, on 2 January 2019). pbb has disclosed this information (without the additional regulations) in this report as of 31 December 2017.

These regulations specify in further detail and standardise the disclosure in accordance with part 8 of the CRR. In consequence, the present Disclosure Report contains new tables or tables which have been modified compared with the previous year.

pbb Deutsche Pfandbriefbank

The pbb Group consists mostly of the parent company pbb. pbb has its registered offices in Munich/Unterschleißheim, and is a leading specialist bank for financing of investments in commercial properties and public infrastructure in Europe and the USA, focusing on Pfandbrief-eligible business.

The geographic focus within Europe is on Germany as well as the United Kingdom, France, Spain, the Nordic countries and on selected Central and Eastern European countries. In its core markets, pbb offers its customers a strong local presence along with expertise across all functions of the financing process. Thanks to its proficiency in structuring loans, its international approach and the co-operation with financing partners, pbb is able to handle both complex finance deals and cross-border transactions.

The central refinancing instrument is the Pfandbrief (covered bond). pbb is one of the largest Pfandbrief issuer in terms of outstanding volume and is thus simulltaneously a major issuer of covered bonds in Europe. It issues mortgage Pfandbriefe which are secured by property charges as well as public Pfandbriefe which are secured by public sector receivables.

The shares of pbb are listed in the prime standard of the regulated market of the Frankfurt Stock Exchange, and are included in the MDAX® index.

Objectives of the Disclosure Report

The Disclosure Report, together with the annual report in accordance with the German commercial code, provides a comprehensive picture of the current risk profile and risk management of the pbb Group. The Disclosure Report is mainly focused on the regulatory perspective and specifically includes information on:

- the regulatory and commercial structure of the pbb Group (scope)
- the capital structure, base and capital requirements
- the general risk management system of the pbb Group (risk management objectives and policy)
- the risk management in relation to individual risk types
- leverage and encumbrance of assets
- governance arrangements and the remuneration policy.

According to Article 431 (2) CRR, compliance with the disclosure requirements is a precondition to apply certain instruments and methodologies to calculate capital requirements, e. g. the internal ratings-based (IRB) approach for credit exposures or credit risk mitigation techniques.

In line with Article 432 CRR, institutions may decide not to disclose one or more items as specified in part 8, title II/III of CRR provided that these are not significant or are classified as business secret or sensitive information. pbb however fully complies with all disclosure requirements.

Scope

According to Article 13, (1) CRR, the Disclosure Report is based on the consolidated situation of the pbb Group. There are no significant subsidiaries as defined in Article 13 (1) CRR. According to Article 13 CRR, pbb as the parent company of the Group is not required to provide a disclosure at institution level.

This Report is based on the regulatory scope of consolidation according to Articles 18 to 24 CRR. As at the reporting date, there was no difference between the regulatory scope and the commercial scope of consolidation used for pbb's consolidated financial statements (IFRS). For the disclosure based on the consolidated situation, business relationships within the consolidation scope must be set off against each other and group-internal business must be eliminated. Regulatory key figures have been determined based on IFRS. Unless expressly indicated the numbers are generally based on the legal provisions applicable at the reporting date (including transitional provisions).

Waiver regulation as per Article 7 CRR

Since 15 December 2016, pbb has been utilising the so-called Waiver scheme pursuant to Article 7 (3) CRR on the basis of a decision of the European Central Bank (ECB) of the same day. With this decision, pbb, as the supervised parent company of the pbb Group, was permitted to take certain control requirements into account only on a consolidated Group basis and not in addition to the individual institution level.

pbb also fulfills the requirements according to Article 7 (3) CRR:

- Within the pbb Group, there are no major actual or legal obstacles to the immediate transfer of own funds or the repayment of liabilities to the parent company (pbb), nor are there any signs of any such obstacles. The key company (pbb) which is essential to the financial stability of the pbb Group, has its headquarter in Germany. pbb is also the only credit institution within the pbb Group. The holding of pbb in the regulatory consolidated subsidiaries is 100 % in each case. In addition, the existence of a formal internal decision-making process for transferring own funds between pbb (as the parent company and parent institution of the pbb Group) and the subsidiaries enables funds to be transferred promptly. As in the previous year, no transfer of own funds and no repayment of liabilities as defined by Article 7 (1), letter a CRR took place in the reporting year 2017.

- The pbb Group has an integrated risk management system that extends to the entire Group, including pbb and its subsidiaries which are included within the regulatory scope of consolidation of the pbb Group. The Management Board of pbb is responsible for the risk management system and decides on the strategies and the key issues of risk management and risk organisation. The principles, methods and processes of the pbb Group's risk management system are centrally defined by pbb and are applied by the pbb Group (subject to the implementation required by company law and any necessary modifications at the level of the respective Group company). All the decision-making committees of the companies of the pbb Group include employees of pbb as members of the respective companies, thereby enabling adequate involvement in all strategic decisions of the pbb Group. Furthermore, this ensures that the risk-taking and risk management are uniformly applied in all companies of the pbb Group. Moreover pbb has a risk control unit that is responsible for the uniform application of risk management within the pbb Group. This ensures that risk measurement procedures and risk reporting are consistent and risk indicators are comparable within the pbb Group.

pbb also utilises a waiver which was granted by the ECB with the notice of 14 August 2017 in accordance with Section 2a (2) KWG. Accordingly, at the individual institution level, and for the purpose of risk management, with the exception of liquidity risk, pbb is exempted from the obligation to apply the requirements of Section 25a (1) sentence 3 No. 1, 2 and 3b) and c) KWG regarding the risk-controlling function. The criteria necessary in accordance with Art. 7 (3) CRR for granting the waiver are satisfied: There is no major actual or legal obstacle for the immediate transfer of own funds or the repayment of liabilities to the parent institution in a member state, nor are there any signs of such obstacles. The risk evaluation, measurement and control procedures necessary for consolidated supervision also cover the parent institution in a member state.

Disclosure frequency

According to Article 433 CRR institutions must verify, on the basis of the relevant features of their business, whether it is necessary for them to disclose the relevant information more than once a year in full or in part. With regard to assessing the need for more frequent disclosure, pbb follows the EBA/GL/2014/14 in conjunction with EBA/GL/2016/11 of the EBA. The pbb Group meets the criterion of “the consolidated assets of the institution exceed € 30 billion” as per point 18 letter b of the aforementioned guidelines, and it is therefore subject to a semiannual disclosure, on 30 June of any financial year (abridged) and 31 December of any financial year (complete). The pbb Group’s IFRS consolidated assets as of 31 December 2017 amounted to € 58 billion (31 December 2016: € 62.6 billion).

Means of disclosure

According to Article 434 (1) CRR in conjunction with point 39 of the EBA/GL2016/11, the Disclosure Report is publicised as an independent report on the website of pbb (www.pfandbriefbank.com) under Investors / Mandatory Publications. The European Central Bank (ECB), Deutsche Bundesbank and Bundesanstalt für Finanzdienstleistungsaufsicht (BaFin) are informed of the time and the medium of the publication. Deutsche Pfandbriefbank AG is directly supervised by the ECB.

Formal methods and regulations to comply with disclosure requirements

According to Article 431 (3) CRR, the pbb Group has adopted formal policies which are documented in a disclosure policy in order to comply with the Pillar 3 disclosure requirements. This policy describes all material, inherent principles of disclosure as defined by Regulation (EU) 575/2013 (CRR), e. g. the kind and scope of disclosure including the use of so-called disclosure waivers, the adequacy of information, the disclosure medium and disclosure terms, the frequency of disclosure including decision criteria for the "appropriate" disclosure cycle, responsibilities as well as the integration of the disclosure process into bank-internal work processes and structures. Furthermore, the policy contains directives on the regular verification of the adequacy and practicality of disclosure practices applied at the pbb Group, as well as defined disclosure standards and processes. The disclosure policy is verified and aligned with market requirements on a regular basis.

The procedures and regulations implemented for disclosure are also regularly monitored by Internal Audit and audited by the auditor. The Disclosure Report itself is not audited by the auditor of the pbb Group; this is the reason why the Pillar-3 disclosures in this report are not certified. However the Disclosure Report contains data which are also quoted in the published 2017 annual report of the pbb Group.

Disclosure information in accordance with part 8 of the CRR

The present report comprises the information to be disclosed in accordance with part 8 of the CRR (Basel III, Pillar 3), to the extent that such information has not in individual cases already been published in other documents of pbb. The following table provides an overview of the separate documents of pbb (and also the specific points in such documents) in which specified publications in accordance with part 8 of the CRR or corresponding additional information is to be found, if such information is not included in the present Disclosure Report. In addition, the corresponding chapters of the Disclosure Report refer to the separate positions.

Figure 1: Major disclosure information in separate documents

Disclosure issue according to part 8 of the CRR	Designation of the separate document	Web link
Article 431 CRR: Scope of disclosure requirements	-	-
Articles 432, 433 and 434 CRR: General disclosure principles	-	-
Article 435 (1) CRR: Risk management objectives and policies	Additional information concerning risk management objectives and policies: Risk and opportunity report in the annual report 2017 of the pbb Group, page 38 et seq. (break-down of portfolio according to business segments, etc.) Forecast report in the annual report 2017 of the pbb Group, page 97 et seq. (general company-specific risks and opportunities)	www.pfandbriefbank.com (under Investors / Financial Reports) www.pfandbriefbank.com (under Investors / Financial Reports)
Article 435 (2) CRR: Governance arrangements	Additional information regarding the governance arrangements described: Compliance statement of the Management Board and the Supervisory Board on the pbb website Report of the Supervisory Board in the annual report 2017 of the pbb Group, page 2 et seq. Governance statement/Corporate Governance report in the annual report 2017 of the pbb Group, page 112 et seq. Members of the Supervisory Board and the Management Board in the annual report 2017 of the pbb Group, notes, note 83, page 204	www.pfandbriefbank.com (under Investors / Mandatory Publications / Corporate Governance Code) www.pfandbriefbank.com (under Investors / Financial Reports)

Disclosure issue according to part 8 of the CRR	Designation of the separate document	Web link
Article 436 CRR: Scope of application	-	-
Article 437 CRR: Own funds	Additional information concerning equity: Development of equity in the annual report 2017 of the pbb Group, economic report (financial position), page 32 et seq. and consolidated financial statements (development of consolidated equity), page 126	-
Article 438 CRR: Capital requirements	Additional information concerning the adequacy of internal capital: Internal capital adequacy assessment process (ICAAP) in the annual report 2017 of the pbb Group, risk and opportunity report, page 66 et seq. (economic capital according to segments)	www.pfandbriefbank.com (under Investors / Financial Reports)
Article 439 CRR: Exposure to counterparty credit risk	-	-
Article 440 CRR: Capital buffers	-	-
Article 441 CRR: Indicators of global systemic importance	Not relevant for the pbb Group.	-
Article 442 CRR: Credit risk adjustments	-	-
Artikel 443 CRR: Unencumbered assets	Additional information regarding the encumbrance of assets described: Publications in accordance with Section 28 Pfandbrief Act on the pbb website	www.pfandbriefbank.com (under Investors / Mandatory Publications / Publications in accordance with Section 28 Pfandbrief Act)
Article 444 CRR: Use of ECAIs	-	-
Article 445 CRR: Market risk	-	-
Article 446 CRR: Operational risk	-	-

Disclosure issue according to part 8 of the CRR	Designation of the separate document	Web link
Article 447 CRR: Exposure in equities not included in the trading book	Additional information regarding shareholdings of pbb: Annual report 2017 of the pbb Group, notes, note 84 Shareholdings of pbb, page 205	www.pfandbriefbank.com (under Investors / Financial Reports)
Article 448 CRR: Exposure to interest rate risk on positions not included in the trading book	-	-
Article 449 CRR: Exposure to securitisation positions	-	-
Article 450 CRR: Remuneration policy	Remuneration report in the annual report 2017 of the pbb Group, page 81 et seq.	www.pfandbriefbank.com (under Investors / Financial Reports)
	In addition: remuneration report 2017 on the pbb website (publication in Q2 2018 after conclusion of the remuneration negotiations for 2017)	www.pfandbriefbank.com (under The Company / Corporate Governance / Compensation Reports)
Article 451 CRR: Leverage	-	-
Article 452 CRR: Use of the IRB approach to credit risk	-	-
Article 453 CRR: Use of credit risk mitigation techniques	-	-
Article 454 CRR: Use of the advanced measurement approaches to operational risk	Not relevant for the pbb Group.	-
Article 455 CRR: Use of internal market risk models	Not relevant for the pbb Group.	-

Note:

Numbers provided in the Disclosure Report are commercially rounded to millions. Due to roundings, the sums shown in the tables may slightly differ from the arithmetic total of the individual amounts shown.

Because there is still a certain amount of interpretation uncertainty regarding the CRR/CRD 4 regulations, and because some of the mandatory technical regulation standards referring to these regulations are also not yet available in final form, we will continuously adjust our assumptions and models in line with the development of our own understanding as well as the understanding of industry and the interpretations of the rules. Accordingly, our CRR/CRD 4 parameters may differ from our previous expectations. The assumptions and assessments of our competitors regarding the introduction may also change, so that our CRR/CRD 4 parameters are not comparable with similarly defined parameters of our competitors.

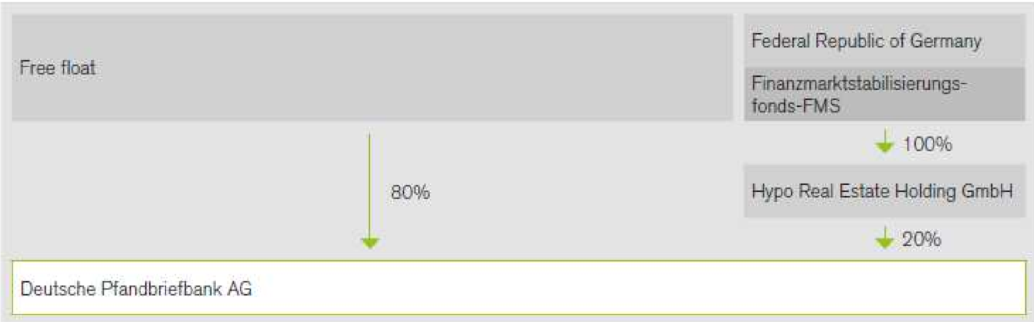
2 Scope

2.1 Organisational and legal structure

The pbb Group consists mostly of the parent company pbb. pbb is simultaneously the parent company in accordance with Art. 4 (1) CRR of the regulatory group as defined in Section 10a of the German Banking Act (KWG) in conjunction with Art. 11 et seq. CRR and is thus responsible for regulatory disclosure requirements. pbb is a stock corporation under German law, registered in the commercial register of the local court of Munich, Germany (HRB 41054).

The free float is 80 %. The remaining 20 % are held by the Federal Republic of Germany, indirectly via the Financial Market Stabilisation Fund (Finanzmarktstabilisierungsfonds; FMS) which in turn holds a 100 % stake in Hypo Real Estate Holding GmbH (HRE Holding). The two-year holding obligation issued by HRE Holding in the course of the IPO in 2015, requiring the company to hold 20 % of the share capital of pbb subject to certain exceptions, expired on 16 July 2017. The Finanzmarktstabilisierungsfonds-FMS was administered by the Bundesanstalt für Finanzmarktstabilisierung (FMSA) up to and including 31 December 2017. Since 1 January 2018, the functions which previously had been exercised by the FMSA have been transferred to Bundesrepublik Deutschland – Finanzagentur GmbH (Finanzagentur). The Finanzagentur is wholly owned by the Federal Republic of Germany.

Figure 2: Shareholder structure



The pbb Group is represented at a total of nine sales locations. The bank's headquarters are in Munich / Unterschleißheim, Germany; in addition, pbb operates offices in Germany at four locations (Berlin, Duesseldorf, Frankfurt am Main/Eschborn and Hamburg). In its foreign core markets, it has branches in the four locations in London, Madrid, Paris and Stockholm. pbb conducts a large part of its international financing activities from its branches. There are also plans for a representative office in New York to be opened in the first half of 2018.

Business model and strategy

The strategic business segments of pbb Group are Real Estate Finance (REF) and Public Investment Finance (PIF); the focus is on business eligible for inclusion in Pfandbrief cover. The geographic focus is on Europe. Its significant core markets are Germany, France, the United Kingdom, the Nordic countries and selected Central and Eastern European countries, as well as Spain. Since second half of 2016 pbb is also active in the US real estate market, where the Bank is focusing on the East coast metropolises of New York City, Boston and Washington. The opening of a representative office in New York City is planned for the first half of 2018. While pbb regularly reviews business opportunities outside the markets it serves, it remains committed to its core markets.

pbb's core business is medium- to long-term lending: pbb Group plays an important role in this area, supplying credit to the real estate sector and also supporting the public sector with project financings for the provision and improvement of public infrastructure. pbb Group's focus is on primary client business. Besides traditional financing solutions tailored to clients' needs, the Group offers its clients derivatives for hedging risks associated with lending. pbb does not maintain a trading book for securities or derivatives portfolios held to realise short-term gains.

In the lending business, pbb Group either acts as a sole lender or, particularly for large-volume transactions, cooperates with financing partners. In this regard, the Group has a wide network of banking and other partners, including insurance companies and private equity firms. In this so-called syndicate business, when acting as arranger, the Group takes over the complete coordination between the syndicate and the borrower or, in the role of an Agent, deals with tasks in connection with the management of syndicated loans.

In addition, pbb Group acts as an underwriter, initially being the sole provider of financing and then selling parts of this loan to interested partners in the context of syndication.

In the course of pbb's digitalisation strategy, the launch of the digital platform CAPVERIANT on the German market is planned for the first half of 2018. CAPVERIANT aims at bringing together borrowers and investors in the Public In-vestment Finance sector. The platform's focus is primarily on the intermediation of budget financing solutions of public authorities which – due to relatively small margins – are generally not in line with pbb Group's return requirements. Therefore, pbb Group does not act as a lender but only as an intermediary. As pbb Group intends to further advance its digital transformation, it is reviewing measures in order to digitalise internal processes and the interfaces with clients as well as new digital business models.

Over the course of the past few years, pbb Group has reviewed its IT-landscape and has, as a result, simplified it considerably. On the basis of this modernisation, pbb Group will, in the future, invest in certain sector-specific topics such as protection requirement analysis, outsourcing and user authorisation.

Strategy

pbb Group's strategy focuses on sustainable business success. Crucial success factors are the assessment and appropriate pricing of credit risk in the lending business on the one hand, and the access to funding markets at adequate terms on the other. Managing the existing portfolio – so as to identify changing risks at an early stage and mitigate them by taking appropriate measures – is another important factor.

The Management Board has committed itself to further increasing profitability in 2018 In addition to the expansion of sales activities in the US real estate financing market by opening a representative office in New York City, pbb Group is pursuing several initiatives with the objective of extending its value-creation chain as well as client groups. An extension of the business area with regard to sectors and new export-credit insurers has taken place in the context of reviewing the strategy for the ECA financing segment. Moreover, pbb Group intends to further advance its initiatives in 2018. Regarding its digitalisation strategy in particular, the Group plans to first launch its digital platform CAPVERIANT in Germany, followed by expansion throughout France. It also intends to extend the range of services offered on the platform. Furthermore, pbb Group will examine further opportunities to digitalise its business – especially in the real estate financing segment. It will also constantly review the options available to increase its process and cost efficiencies.

Internal management system

pbb Group's internal management system is pursuing a sustainable enhancement in value of the Group considering aspects of risks and regulatory requirements. The key objective is to achieve a balanced risk/return ratio. Risks should be compatible with external and internal risk-bearing capacity guidelines generating an adequate return on capital.

Monitoring and stearing at pbb Group are based on a consistent and integrated key performance indicator system (KPI system), which assists executives in the management of the Group. The KPI system comprises the dimensions of profitability, growth in the strategic real estate finance and public investment finance portfolios, risk limitation and capital. Regular plan-actual comparisons and related analyses disclose the reasons for any deviations in the key performance indicators. Current market developments, such as the change on interest rate levels, are also displayed. In addition to strategic planning for the Bank as a whole, regular medium-term projections of profitability indicator and (stress) scenario forecasts ensure the management has a comprehensive overview of the Group's future business development.

No changes were made to the internal management system year-on-year. Non-financial key performance indicators are not explicitly managed. The following financial key performance indicators have been defined:

Return on equity after tax

One key profitability indicator is the return on equity after tax. It is calculated by dividing IFRS net income/loss by the average IFRS equity available in the financial year excluding the revaluation reserve. Profit or loss before tax is a further financial key performance indicator. The aim is to increase it both by generating higher revenues and through strict cost discipline. Cost discipline and efficiency are monitored using the cost-income ratio, i. e. the ratio of general and administrative expenses to operating income.

Notional amount of financing

The notional amount of the funding in the strategic Real Estate Finance (REF) and Public Investment Finance (PIF) segments is a significant factor influencing the future earning power and has therefore been redefined as an additional financial key performance indicator. The financing volume can be controlled, above all, by the volume of new business including prolongations with maturities of more than one year, which also represent a financial key performance indicator. A present value approach is used for managing and calculating new business.

Risk management based on the risk-bearing capacity

Risk management is based on two risk-bearing capacity approaches, the going-concern approach and gone-concern approach. Management using the going-concern approach ensures that pbb Group can still meet the regulatory minimum capital ratios even after an adverse economic scenario, which occurs at a maximum of once every 20 years. The gone-concern approach, on the other hand, is based on the assumption that pbb Group, in the hypothetical event of the institute being liquidated, is able to fully service its unsubordinated debt instruments even in an extreme loss event. A precondition for demonstrating the risk-bearing capacity in both cases is that the risk covering potential exceeds the required economic risk capital. The methods and results of the risk-bearing capacity assessment and the methods used are described in detail in chapter 4.3 „Economic capital and risk bearing capacity“.

Common Equity Tier 1 ratio

The CET1 ratio, a key management parameter, is determined on a regular basis; it is calculated by dividing Common Equity Tier 1 (CET1) by risk-weighted assets (RWAs). The Advanced Internal Rating Based Approach (Advanced IRBA) is used to determine regulatory capital requirements for all material portfolios.

2.2 Corporate governance principles

Since its IPO in July 2015, pbb has been subject to the German Corporate Governance Code in accordance with Section 161 AktG. The compliance statement concerning the Federal Public Corporate Governance Code most recently dated 23 March 2018 can be found on the Company's website under Investors / Mandatory Publications / Corporate Governance Code. Any updates of the statement filed after the reporting date can also be found on pbb's website.

Furthermore, please refer to the report of the Supervisory Board published in pbb's 2017 annual report as well as the corporate governance statement including the corporate governance report, which can also be found on pbb's website under The Company / Corporate governance. These sources are particularly relevant for disclosure requirements as per Article 435 (2), letters (d) and (e) CRR regarding the risk committee and the information provided to the Management Board and the Supervisory Board, which is also described in chapter 4.1 "General organisation and risk management principles".

Management Board and Supervisory Board executive or supervisory functions

As at the reporting date, pbb's Management Board members hold 3 and pbb's Supervisory Board members hold 20 executive or supervisory functions which are actually carried out. These are shared between the individual members of the Management Board and Supervisory Board as follows:

Figure 3: Management Board and Supervisory Board executive or supervisory functions

Name	Number of actually perceived management or supervisory mandate	Number of management or supervisory mandate in accordance with the method referred to Article 91 (3) and (4) of Directive 2013/36/EU
Supervisory Board of the pbb as of December 31, 2017		
Dr. Günther Bräunig	2	2
Dagmar Kollmann	5	5
Dr. Thomas Duhnkrack	2	2
Dr. Christian Gebauer-Rochholz	1	1
Georg Kordick	1	1
Joachim Plesser	5	5
Oliver Puhl	2	2
Heike Theißing	1	1
Dr. Hedda von Wedel	1	1
Management Board of the pbb as of December 31, 2017		
Andreas Arndt	1	1
Thomas Köntgen	1	1
Andreas Schenk	1	1
Total	**23**	**23**

For details on the functions and mandates, please refer to note 83 "Members of the Supervisory and of the Management Board" in the pbb Group's 2017 annual report.

On 22 March 2016, the ECB approved the fifth mandate (additional mandate) of Mr. Plesser which would be inadmissible in accordance with Section 25d (3) sentence 1 No. 3 KWG. No corresponding approval was necessary for the additional mandate of Ms. Kollmann as she had already taken up her mandate before the corresponding amendment of Section 25d (3) KWG.

Selection of Management Board and Supervisory Board members

The Supervisory Board has defined specific objectives for its composition in accordance with point 5.4.1 of the German Corporate Governance Code in its rules of procedure, and adopted a competence profile for the overall body in the Supervisory Board meeting on 11 August 2017. These objectives have been extended to include a catalogue of criteria for new members to be appointed to the Supervisory Board; this catalogue specifically recognises the company-specific and specialist requirements. Changes in the composition of the Supervisory Board are only expected to be seen at the end of the period of office of Dr. Hedda von Wedel and the special election at the annual general meeting in 2018.

As to the appointment of Management Board or Supervisory Board members, pbb has also established lists of criteria which are described in the following. The bank considers that the current officeholders meet these criteria, and the knowledge, skills and expertise of the Management Board and Supervisory Board members are published in the form of CVs on pbb's website under The Company / Management and The Company / Supervisory Board respectively.

List of criteria for the Management Board

According to Section 25c KWG, managers (= members of the Management Board) of an institution must display technical qualifications and reliability, and they must dedicate sufficient time to their tasks. Technical qualifications mean that managers must have sufficient theoretical and practical knowledge in the business area concerned and he or she must have managerial experience.

- Functional competences

  Candidates must have a high standard of experience in at least one business unit of pbb, e. g. public investment finance or real estate finance (front or back office), alternatively in corporate or commercial banking and ideally in selected corporate centre functions.

  Knowledge of the refinancing of bank business models is an asset.

  Potential candidates for a CFO or CRO position must have acquired professional knowledge in key areas obtained from board positions or important line management functions. This also applies to the capital market/treasury division.

- Industry competences

  Candidates must have several years of experience in the finance industry, preferably in commercial or asset based banking.

- Tenure

  Candidates must be admitted as a manager of a bank or, when they are first appointed to the Management Board, their authorisation must be available without any extended waiting time.

  They must have long-term managerial experience obtained from board positions or important line management functions including long-term and broad managerial experience as well as experience in process and restructuring management.

  They must display a strong entrepreneurial spirit as well as experience in dealing with entrepreneurial tasks including developing the business model and the strategy and/or performing business management tasks (preferably for a bank).

- Technical competences

  According to Section 25c KWG, Management Board members are required to have competences in particular in the areas of strategic management, company development, loan responsibility, bank management, sales.

  Particularly with regard to lending knowledge and skills, sound judgement of loan decisions is of the essence. In this context, long-standing, qualified and responsible loan decision-making practice is required.

As to bank management, knowledge and experience in the context of profit and risk control as well as methodological knowledge in the various bank management areas is highly relevant.

- Interpersonal skills

  High degree of persuasiveness and determination based on thoughtful argumentation.

  Respectful and team-oriented leadership approach.

  Strong ability to establish and maintain sustainable, trust-based relationships with employees, peers as well as external stakeholders of pbb.

  Strong commitment to develop the company along with the ability to identify, implement and communicate required changes.

  Credible and trustworthy representative of pbb in public, including relevant (customer) markets.

Competence profile of the Supervisory Board

In accordance with point 5.4.1 of the German Corporate Governance Code, the Supervisory Board adopted a competence profile for the Supervisory Board in August 2017. This contains the following main definitions:

- At least five members of the Supervisory Board, thereof at least three shareholder representatives, shall be independent as set out in point 5.4.2 of the German Corporate Governance Code. As recommended by this code, a member of the Supervisory Board shall not be considered to be independent if he/she has a personal or business relationship with pbb, its boards, a controlling shareholder or an affiliated company which may give rise to a material conflict of interest on a more than temporary basis. As to employee representatives, it is assumed that their independence is not affected by the fact that they hold the position of employee representatives and have an employment relationship at the same time.
- The Supervisory Board is not permitted to consist of more than two former members of the Management Board. Former members of the Management Board should not chair the Supervisory Board or chair a committee.
- The members of the Supervisory Board should in general not be more than 70 years old, and the period of office of a member of the Supervisory Board should in general end after the end of the ordinary annual general meeting which follows the 70th birthday of the member of the Supervisory Board.
- The maximum duration of service of the members of the Supervisory Board should in general not exceed three full periods of office in accordance with Section 102 (1) AktG.
- Compliance with the legal requirements regarding the maximum number of mandates (see Section 25d (3) and (3a) KWG and networking of the committees (see Section 25d (7) sentence 4 KWG).
- The Supervisory Board should overall cover all necessary fields of competence which in particular might result from the factors described in the following. These fields of competence should where possible be covered by individual members of the Supervisory Board, whereby at least one member should have the respective competences. These include the following:

  - Corporate strategy and future strategic development
  - Business model/main areas of activity, in particular real-estate know-how
  - Experience with the US financial market
  - Experience on the European financial markets
  - Technological (digital) factors

- Accounting and auditing in accordance with Section 100 (5) AktG/Section 25d (9) sentence 3 KWG
- Risk management
- Compliance
- Legal/corporate governance
- Management and monitoring of peer companies

List of criteria for the Supervisory Board

According to Section 25d KWG, the members of a Supervisory Board of an institution must be reliable, have the expertise required to control, assess and monitor the transactions carried out by the company concerned, and must dedicate sufficient time to their tasks. Candidates shall have the following competences:

- Functional competences

  Very good knowledge of the banking business as well as extensive, broad entrepreneurial experience.

  In-depth understanding of annual reports and reports provided to the Supervisory Board as well as of the regulatory environment of banks.

- Industry competences

  Long-term experience in the financial industry, financial administration or control; several years of experience in a division of pbb are an asset.

- Tenure

  Long-standing practice in managing a company or an internationally operating bank / organisation / corporation.

  Alternatively, many years of practical experience in a leading position of a large company or a leading public authority position.

- Interpersonal skills

  Very good advisory skills, persuasiveness as well as diplomatic skills.

  Ability to build confidence along with responsible performance of supervisory tasks.

- Other experience

  - Chairman of the Supervisory Board

    Candidates must be admitted as a manager of a bank as defined by KWG and must have bank management experience acquired as a chairman of the board or have long-term experience as a board member

  - Chairman of the Audit Committee

    Special expertise in auditing or annual accounts auditing as defined by Section 100 (5) AktG

  - Chairman of the Risk Management and Liquidity Strategy Committee

    Special expertise in the field of loans.

Member diversity strategy

Both Supervisory Board and Management Board consider that diversity matters when filling management positions, and they aim at an appropriate representation of the underrepresentated gender (as required by Sections 76 (4), 111 (5) AktG). Every candidate must be reliable and must be adequately qualified. In addition to the specialist skills with regard to sector and management experience, the candidates should also be trustworthy personalities of moral integrity. The requirements regarding the independence of the mandate holders also have to be taken into consideration when selecting suitable candidates. If there are several suitable candidates, the objective of achieving maximum diversity will also be taken into consideration. Where possible, the composition of the bodies should also reflect the international activity of the pbb Group and the composition of the workforce. There are specific criteria regarding age and gender for the composition of the Supervisory Board. The members of the Management Board should in general not be more than 60 years old. For recognising the underrepresented gender, the Supervisory Board has defined the following criteria which are to be met by 30 June 2022:

- Target percentage of women in the Supervisory Board: 30 %
- Planungsziel zum Frauenanteil im Vorstand: 20 %

As of 31 December 2017, the percentage of women in the Supervisory Board was 33.3 %; the percentage of women in the Management Board (which apart from the exit of Dr. Bernhard Scholz was unchanged) was 0 %. The Supervisory Board continues to undertake to take account of the underrepresented gender for appointing subsequent persons to the Management Board (assuming appropriate suitability and qualifications). As the current service agreements of the members of the Management Board run until at least 2020, and also in view of the familiarisation phase of Marcus Schulte, currently general agent, before his planned appointment to the Management Board to take on the Treasury division, it is however not likely at present that there will be any change to the existing situation. For further details regarding the diversity strategy, please refer to the governance statement in accordance with Section 289f HGB printed in the annual report 2017.

2.3 Remuneration policy

Information on the remuneration policy and remuneration practice as per Article 450 CRR can be found in the Section "Remuneration report" of the 2017 annual report of the pbb Group. In addition, the quantitative remuneration information regarding the employees will probably be disclosed, after the conclusion of the remuneration negotiations, in Q2 2018 in the remuneration report on the website of the pbb Group under The Company / Corporate Governance / Remuneration Reports.

2.4 Regulatory and commercial consolidation

Scope of consolidation

According to part 8 of CRR, companies which form part of the Group as defined in Section 10a KWG in conjunction with Article 11 et seq. CRR (regulatory consolidation scope) must be considered in the Disclosure Report. By contrast, the commercial consolidation scope is based on international accounting standards as shown in the annual report of the pbb Group. As of 31 December 2017, there is no difference between the regulatory scope of consolidation according to Articles 18 to 24 CRR and the commercial scope of consolidation for pbb's consolidated financial statements.

According to Article 436, letters (a) and (b) CRR in conjunction with EU LI3 of the EBA/GL/2016/11 guidelines, the following table "Regulatory and commercial consolidation scope according to individual companies" shows the regulatory and commercial consolidation scope of pbb's subsidiaries. The various subsidiaries are divided according to the company type in line with the definitions provided in Article 4 CRR in conjunction with Section 1 KWG.

Table 1: Regulatory and commercial consolidation scope by entity (EU LI3)

	Name of the entity along with classification in acc. with KWG	Method of accounting consolidation (IFRS)	Method of regulatory consolidation				Description of the entity / Purpose of business
			Full consolidation	Proportional consolidation	Neither consolidated nor deducted	Deducted	
		a	b	c	d	e	f
Credit institutions							
1	Deutsche Pfandbriefbank AG Munich, Germany	Full consolidation	x				Credit institution
Financial enterprises							
	none						
Ancillary banking services enterprises							
2	IMMO Immobilien Management GmbH & Co. KG Munich, Germany	Full consolidation	x				Real estate company
3	Immo Invest Real Estate GmbH Munich, Germany	Full consolidation	x				Salvage acquisition
4	CAPVERIANT GmbH Munich, Germany	Full consolidation	x				Marketplace of municipal finance
Other enterprises							
	none						

As at the reporting date, the regulatory consolidation scope comprised pbb as the parent company of the group of institutions as well as three subordinate companies. The total regulatory capital and the consolidated exposures according to CRR are determined by the pbb Group based on the IFRS financial statements as per Section 10a (5) KWG.

pbb prepared its consolidated financial statements as of 31 December 2017 in line with Regulation (EC) No. 1606/2002 of the European Parliament and of the Council of 19 July 2002 based on the International Financial Reporting Standards (IFRS). The separate financial statements of consolidated German and foreign companies are included in the consolidated financial statements of pbb based on uniform accounting and valuation principles.

Derogation provided for in Article 19 (1) CRR

As was the case in the previous year, the pbb Group avails itself of the derogation provided for in Article 19 (1) CRR in conjunction with Section 31 (3) KWG for one subsidiary company, a financial company. This company is not part of the regulatory consolidation scope:

- Immo Immobilien Management Beteiligungsgesellschaft mbH, Munich, Germany.

Against the background of their secondary financial significance, the real estate company is not part of regulatory or commercial consolidation. From a regulatory perspective, it is subject to risk weighting. The effects of the contractual relationships of group companies with this non-consolidated subsidiary have been taken into consideration in the consolidated financial statements as required by the commercial code. The shares in the non-consolidated company are measured at cost and shown as AfS (Available for Sale) financial assets.

pbb as the ultimate parent company of the pbb Group informs both German Bundesbank and BaFin on an annual basis of companies which are not part of regulatory consolidation.

Changes in the financial year

In the financial year 2017, the following companies, three financial companies and one other company, were deconsolidated following liquidation, and are thus no longer included in the regulatory and the commercial law consolidation group:

- Hypo Real Estate Capital Japan Corp. i.L., Tokyo, Japan
- Hypo Real Estate International LLC I, Wilmington, Delaware, USA
- Hypo Real Estate International Trust I, Wilmington, Delaware, USA
- Hypo Real Estate Capital India Corp. i.L., Mumbai, India.

In addition, RPPSE Espacio Oviedo S.L.U., Madrid, Spain, a special-purpose entity in connection with a salvage acquisition, was also deconsolidated following the disposal.

The real estate company Ragnarök Vermögensverwaltung AG & Co. KG, Munich, was merged with pbb in the reporting year.

CAPVERIANT GmbH, Munich, which was established in December 2017 and which is wholly owned by pbb, was for the first time included in the consolidated financial statements or in the regulatory and commercial law consolidation group. This newly established subsidiary is developing a portal for public financing, with a core function of mediating credit supply and demand.

Special-purpose entities

As of 31 December 2017, the pbb Group does not have any special purpose entities. As described above, the three special-purpose entities Hypo Real Estate International LLC I, Hypo Real Estate International Trust I and RPPSE Espacio Oviedo S.L.U., which were still consolidated as of 31 December 2016, were deconsolidated in the reporting year.

Subsidiaries with capital deficits

A capital deficit is the amount by which the own funds of a subsidiary which is not consolidated fall below the regulatory capital as per Article 92 CRR in conjunction with Article 465 CRR. As in the previous year, the pbb Group did not hold shares in any subsidiaries as of 31 December 2017 which were deducted from liable equity (deduction method) where these subsidiaries were subject to capital deficits as defined in Article 436 (d) CRR and were not included in the consolidation.

Transfer of own funds or repayment of liabilities

Within the pbb Group, there are no major actual or legal obstacles to the immediate transfer of own funds or the repayment of liabilities by the parent company. pbb, which is critical for the financial stability of the group, is headquartered in Germany. As in the previous year, no transfer of own funds and no repayment of liabilities as defined by Article 7 (1), letter a CRR took place in the reporting year 2017.

Exposure values and reported book values

For disclosure pursuant to part 8 of the CRR, the regulatory scope of consolidation pursuant to Articles 18 to 24 CRR described above is decisive. The two following tables in accordance with Article 436 (b) CRR in conjunction with EU LI1, EU LI2 and EU LIA of the EBA guidelines EBA/GL/2016/11 show the reconciliation of balance sheet carrying amounts (IFRS) in accordance with the pbb consolidated financial statements as of 31 December 2017 in accordance with the commercial scope of consolidation with the regulatory exposure values (exposure at default; EAD) according to the COREP report of own funds and own funds requirements using the regulatory scope of consolidation. In addition, the distribution of the amounts is shown for various types of risk.

Table 2: Regulatory and commercial consolidation and risk type reconciliation (EU LI1)

All figures in € million

	Assets and liabilities of the consolidated balance sheet	Carrying amounts (IFRS) as reported in published consolidated financial statement 31.12.2017	Carrying amounts (IFRS) under scope of regulatory consolidation 31.12.2017	Carrying amounts (IFRS) of positions subject to the underlying risk framework				
				Credit risk	Counterparty credit risk	Securiti-sation	Market risk	Not subject to capital requirements or subject to deduction from capital
		a	b	c	d	e	f	g
1	**Assets**							
2	Cash reserve	999	999	999	-	-	4	-
3	Trading assets (HfT)	870	870	-	870	-	98	-
4	Loans and advances to other banks (LaR)	2,415	2,415	726	1,689	-	53	-
5	Loans and advances to customers (LaR)	40,274	40,274	40,274	-	-	7,874	-
6	Allowances for losses on loans and advances	-71	-71	-71	-	-	-10	-
7	Valuation adjustment from portfolio hedge accounting	-1	-1	-1	-	-	-	-
8	Financial investments (LaR)	8,240	8,240	8,240	-	-	1,699	-
9	Financial investments (AfS)	2,385	2,385	2,385	-	-	245	-
10	Property and equipment	6	6	6	-	-	-	-
11	Intangible assets	36	36	-	-	-	-	36
12	Other assets	2,712	2,712	34	2,678	-	98	-
13	Thereof: Positive fair values from hedging derivatives	2,678	2,678	-	2,678	-	98	-
14	Income tax assets	129	129	100	-	-	-	29
15	Current tax assets	42	42	42	-	-	-	-
16	Deferred tax assets	87	87	58	-	-	-	29
17	**Total assets**	**57,994**	**57,994**	**52,692**	**5,237**	**0**	**10,061**	**65**
18	**Equity and liabilities**							
19	Liabilities to other banks (at amortised cost)	3,280	3,280	-	990	-	17	2,290
20	Liabilities to customers (at amortised cost)	8,275	8,275	-	291	-	39	7,984
21	Securitised liabilities (at amortised cost)	38,362	38,362	-	-	-	3,410	38,362
22	Valuation adjustment from portfolio hedge accounting	-	-	-	-	-	-	-
23	Trading liabilities (HfT)	956	956	-	956	-	69	-
24	Provisions	245	245	-	-	-	-	245
25	Other liabilities	2,959	2,959	-	2,889	-	502	70
26	Thereof: Negative fair values from hedging derivatives	2,889	2,889	-	2,889	-	502	-
27	Income tax liabilities	57	57	-	-	-	-	57
28	Current tax liabilities	57	57	-	-	-	-	57
29	Subordinated capital (at amortised cost)	1,002	1,002	-	-	-	-	1,002
30	**Liabilities**	**55,136**	**55,136**	**0**	**5,126**	**0**	**4,037**	**50,010**
31	Equity	2,858	2,858	-	-	-	-	2,858
32	**Total equity and liabilities**	**57,994**	**57,994**	**0**	**5,126**	**0**	**4,037**	**52,868**

As of the reporting date, the pbb Group had exactly the same level of regulatory and commercial consolidation. There are no differences due to a different composition of the consolidation groups.

In accordance with the business model of the pbb Group, which focuses on commercial real estate financing and public investment financing, the assets are primarily subject to a capital requirement for credit risks (including counterparty credit risks). In addition, transactions concluded in foreign currency are subject to an equity requirement for market risks (risk of changes in foreign exchange rates). These assets/liabilities are accordingly allocated to more than one risk type. The pbb Group has no trading book for portfolios with short-term profit taking, which is why the transactions with regard to the market risk are exclusively subject to the capital requirement for the foreign currency risk of the banking book.

The regulations set out in part 3, title II, chapter 6 “Counterparty credit risk” of the CRR for calculating the exposure value for the counterparty credit risk are applied by the ppb Group for derivative transactions; it uses the market valuation in accordance with Article 274 CRR for this purpose. On the other hand, for security financing transactions (security lending/repo transactions), the pbb Group uses the regulations for credit risk mitigation (for financial securities) in accordance with chapter 4 of the CRR (comprehensive method according to Art. 223 et seq. CRR); this is the reason why these transactions are not allocated to the counterparty credit risk (column d) in the above-mentioned table EU LI1.

In connection with its derivative transactions, the pbb Group uses the standard framework agreements (e.g. German framework agreement for financial futures (DRV) or ISDA Master Agreement) including the corresponding security agreements (e.g. German Credit Support Annex to the DRV or ISDA Credit Support Annex). These framework agreements contain a netting clause for the event of premature termination of the transactions (close-out netting), permitting the netting of mutual risks. Within the framework of the netting process, the credit risk is reduced to one single net claim due from the contracting party. As a consequence, the counterparty credit risk in the table above refers to both assets and liabilities. The netting of mutual risks in the course of the regulatory netting process relates to the asset items "trading assets" (positive market values of stand-alone derivatives of the banking book), "other assets" (positive fair values of hedging derivatives) and loans and advances to credit institutions (cash collateral provided) as well as the liability positions "traded liabilities" (negative market values of stand-alone derivatives of the banking book), "other liabilities" (negative fair values of hedging derivatives) and "liabilities to credit institutions/customers" (cash collateral received).

Table 3: Differences between regulatory exposure amounts and IFRS carrying amounts (EU LI2)

All figures in € million

	Carrying amounts (IFRS) vs. Regulatory risk positions	Total	Positions according to the underlying risk framework			
			Credit risk	Counterparty credit risk	Securitisation	Market risk
		a	b	c	d	e
1	Assets **Carrying amounts (IFRS) under the scope of regulatory consolidation (as per template EU LI1)**	**57,994**	**52,692**	**5,237**	**-**	**10,061**
2	Liabilities Carrying amounts (IFRS) under the regulatory scope of consolidation (as per template EU LI1)	57,994	-	5,126	-	4,037
3	Total net amount (IFRS) under the regulatory scope of consolidation	-	52,692	111	-	6,024
4	**Off-balance-sheet amounts** [1]	**4,787**	**3,558**	**-**	**-**	**-**
5	Differences due to Credit Conversion Factor (CCF) for committed open credit lines	-1,229	-	-	-	-
6	Differences due to risk-reducing recognition of approved contractual netting agreements for derivative financial instruments, taking into account premiums for potential future replacement value for derivative transactions (regulatory add-on)	-4,553	-	-4,553	-	-
7	Differences due to the consideration of value adjustments resulting from the application of the internal rating-based approach (IRBA)	83	83	-	-	-
8	Differences resulting from the calcualtion of the net foreign currency position in accordance with the market risk standard approach persuant to Article 325 et seq. CRR	-	-	-	-	-9,691
9	Differences due to "Prudential Filters" - calculation of additional value adjustments for fair value-based financial instruments (Additional Value Adjustments; AVA)	-	-	-	-	-
9a	Other (e.g. deduction items from equity)	385	450	-	-	-
10	**Exposure amounts considered for regulatory purposes**	**57,467**	**56,783**	**684**	**0**	**370**

1) Off-balance sheet items are shown in column (a) before and in columns (b) to (e) after recognition of the Credit Conversion Factor (CCF).

The assets in accordance with the pbb consolidated financial statements (IFRS) as of 31 December 2017 amounted to € 57,994 million. The regulatory exposure parameters (exposure at default, EAD) are based on the IFRS consolidated financial statements, with due consideration being given to regulatory adjustments. The exposure parameters amounted to € 57,467 million as of 31 December 2017.

The main reasons for the differences between the carrying amounts (IFRS) in accordance with the pbb consolidated financial statements according to the regulatory consolidation group and the regulatory exposure parameters according to the regulatory consolidation group are as follows:

- The recognition of off-balance-sheet items – contingent liabilities from guarantees and warranty agreements as well as other obligations arising from irrevocable loan commitments – after taking account of credit conversion factors (CCF) and also, in the credit risk standardised approach (CRSA), after taking account of credit risk adjustments (provisions).

  In the pbb Group, irrevocable loan commitments are the most significant part of off-balance-sheet items. This includes all obligations of a lender who extend a loan at a later date and can thus become a credit risk. These are mainly loans which are not fully paid out.

- The risk-mitigating recognition of accepted contractual netting agreements for derivative financial instruments, taking account of the add-ons for the potential future replacement value (regulatory add-on).

  On the balance sheet, the derivatives (with the exception of balance sheet netting of derivatives concluded with Eurex Clearing) cannot be netted because they have different conditions (e.g. different maturities or currency underlyings). The collateral agreements (collateral which is received or provided) also cannot be netted with the derivatives on the balance sheet.

- The netting of allowances (individual allowances and portfolio-based allowances) for exposures using the advanced approach (IRBA) based on internal bank rating procedures. In contrast to the credit risk standard approach (CRSA), general and specific credit risk adjustments are not deducted from the balance sheet carrying amount in the IRB approach, and instead are taken into account in the value adjustment comparison with the expected loss amounts (EL).

- Differences in the valuations resulting from the calculation of the net foreign currency position according to the market risk standard approach in accordance with Article 325 et seq. CRR. The regulatory foreign currency risk as shown in row 10 of the previous table is calculated on the basis of the present values of the respective assets/liabilities, whereby various nettings are applied between asset and liability positions in one currency, whereas the balance sheet carrying amounts according to rows 1 and 2 of the previous table show the respective assets and liabilities in foreign currency.

- Items which are deducted from equity, such as intangible assets or a portion of the deferred tax assets (deferred tax assets which are dependent on future profitability and which do not result from temporary differences) are not included in the exposure values. They are included in the previous table under the item Other.

On the other hand, additional valuation adjustments (AVA) pursuant to Article 34 CRR in conjunction with Article 105 CRR with regard to conservative valuation of financial instruments as well as so-called “prudential filters” pursuant to Articles 32, 33 and 35 CRR do not have any impact on the carrying amounts (IFRS) or the regulatory exposure values. These regulatory adjustments settle the balance sheet equity as determined by IFRS and lead to an increase/decrease in the regulatory capital.

The pbb Group applies the simplified approach pursuant to Article 4 et seq. of the Delegated Regulation (EU) 2016/101 of 26 October 2015 for determining the additional valuation adjustments (AVA) for financial instruments recognised at fair value.

Institutions are permitted to use this approach if the sum of the absolute value of assets and liabilities recognised at fair value in accordance with Article 4 (1) less the possibility of offsetting pursuant to Article (2) of the EU regulation is less than € 15 billion. For the pbb Group, this amount was € 5.2 billion as of the reporting date.

3 Own funds and assets

3.1 Structure of own funds

The regulatory own funds which are relevant for compliance with the regulatory capital requirements and thus for the capital backing for the risk types credit risk (including counterparty credit risk), market risk, operational risk, settlement risk and CVA risk are determined in accordance with the regulations of part 2 of the CRR. Regulatory own funds consist of common equity tier 1 (CET1) capital, additional tier 1 (AT1) capital as well as tier 2 (T2) capital, whereby the pbb Group does not have any AT1 at present.

For calculating its own funds, the pbb Group takes account of the requirements of prudent valuation in accordance with Article 105 CRR in conjunction with Article 34 CRR. The pbb Group uses the simplified approach in accordance with Article 4 et seq. of the Delegated Regulation (EU) 2016/101 of 26 October 2105. The sum of the absolute value of the assets and liabilities of the pbb Group recognised with their present values is lower than the threshold of € 15 billion.

The remainder of this chapter describes the own fund information in accordance with Article 437 CRR in conjunction with the transitional provisions in accordance with Article 492 CRR for the pbb Group on a consolidated basis.

In accordance with Article 437 (1) letter d CRR in conjunction with Article 492 (3) and (4) CRR, the following table for the structure of own funds shows the type and amount of the elements of own funds for the pbb Group, taking account of the transitional regulations as of the reference date 31 December 2017 (31 December 2016). They are calculated in accordance with the requirements of CRR. The amounts which are shown are based on the IFRS consolidated financial statements of the pbb Group, with due consideration being given to the regulatory adjustments. pbb is the direct or indirect main shareholder of the shareholdings included in the regulatory consolidation group.

Table 4: Structure of own funds

All figures in € million, unless otherwise stated

No.	Capital instruments pbb Group	(A) Amount at disclosure date 31.12.2017	(B) Amounts subject to pre-Regulation (EU) No. 575/2013 treatment or prescribed residual amount of Regulation (EU) No 575/2013 31.12.2017
	Common Equity Tier 1 (CET1) capital: Instruments and reserves		
1	Capital instruments and the related share premium accounts	2,017	-
1a	of which: Subscribed capital	380	-
1b	of which: Capital reserve	1,637	-
2	Retained earnings	769	-
3	Accumulated other comprehensive income (and other reserves, to include unrealised gains and losses under the applicable accounting standards)	-73	-
3a	Funds for general banking risk	-	-
4	Amount of qualifying items referred to in Article 484 (3) and the related share premium accounts subject to phase out from CET1	-	-
4a	Public sector capital injections grandfathered until 1 January 2018	-	-
5	Minority Interests (amount allowed in consolidated CET1)	-	-
5a	Independently reviewed interim profits net of any foreseeable charge or dividend	-	-
6	**Common Equity Tier 1 (CET1) capital before regulatory adjustments**	**2,713**	
	Common Equity Tier 1 (CET1) capital: regulatory adjustments		
7	Additional value adjustments (negative amount)	-5	-
8	Intangible assets (net of related tax liability) (negative amount)	-29	-7
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) are met) (negative amount)	-23	-6

All figures in € million, unless otherwise stated

No.	Capital instruments pbb Group	(A) Amount at disclosure date 31.12.2017	(B) Amounts subject to pre-Regulation (EU) No. 575/2013 treatment or prescribed residual amount of Regulation (EU) No 575/2013 31.12.2017
11	Fair value reserves related to gains or losses on cash flow hedges	-22	-
12	Negative amounts resulting from the calculation of expected loss amounts	-51	-13
13	Any increase in equity that results from securitised assets (negative amount)	-	-
14	Gains or losses on liabilities valued at fair value resulting from changes in own credit standing	-5	-1
15	Defined-benefit pension fund assets (negative amount)	-	-
16	Direct and indirect holdings by an institution of own CET1 instruments (negative amount)	-	-
17	Direct, indirect and synthetic holdings of the CET1 instruments of financial sector entities where those entities have reciprocal cross holdings with the institution designed to inflate artificially the own funds of the institution (negative amount)	-	-
18	Direct and indirect holdings by the institution of the CET1 instruments of financial sector entities where the institution does not have a significant investment in those entities (not more than 10% and net of eligible short positions) (negative amount)	-	-
19	Direct, indirect and synthetic holdings by the institution of the CET1 instruments of financial sector entities where the institution has a significant investment in those entities (more than 10% and net of eligible short positions) (negative amount)	-	-
20	Empty Set in the EU	-	-
20a	Exposure amount of the following items which qualify for a risk weight of 1.250%, where the institution opts for the deduction alternative	-	-
20b	of which: qualifying holdings outside the financial sector (negative amount)	-	-
20c	of which: securitisation positions (negative amount)	-	-
20d	of which: free deliveries (negative amount)	-	-
21	Deferred tax assets arising from temporary differences (amount above 10% threshold, net of related tax liability where the conditions in 38 (3) are met) (negative amount)	-	-
22	Amount exceeding the 15% threshold (negative amount)	-	-
23	of which: direct and indirect holdings by the institution of the 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 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 Common Equity Tier 1 in respect of amounts subject to pre-CRR treatment	-	-
26a	Regulatory adjustments relating to unrealised gains and losses pursuant to Articles 467 and 468	4	-4
26aa	thereof: Deductions and adjustment items for not realised losses from exposures to central governments categorised as Available for Sale (AfS) according to IAS 39	5	-5
26ab	thereof: Deductions and adjustment items for other not realised losses	-1	1
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)	-13	13
28	**Total regulatory adjustments to Common equity Tier 1 (CET1)**	**-144**	**-17**
29	**Common Equity Tier 1 (CET1) capital**	**2,569**	
	Additional Tier 1 (AT1) capital: Instruments and reserves		
30	Capital instruments and the related share premium accounts	-	-
31	of which: classified as equity under applicable accounting standards	-	-
32	of which: classified as liabilities under applicable accounting standards	-	-
33	Amount of qualifying items referred to in Article 484 (4) and the related share premium accounts subject to phase out from AT1	-	-
	Public sector capital injections grandfathered until 1 January 2018	-	-
34	Qualifying Tier 1 capital included in consolidated AT1 capital (including minority interests not included in row 5) issued by subsidiaries and held by third parties	-	-
35	of which: instruments issued by subsidiaries subject to phase out	-	-
36	**Additional Tier 1 (AT1) capital before regulatory adjustments**	**0**	
	Additional Tier 1 (AT1) capital: regulatory adjustments		
37	Direct and indirect holdings by an institution of own AT1 Instruments (negative amount)	-	-
38	Holdings of the AT1 instruments of financial sector entities where those entities have reciprocal cross holdings with the institution designed to inflate artificially the own funds of the institution (negative amount)	-	-
39	Direct and indirect holdings of the AT1 instruments of financial sector entities where the institution does not have a significant investment in those entities (not more than 10% and net of eligible short positions) (negative amount)	-	-
40	Direct and indirect holdings by the institution of the AT1 instruments of financial sector entities where the institution has a significant investment in those entities (more than 10% and net of eligible short positions) (negative amount)	-	-
41	Regulatory adjustments applied to additional tier 1 in respect of amounts subject to pre-CRR treatment and transitional treatments subject to phase out as prescribed in Regulation (EU) No 575/2013 (i.e. CRR residual amounts)	-13	-
41a	Residual amounts deducted from Additional Tier 1 capital with regard to deduction from Common Equity Tier 1 capital during the transitional period pursuant to article 472 of Regulation (EU) No 575/2013	-13	-
41aa	of which: intangibles	-7	-
41ab	of which: shortfall of provisions to expected losses calculated according to the IRB-Approach	-6	-
41b	Residual amounts deducted from Additional Tier 1 capital with regard to deduction from Tier 2 capital during the transitional period pursuant to article 475 of Regulation (EU) No 575/2013	-	-
41c	Amount to be deducted from or added to Additional Tier 1 capital with regard to additional filters and deductions required pre-CRR	13	-

All figures in € million, unless otherwise stated

No.	Capital instruments pbb Group	(A) Amount at disclosure date 31.12.2017	(B) Amounts subject to pre-Regulation (EU) No. 575/2013 treatment or prescribed residual amount of Regulation (EU) No 575/2013 31.12.2017
42	Qualifying T2 deductions that exceed the T2 capital of the institution (negative amount)	-	-
43	**Total regulatory adjustments to Additional Tier 1 (AT1) capital**	**0**	**0**
44	**Additional Tier 1 (AT1) capital**	**0**	
45	**Tier 1 capital (T1 = CET1 + AT1)**	**2,569**	
	Tier 2 (T2) capital: Instruments and reserves		
46	Capital instruments and the related share premium accounts	675	-
47	Amount of qualifying items referred to in Article 484 (5) and the related share premium accounts subject to phase out from T2	-	-
	Public sector capital injections grandfathered until 1 January 2018	-	-
48	Qualifying own funds instruments included in consolidated T2 capital (including minority interests and AT1 instruments not included in rows 5 or 34) issued by subsidiaries and held by third parties	-	-
49	of which: instruments issued by subsidiaries subject to phase out	-	-
50	Credit risk adjustments	-	-
51	**Tier 2 (T2) capital before regulatory adjustments**	**675**	
	Tier 2 (T2) capital: regulatory adjustments		
52	Direct and indirect holdings by an institution of own T2 instruments and subordinated loans (negative amount)	-	-
53	Holdings of the T2 instruments and subordinated loans of financial sector entities where those entities have reciprocal cross holdings with the institution designed to inflate artificially the own funds of the institution (negative amount)	-	-
54	Direct and indirect holdings of the T2 instruments and subordinated loans of financial sector entities where the institution does not have a significant investment in those entities (not more than 10% and net of eligible short positions) (negative amount)	-	-
55	Direct and indirect holdings by the institution of the T2 instruments and subordinated loans of financial sector entities where the institution has a significant investment in those entities (net of eligible short positions) (negative amount)	-	-
56	Regulatory adjustments applied to tier 2 in respect of amounts subject to pre-CRR treatment and transitional treatments subject to phase out as prescribed in Regulation (EU) No 575/2013 (i.e. CRR residual amounts)	-6	6
56a	Residual amounts deducted from Tier 2capital with regard to deduction from Common Equity Tier 1 capital during the transitional period pursuant to article 472 of Regulation (EU) No 575/2013	-6	6
56aa	of which: shortfall of provisions to expected losses calculated according to the IRB-Approach	-6	6
56b	Residual amounts deducted from Tier 2 capital with regard to deduction from Additional Tier 1 capital during the transitional period pursuant to article 475 of Regulation (EU) No 575/2013	-	-
56c	Amount to be deducted from or added to Tier 2 capital with regard to additional filters and deductions required pre CRR	-	-
57	**Total regulatory adjustments to Tier 2 (T2) capital**	**-6**	**6**
58	**Tier 2 (T2) capital**	**670**	
59	**Total capital (TC = T1 + T2)**	**3,239**	
59a	Risk weighted assets in respect of amounts subject to pre-CRR treatment and transitional treatments subject to phase out as prescribed in Regulation (EU) No 575/2013 (i.e. CRR residual amounts)	-	-
60	**Total risk weighted assets**	**14,515**	
	Capital ratios and buffers		
61	Common Equity Tier 1 ratio (as a percentage of risk exposure amount)	17.7%	-
62	Tier 1 capital ratio (as a percentage of risk exposure amount)	17.7%	-
63	Total capital ratio (as a percentage of risk exposure amount)	22.3%	-
64	Institution specific buffer requirement (CET1 requirement in accordance with article 92 (1) (a) plus capital conservation and countercyclical buffer requirements, plus systemic risk buffer, plus the systemically important institution buffer (G-SII or O-SII buffer), expressed as a percentage of risk exposure amount)	1.355%	-
65	of which: capital conservation buffer requirement	1.250%	-
66	of which: countercyclical buffer requirement	0.105%	-
67	of which: systemic risk buffer requirement	-	-
67a	of which: Global Systemically Important Institution (G-SII) or Other Systemically Important Institution (O-SII) buffer	-	-
68	Common Equity Tier 1 available to meet buffers (as a percentage of risk exposure amount)	13.2%	-
69	[non relevant in EU regulation]	-	-
70	[non relevant in EU regulation]	-	-
71	[non relevant in EU regulation]	-	-
	Amounts below the thresholds for deduction (before risk weighting)		
72	Direct and indirect holdings of the capital of financial sector entities where the institution does not have a significant investment in those entities (not more than 10% and net of eligible short positions)	-	-
73	Direct and indirect holdings by the institution of the CET 1 instruments of financial sector entities where the institution has a significant investment in those entities (more than 10% and net of eligible short positions)	-	-
74	Empty Set in the EU	-	-
75	Deferred tax assets arising from temporary differences (amount below 10% threshold, net of related tax liability where the conditions in Article 38 (3) are met)	58	-
	Applicable caps on the inclusion of provisions in Tier 2		
76	Credit risk adjustments included in T2 in respect of exposures subject to standardized approach (prior to the application of the cap)	-	-

All figures in € million, unless otherwise stated

No.	Capital instruments pbb Group	(A) Amount at disclosure date 31.12.2017	(B) Amounts subject to pre-Regulation (EU) No. 575/2013 treatment or prescribed residual amount of Regulation (EU) No 575/2013 31.12.2017
77	Cap on inclusion of credit risk adjustments in T2 under standardised approach	4	-
78	Credit risk adjustments included in T2 in respect of exposures subject to internal ratings-based approach (prior to the application of the cap)	-	-
79	Cap for inclusion of credit risk adjustments in T2 under internal ratings-based approach	76	-
	Capital instruments subject to phase-out arrangements (only applicable between 1 Jan 2013 and 1 Jan 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	-	-
83	Amount excluded from AT1 due to cap (excess over cap after redemptions and maturities)	-	-
84	Current cap on T2 instruments subject to phase out arrangements	-	-
85	Amount excluded from T2 due to cap (excess over cap after redemptions and maturities)	-	-

The own funds shown in the table are based on the correct notification of own funds and own fund requirements of the pbb Group as of the reference date 31 December 2017 (incl. the cumulative profit 2017 and after deduction of the dividend of € 1.07 per eligible share proposed by the Management Board and the Supervisory Board, subject to approval by the annual general meeting).

Tier 1 capital

Tier 1 capital in accordance with CRR consists of common equity tier 1 (CET1) capital and additional tier 1 (AT1) capital. Common equity tier 1 capital consists of equity shown in the IFRS financial statements adjusted for regulatory adjustments. The composition of the balance sheet equity according to IFRS is described in the annual report of the pbb Group as of 31 December 2017.

Common equity tier 1 capital

As of 31 December 2017, the conditions for common equity tier 1 capital according to Articles 26 to 50 CRR were applicable.

The subscribed capital (share capital) of pbb amounted to approx. € 380 million as of 31 December 2017 (unchanged), and consisted of 134,475,308 no-par-value ordinary bearer shares with a computed share in the subscribed capital (share capital) of approximately € 2.83 per share. pbb did not own any of its own shares as of 31 December 2017 or in the entire financial year 2017.

Common equity tier 1 capital is based on the components of the IFRS balance sheet equity amounting to € 2,858 million, which includes the subscribed capital (share capital), the capital reserve, the retained earnings and other reserves as well as the net profit in 2017 of € 182 million. The common equity tier 1 capital before regulatory adjustments and after deduction of the dividend of € 1.07 per eligible share proposed by the Management Board and Supervisory Board (subject to the approval of the annual general meeting) amounted to € 2,713 million.

At the annual general meeting to be held on 21 June 2018, the Management Board and Supervisory Board will propose the payment of a dividend of € 144 million or € 1.07 per eligible share. In the previous year, at the beginning of June 2017, and pursuant to a resolution of the annual general meeting of pbb, a dividend of € 141 million or € 1.05 per share was paid out to the shareholders.

Regulatory adjustments

Various deductions totalling € 144 million which are required in the CRR are deducted from the common equity tier 1 (CET1) capital before regulatory adjustments of € 2,713 million:

- Valuation adjustments based on the requirements of prudent valuation amounting to € 5 million are deducted in full from common equity tier 1 capital.

  The prudent valuation has to be created in accordance with Article 34 CRR. In accordance with Article 4 of the EBA/RTS/2014/06, institutions with fair valued items up to a limit of € 15 billion (after deducting items which are not relevant for equity) may use the simplified approach. The pbb Group utilises this option. In accordance with Article 6 of this operating standard, a flat amount of 0.1 % of portfolios measured at fair value is deducted (again after deducting items which are not relevant for equity).

- In accordance with Article 37 CRR, the intangible assets of € 36 million have to be deducted in full from the common equity tier 1 (CET1) capital; however, as of 31 December 2017, only 80 % (€ 29 million) will be deducted in accordance with grandfathering provisions. The remaining 20 % (€ 7 million) can be deducted from the additional tier 1 (AT1) capital in accordance with grandfathering provisions. However, because there is no additional tier 1 (AT1) capital, the € 7 million is also deducted from common equity tier 1 (CET1) capital.

- As of 31 December 2017, deductions for deferred tax assets amounted to € 23 million. According to the grandfathering provision, this is calculated as 80 % of € 29 million of deferred tax assets which do not result from temporary differences after offsetting with the deferred tax liabilities. In accordance with Article 48 (4) CRR, risk weighting of 250 % is applied to the deferred tax assets of € 58 million which result from temporary differences.

- The cash flow hedge reserve of € 22 million is fully offset in accordance with Article 33 CRR.

- If the volume of loss allowances exceeds the expected loss, this amount has to be deducted from common equity tier 1 capital for banks which apply the internal rating-based approach (IRBA) in accordance with Article 159 CRR. Of the shortfall of € 64 million which resulted as of 31 December 2017, 80 %, i.e. € 51 million, is deducted from common equity tier 1 capital due to the grandfathering provisions. Half of the remainder of € 13 million can be deducted from additional tier 1 capital and tier 2 capital, i.e. approx. € 6 million in each case. However, because there is no additional tier 1 capital, this figure of € 6 million is also deducted from common equity tier 1 capital.

- As a result of the grandfathering provisions, only 80 % (i.e. € 5 million) of the profits and losses of € 6 million which result from the institution's own credit risk in relation to derivative liabilities measured at fair value (debt value adjustment, DVA) are deducted from the common equity tier 1 capital due to the grandfathering provisions. This deduction requirement is based on Article 33 (1) letter c CRR.

- According to Article 34 CRR, the AfS reserve remains part of regulatory tier 1 capital, irrespective of whether it is positive or negative. However, as a result of the grandfathering provisions of Articles 467 and 468 CRR, 20 % (€ 4 million) of the amount of € -19 million as of 31 December 2017 is re-allocated to common equity tier 1 capital. The figure of € 4 million consists of unrealised profits and losses relating to receivables due from central governments (€ 5 million) as well as other receivables (€ -1 million).

Overall, the common equity tier 1 (CET1) capital of the pbb Group as of 31 December 2017, including the cumulative profit 2017 and after deducting the proposed dividend (subject to the approval of the annual general meeting), amounted to € 2,569 million (31 December 2016: € 2,553 million).

Additional tier 1 capital

As of the reference date 31 December 2017, the pbb Group does not have any additional tier 1 (AT1) capital. Effective 14 June 2017, pbb utilised its right of termination for the issue (which existed at the end of 2016) of a hybrid capital instrument for € 350 million (nominal) in the form of "preferred securities", and repaid these instruments.

Tier 2 capital

The tier 2 capital (T2) of the pbb Group consists of long-term subordinated liabilities, less regulatory adjustments to common equity tier 1 capital which have to be applied to the tier 2 capital due to transitional provisions. This represents 10 % of the deduction for the value adjustment deficit. The provisions for recognising long-term subordinated liabilities in accordance with Article 63 CRR are complied with.

Interest is applied to the tier 2 instruments at market rates. The issued subordinated liabilities consist of the following issues (listed according to maturity).

Table 5: Tier 2 (T2) capital – Capital instruments

No. [1)]	Issuer	Year of issue	Type	Nominal amount in € million	Interest rate in %	Maturity
2	Deutsche Pfandbriefbank AG	2006	Registered Bond	10	4.050	2018
3	Deutsche Pfandbriefbank AG	2008	Registered Bond	10	variable	2018
4	Deutsche Pfandbriefbank AG	2008	Registered Bond	15	variable	2018
5	Deutsche Pfandbriefbank AG	2008	Registered Bond	1	variable	2018
6	Deutsche Pfandbriefbank AG	2008	Registered Bond	6	variable	2018
7	Deutsche Pfandbriefbank AG	2008	Registered Bond	8	variable	2018
8	Deutsche Pfandbriefbank AG	2008	Registered Bond	1	variable	2018
9	Deutsche Pfandbriefbank AG	2008	Registered Bond	20	variable	2018
10	Deutsche Pfandbriefbank AG	2008	Bearer bond	10	7.496	2018
11	Deutsche Pfandbriefbank AG	2008	Borrowers' note loan	10	7.515	2018
12	Deutsche Pfandbriefbank AG	2008	Bearer bond	25	8.000	2018
13	Deutsche Pfandbriefbank AG	2008	Registered Bond	5	8.000	2018
14	Deutsche Pfandbriefbank AG	2008	Registered Bond	10	8.000	2018
15	Deutsche Pfandbriefbank AG	2008	Registered Bond	30	8.000	2018
16	Deutsche Pfandbriefbank AG	2008	Registered Bond	10	8.000	2018
17	Deutsche Pfandbriefbank AG	2008	Registered Bond	5	8.000	2018
18	Deutsche Pfandbriefbank AG	2008	Registered Bond	10	8.000	2018
19	Deutsche Pfandbriefbank AG	2008	Registered Bond	5	8.000	2018
20	Deutsche Pfandbriefbank AG	2006	Registered Bond	5	4.520	2019
21	Deutsche Pfandbriefbank AG	2006	Registered Bond	1	4.900	2020
22	Deutsche Pfandbriefbank AG	2000	Bearer bond	15	variable	2020
23	Deutsche Pfandbriefbank AG	2006	Borrowers' note loan	10	4.350	2021
24	Deutsche Pfandbriefbank AG	2006	Registered Bond	10	4.570	2021
25	Deutsche Pfandbriefbank AG	2006	Bearer bond	7	4.560	2021
26	Deutsche Pfandbriefbank AG	2006	Borrowers' note loan	1	4.910	2021
27	Deutsche Pfandbriefbank AG	2002	Borrowers' note loan	4	6.550	2022
28	Deutsche Pfandbriefbank AG	2002	Borrowers' note loan	6	6.550	2022
29	Deutsche Pfandbriefbank AG	2002	Bearer bond	10	6.570	2022
30	Deutsche Pfandbriefbank AG	2003	Bearer bond	10	6.750	2023
31	Deutsche Pfandbriefbank AG	2008	Bearer bond	10	8.060	2023
32	Deutsche Pfandbriefbank AG	2003	Borrowers' note loan	5	6.330	2023
33	Deutsche Pfandbriefbank AG	2003	Borrowers' note loan	5	6.330	2023
34	Deutsche Pfandbriefbank AG	2005	Borrowers' note loan	10	4.650	2025
35	Deutsche Pfandbriefbank AG	2016	Borrowers' note loan	2	3.950	2026
36	Deutsche Pfandbriefbank AG	2006	Borrowers' note loan	2.5	4.530	2026
37	Deutsche Pfandbriefbank AG	2001	Bearer bond	9	6.550	2026
38	Deutsche Pfandbriefbank AG	2006	Registered Bond	5	5.125	2026
39	Deutsche Pfandbriefbank AG	2016	Borrowers' note loan	5	3.880	2026
40	Deutsche Pfandbriefbank AG	2006	Borrowers' note loan	5	5.040	2026
41	Deutsche Pfandbriefbank AG	2016	Bearer bond	35	3.250	2026
42	Deutsche Pfandbriefbank AG	2017	Bearer bond	150	4.600	2027

No. [1]	Issuer	Year of issue	Type	Nominal amount in € million	Interest rate in %	Maturity
43	Deutsche Pfandbriefbank AG	2017	Bearer bond	60	3.375	2027
44	Deutsche Pfandbriefbank AG	2017	Bearer bond	300	2.875	2027
45	Deutsche Pfandbriefbank AG	2016	Bearer bond	5	4.120	2031
46	Deutsche Pfandbriefbank AG	2017	Registered Bond	7.5	4.550	2032
	Total			**886**		

1) The sequential numbering corresponds to the consecutive numbering of the T2 capital instruments in "Appendix" (Chapter 10).

None of the subordinated loans may lead to a premature repayment obligation of the issuer. These loans are subordinated to all claims of those obligors who are not subordinated (in the event of liquidation, insolvency or in the event of insolvency or other proceedings), but they enjoy priority over the liquidation claims of the shareholders. No subsequent limitation of subordination, maturity or notice period can be made. Debtors termination rights are subject to defined contractual conditions. The original terms are at least five years, and are usually between ten and 20 years.

After recognition of discounts and amortisations in accordance with Article 64 CRR, tier 2 capital before regulatory adjustments amounted to a total of € 675 million (31 December 2016: € 379 million).

Regulatory adjustments

The following regulatory adjustment is applied in addition to the regulatory charges of € 675 million:

- Deduction of approx. € 6 million (10 % of the value adjustment deficit of € 64 million).

After these regulatory adjustments, the tier 2 (T2) capital amounts to a total of € 670 million (31 December 2016: € 366 million).

Own funds

The own funds of the pbb Group totalling € 3,239 million (31 December 2016: € 3,105 million) consist of common equity tier 1 (CET1) capital of € 2,569 million and tier 2 (T2) capital of € 670 million.

The main factors behind the slight increase of € 134 million in total in the regulatory own funds of the pbb Group compared with 31 December 2016 are the subordinate new issues of bonds carried out in the first half of 2017 with a total nominal volume of approx. € 518 million. These are opposed by the declines in the netting of subordinate bonds due to repayments and daily amortisation in accordance with CRR as well as the termination of the hybrid capital instrument with a nominal value of € 350 million.

The main features of common equity tier 1 and tier 2 capital instruments issued by pbb in accordance with Article 437 (1) letter b CRR are described in chapter 10 "Notes“ of this Disclosure Report.

Reconciliation of regulatory capital and balance sheet equity

In accordance with Article 437 (1) letter a CRR, the following table shows the reconciliation of regulatory own funds and balance sheet equity according to IFRS for the pbb Group. The balance sheet equity of the pbb Group amounted to € 2,858 million as of 31 December 2017 (31 December 2016: € 2,799 million).

Table 6: Reconciliation of regulatory capital and balance sheet equity

All figures in € million, unless otherwise stated

No.	Capital instruments pbb Group	(A) Total equity according to commercial IFRS-consolidation scope 31.12.2017	(B) Total equity according to regulatory CRR-consolidation scope 31.12.2017	(C) Regulatory own funds acc. to CRR 31.12.2017
	Common Equity Tier 1 (CET1): Instruments and reserves			
1	Capital instruments and the ralted share premium accounts	2,017	2,017	2,017
1a	thereof: Subscribed capital	380	380	380
1b	thereof: Additional paid-in capital	1,637	1,637	1,637
2	Retained earnings	731	731	731
3	Accumulated other comprehensive income (and other reserves)	-72	-72	-72
3a	thereof: AfS-Reserve	-19	-19	-19
3b	thereof: Cashflow-Hedge-Reserve	22	22	22
3c	thereof: Gains / losses from pension commitments	-75	-75	-75
3d	thereof: Foreign currency reserve	-	-	-
4	Consolidated result from 01.01. to 31.12.2016	182	182	182
5	Distribution	-	-	-144
6	**Common Equity Tier 1 (CET1) before regulatory adjustments**	**2,858**	**2,858**	**2,713**
	Common Equity Tier 1 (CET1): regulatory adjustments			
7	Additional value adjustments (negative amount)	-	-	-5
8	Intangible assets (net of related tax liability) (negative amount)	-	-	-29
9	Deferred tax assets that rely on future profitablity excluding those arising from temporary differences (net of related tax liability where the conditions in Article 38 (3) are met) (negative amount)	-	-	-23
10	Defined-benefit pension fund assets (negative amount)	-	-	-
11	DVA-Adjustment for derivatives	-	-	-5
12	Value adjustment deficit	-	-	-51
13	Elimination of CF-Hedge-Reserve	-	-	-22
14	Elimination of unrealised losses 20% (without Exposures to central governments)	-	-	-1
15	Elimination of unrealised losses 20% (only Exposures to central governments)	-	-	5
16	Qualifying AT1 deductions that exceed the AT1 capital of the institution (negative amount)	-	-	-13
17	Total regulatory adjustments to Common Equity Tier 1 (CET1)	-	-	-144
18	**Common Equity Tier 1 (CET1)**	**2,858**	**2,858**	**2,569**
	Additional Tier 1 (AT1) capital: Instruments and reserves			
19	Capital instruments and the related share premium accounts	-	-	-
19a	of which: classiefied as equity under applicable accounting standards	-	-	-
20	Accued interest in balance sheet	-	-	-
21	Amount of qualifiying items referred to in article 484 (4) and the related share premium accounts subject to phase out from AT1	-	-	-
22	**Additional Tier 1 (AT1) capital before regulatory adjustments**	**0**	**0**	**0**
	Additional Tier 1 (AT1) capital: regulatory adjustments			
23	Balance, which is deducted from the Addtional Tier 1 (AT1) capital and not from CET1 during transitional period according to Article 472 CRR	-	-	-13
23a	thereof: Intangible assets	-	-	-7
23b	thereof: value adjustment deficit	-	-	-6
24	Amount to be deducted from or added to Additional Tier 1 capital with regard to additional filters and deductions required pre-CRR	-	-	13
25	Total regulatory adjustmens of Additional Tier 1 (AT1) capital	-	-	-
26	**Additional Tier 1 (AT1) capital**	**0**	**0**	**0**
27	**Tier 1 capital (T1 = CET1 + AT1)**	**2,858**	**2,858**	**2,569**
	Tier 2 capital (T 2): Instruments and reserves			
28	Capital instruments and the ralted share premium accounts	969	969	969
29	Amount of qualifiying items referred to in article 484 (5) and the related share premium accounts subject to phase out from T2	-	-	-
30	Deferred interests within the balance sheet	26	26	-
31	Hedge Adjustments within the balance sheet	7	7	-
32	**Tier 2 (T2) capital before regulatory adjustments**	**1,002**	**1,002**	**969**
	Tier 2 (T2) capital: regulatory adjustments			
33	Amortisation of Tier 2 capital instrument according to Article 64 CRR	-	-	-294
34	Amortised Tier 2 capital additionally exceeding AT1 nominal	-	-	675
35	Cut back of Grandfathering instruments to 60 %	-	-	-
36	Additional ddeduction and adjustment items from Tier 2 capital to be deducted or added according to pre-CRR-treatment required deductions	-	-	-
36a	thereof: Not eligible as Additonal Tier 1 capital (AT1) according to Article 52 CRR, but as Tier 2 capital (T2) according to Article 63 CRR	-	-	-
37	Balance, which is deducted from the Tier 2 capital and not from CET1 during transitional period according to Article 472 CRR	-	-	-6
37a	thereof: value adjustment deficit	-	-	-6

All figures in € million, unless otherwise stated

No.	Capital instruments pbb Group	(A) Total equity according to commercial IFRS-consolidation scope 31.12.2017	(B) Total equity according to regulatory CRR-consolidation scope 31.12.2017	(C) Regulatory own funds acc. to CRR 31.12.2017
38	Total regulatory adjustmens of Tier 2 (T2) capital	-	-	-300
39	**Tier 2 capital (T2)** [1)]	**1,002**	**1,002**	**670**
40	**Total capital (TC = T1 + T2)**	**3,860**	**3,860**	**3,239**

1) The instruments of Tier 2 capital (T2) are part of the liabilities within the IFRS balance sheet.

Further information concerning the balance sheet equity in accordance with IFRS and the development of this item is contained in the annual report 2017 of the pbb Group, in the financial report (development of the financial position) and in the consolidated financial statements (consolidated statement of changes in equity and note 3 "Consistency"), published on the website of pbb.

Outlook for the introduction of IFRS 9

The pbb Group must apply the standard IFRS 9 for the first time starting in 2018. With IFRS 9, the IASB has published a standard for the recognition of financial instruments which will replace the existing regulations of IAS 39. Financial instruments essentially comprise the receivables, securities, financial liabilities and derivatives; they account for more than 95 % of the balance sheet total of the pbb Group. The introduction of IFRS 9 is associated with new rules regarding the classification and valuation of financial assets and regarding the recognition of impairments which also have an impact on the regulatory own funds.

On 12 January 2018, the European Banking Authority (EBA) published the guidelines EBA/GL/2018/01 regarding uniform disclosure of the regulatory consequences resulting from the application of the optional transitional regulations in accordance with Article 473 letter a CRR for mitigating the effects of the introduction of IFRS 9 after 1 January 2018. These transitional regulations provide the institutions with the possibility of spreading the regulatory impact of the simultaneous initial application of the expected credit loss – value adjustment model of IFRS 9 over a period of five years and thus to reduce the impact of the introduction of accounting standard IFRS 9 on the own funds.

The pbb Group will probably not apply these optional IFRS 9 transitional regulations. In total, the classification and valuation as well as the recognition of impairments will have a positive impact of the initial application of IFRS 9 on equity for the pbb Group. An increase in the cumulative other comprehensive income from classification and valuation, which consists of profits and losses to be recognised directly in equity, more than compensates for an increase in the impairments in accordance with the new impairment regulations of IFRS 9. The disclosure of the table IFRS 9-FL in accordance with the guidelines EBA/GL/2018/01 is thus not relevant for the pbb Group.

Further information concerning the classification and valuation of financial instruments in accordance with IFRS 9 can be found in the annual report 2017 of the pbb Group, in the consolidated financial statements, note 2 "Principles", published on the website of pbb.

3.2 Countercyclical capital buffer

The countercyclical capital buffer (CCB) in accordance with Section 10d KWG is considered to be a macroprudential instrument of banking supervision. It is designed to counter the risk of excessive credit growth in the banking sector, i.e. in times of excessive credit growth, the banks should build an additional capital buffer (using common equity tier 1 (CET1) capital), which increases the loss absorption capacity of banks in the event of a crisis.

For Germany, the value for the domestic countercyclical capital buffer (CCB) is determined by the Federal Financial Supervisory Authority (Bundesanstalt für Finanzdienstleistungsaufsicht, BaFin). With the “General order concerning the introduction of the quota for the countercyclical capital buffer in accordance with Section 10d (3) sentence 2 KWG” of 28 December 2015, the BaFin has set the quota for Germany as 0 % with effect from 1 January 2016.

The pbb Group has to determine itself its own institution-specific countercyclical capital buffer (ICCB). The value of the countercyclical capital buffer relevant for Germany must be taken into account and applied to the sum of the relevant credit exposures that are located in Germany. In addition to the domestic countercyclical capital buffer, foreign countercyclical capital buffers from countries in which pbb Group receivables are held must also be included. The countercyclical capital buffers valid in such countries (see table 8, column 120: Sweden and Norway, 2.00 % in each case) must be recognised on a pro-rata basis. The institution-specific countercyclical capital buffer for the pbb Group is thus derived from the weighted average of the domestic and foreign capital buffers of those countries in which the pbb Group holds significant credit exposures against the private sector (see table 8: as the sum of the weighted own funds requirement per country in accordance with column 110 multiplied by the country-specific CCB in % according to column 120).

The following tables in accordance with Article 440 CRR in conjunction with the Delegated Regulation (EU) 2015/1555 of 28 May 2015 show, for the pbb Group, the extent of the countercyclical capital buffer specific for the pbb Group as well as the geographical distribution of the credit exposures essential for the calculation of the institution-specific countercyclical capital buffer.

Table 7: Institution specific countercyclical capital buffer

All figures in € million, unless otherwise stated

Row	Amount of institution-specific countercyclical capital buffer (ICCB)	Column 010
10	Total risk exposure amount	14,515
020	Institution-specific countercyclical buffer rate	0.105%
030	Institution-specific countercyclical buffer requirement	15

1)The institution-specific countercyclical capital buffer is limited to 1,25% in 2017.

The institution-specific countercyclical capital buffer (ICCB) for the pbb Group amounted to 0.105 % (31 December 2016: 0.083 %) as a result of the Sweden and Norway portfolio; it is thus considerably lower than the maximum figure of 1.25 % applicable for 2017. There is thus no capping of the countercyclical capital buffer rate which is specific for the pbb Group. The slight increase in the institution-specific countercyclical capital buffer for the pbb Group is mainly due to the increase in the domestic countercyclical capital buffers for Sweden and Norway in 2017 (to 2.00 % in each case, from 1.50 % in each case in 2016).

In accordance with Section 10d (1) KWG, the capital requirement of € 15 million (0.105 % of the risk-weighted receivables) has to be maintained in common equity tier 1 (CET1) capital. For this requirement, and also for the equity requirement for the capital conservation buffer of 1.250 %, after complying with the CET1 capital ratio of 4.5 % of the total risk exposure amount, a figure of € 1,916 million of common equity tier 1 (CET1) capital is available to the pbb Group.

Table 8: Countercyclical capital buffer – Geographical distribution of exposures

All figures in € million, unless otherwise stated

Zeile			Geographical distribution of credit exposures relevant for the calculation of the countercyclical capital buffer (CCB): General credit exposures: Exposure value for SA	General credit exposures: Exposure value for IRB	Trading book exposures: Sum of long and short position of trading book	Trading book exposures: Value of tranding book exposures for internal models	Securitisation exposures: Exposure value for SA	Securitisation exposures: Exposure value for IRB	Others: Other assets without credit commitments	Own funds requirements: Of which: General credit exposures	Own funds requirements: Of which: Trading book exposures	Own funds requirements: Of which: Securitisation exposures	Own funds requirements: Other assets without credit commitments	Own funds requirements: Total	Own funds requirement weights per country	Country-specific countercyclical capital buffer rate [1] in %
			010	020	030	040	050	060	065	070	080	090	095	100	110	120
10	**Aufschlüsselung nach Ländern [2]:**															
1	(AI)	Anguilla	-	11	-	-	-	-	-	0.1	-	-	-	0.1	0.00	-
2	(AT)	Austria	524	730	-	-	-	-	-	15	-	-	-	15	0.02	-
3	(AW)	Aruba	-	82	-	-	-	-	-	-	-	-	-	-	0.00	-
4	(BD)	Bangladesh	-	29	-	-	-	-	-	0.1	-	-	-	0.1	0.00	-
5	(BE)	Belgium	-	304	-	-	-	-	-	1	-	-	-	1	0.00	0.00%
6	(BM)	Bermuda	66	118	-	-	-	-	-	3	-	-	-	3	0.00	-
7	(CH)	Switzerland	63	281	-	-	-	-	-	4	-	-	-	4	0.01	0.00%
8	(CY)	Cyprus	-	29	-	-	-	-	-	1	-	-	-	1	0.00	-
9	(CZ)	Czech Republic	-	421	-	-	-	-	-	13	-	-	-	13	0.02	-
10	(DE)	Germany	53	11,241	-	-	-	-	19	236	-	-	1.5	238	0.37	0.00%
11	(DK)	Denmark	-	4	-	-	-	-	-	0.02	-	-	-	0.02	0.00	-
12	(EG)	Egypt	-	40	-	-	-	-	-	0.3	-	-	-	0.3	0.00	-
13	(ES)	Spain	-	190	-	-	-	-	0.2	3	-	-	0.02	3	0.01	0.00%
14	(FI)	Finland	-	233	-	-	-	-	-	8	-	-	-	8	0.01	-
15	(FR)	France	31	3,486	-	-	-	-	0.4	104	-	-	0.04	104	0.16	0.00%
16	(GB)	United Kingdom	62	1,657	-	-	-	-	1	27	-	-	0.1	27	0.04	0.00%
17	(GG)	Guernsey	-	296	-	-	-	-	-	18	-	-	-	18	0.03	-
18	(GH)	Ghana	-	42	-	-	-	-		1	-	-	-	1	0.00	
19	(GI)	Gibraltar	-	10	-	-	-	-	-	0.04	-	-	-	0.04	0.00	-
20	(HU)	Hungary	-	148	-	-	-	-	-	4	-	-	-	4	0.01	-
21	(IE)	Ireland	67	184	-	-	-	-	-	-	-	-	-	-	0.00	-
22	(IM)	Isle of Man	-	27	-	-	-	-	-	0.3	-	-	-	0.3	0.00	-
23	(IT)	Italy	-	79	-	-	-	-	-	0.002	-	-	-	0.002	0.00	0.00%
24	(JE)	Jersey	-	986	-	-	-	-	-	19	-	-	-	19	0.03	-
25	(KY)	Cayman Islands	-	189	-	-	-	-	-	-	-	-	-	-	0.00	-
26	(LI)	Liechtenstein	-	3	-	-	-	-	-	0.01	-	-	-	0.01	0.00	-
27	(LU)	Luxemburg	3	3,764	-	-	-	-	-	68	-	-	-	68	0.11	0.00%
28	(MU)	Mauritius	-	85	-	-	-	-	-	2	-	-	-	2	0.00	-
29	(NL)	Netherlands	3	765	-	-	-	-	-	13	-	-	-	13	0.02	0.00%
30	(NO)	Norway	-	25	-	-	-	-	-	0.5	-	-	-	0.5	0.00	2.00%
31	(OM)	Oman	39	-	-	-	-	-	-	-	-	-	-	-	0.00	-
32	(PL)	Poland	-	1,254	-	-	-	-	-	30	-	-	-	30	0.05	-
33	(PT)	Portugal	-	180	-	-	-	-	-	-	-	-	-	-	0.00	-
34	(RO)	Romania	-	65	-	-	-	-	-	1	-	-	-	1	0.00	-
35	(SE)	Sweden	-	1,600	-	-	-	-	0.1	33	-	-	0.007	33	0.05	2.00%
36	(SI)	Slovenia	-	209	-	-	-	-	-	8	-	-	-	8	0.01	-
37	(SK)	Slovakia	-	88	-	-	-	-		3	-	-		3	0.00	
38	(US)	United States of America	-	1,096	-	-	-	-	-	17	-	-	-	17	0.03	0.00%
39	(VG)	Virgin Islands	-	407	-	-	-	-	-	5	-	-	-	5	0.01	-
20		**Total**	**911**	**30,358**	**0**	**0**	**0**	**0**	**21**	**639**	**0**	**0**	**2**	**641**	**1.00**	

1) According to Bank for International Settlements (BIS) of 11 September 2017. 2) Country: Geographical location (place of residence/registered office) of the obligor/debtor.

3.3 Own funds requirements

As the parent company of the institutional group in accordance with Section 10a KWG in conjunction with Article 11 et seq. CRR, pbb is responsible for ensuring compliance with the own funds requirements on a consolidated basis (regulatory consolidation group).

Methods for determining the own funds requirement

Since 1 January 2014, the pbb Group has been applying the provisions of CRR, and is thus subject to the disclosure requirements of part 8 of the CRR. The regulations of CRR/CRD IV form the basis for the minimum amount of own funds as well as the calculation of own funds requirements. In order to comply with the own funds requirements, the credit risk (including counterparty credit risk), the market risk, the operational risk, the settlement risk as well as the credit value adjustment risk (CVA risk) must be backed with capital. The regulatory parameters are calculated based on the IFRS accounting standards.

Credit risk (incl. Counterparty credit risk)

For determining the own funds requirements for credit risks, the pbb Group uses the advanced IRB approach based on internal rating procedures in accordance with Article 142 et seq. CRR. The following table shows the coverage for IRBA exposure at default (EAD) and for risk-weighted IRBA assets (RWA) in accordance with Section 11 SolvV.

Table 9: IRB-approach coverage

	Degree of coverage IRB-Approach	
	EAD	RWA
31 December 2014	95%	99%
31 December 2015	96%	99%
31 December 2016	97%	99%
31 December 2017	97%	99%

As was the case in the previous year, the advanced IRB approach in the credit portfolio of the pbb Group covers 97 % of the exposure at default (EAD). The remaining 3 % of EAD which is subject to the standard approach in accordance with the CRR rules relate for instance to default exposures with public-sector borrowers (amounts due from German municipalities) or the non-strategic remaining portfolio which consists of smaller retail customer real estate loans.

For calculating the own funds requirements for the counterparty credit risk in accordance with part 3, title II, chapter 6 of the CRR (i.e. for derivative transactions), the pbb Group uses the mark-to-market method in accordance with Article 274 CRR.

For security financing transactions (security lending/repo transactions), the pbb Group applies the provisions for minimising credit risk in accordance with chapter 4 of the CRR, the comprehensive method for recognising financial security in accordance with Article 223 et seq. CRR.

For calculating the own funds requirements for pre-financed contributions to the default fund of a qualified central counterparty, the pbb Group applies the risk-sensitive method in accordance with Article 308 CRR.

Market risk

For calculating the own fund backing for market risks in accordance with part 3, title IV of the CRR, the pbb Group applies the standard approach in accordance with Article 325 et seq. CRR. The bank’s own internal models are not used at present.

Operational risk

The own fund backing for operational risk in accordance with part 3, title IIII of the CRR is calculated by the pbb Group using the standard approach in accordance with Article 317 et seq. CRR.

Settlement risk

The own fund requirements for the settlement and delivery risk in accordance with part 3, title V of the CRR are calculated using the rules defined in the Articles 378 and 379 CRR.

CVA risk

For calculating the additional own funds requirement for OTC derivatives for the risk of a credit valuation adjustment (CVA risk) in accordance with part 3, title VI of the CRR, the pbb Group applies the standard method in accordance with Article 384 CRR. This is based on the effective maturity, a rating-relating weighting and the EAD, whereby the EAD for the relevant transactions is determined using the mark-to-market method in accordance with Article 274 CRR.

Risk-weighted receivables and own funds requirements

As was the case in the previous year, the minimum own funds requirements for the specified risk types as of 31 December 2017 amounted to 8 % of the risk-weighted receivables (risk-weighted assets: RWA).

The total own funds requirement is 9.355 % (31 December 2016: 8.708 %). The increase of 0.647 % compared with 31 December 2016 is mainly attributable to the gradual increase in the capital conservation buffer in accordance with Section 10c KWG in conjunction with the transitional regulations in accordance with Section 64r KWG to 1.25 % of the total risk amount in 2017 (2016: 0.625 %). There was also the increase in the domestic countercyclical capital buffers (described in the previous chapter 3.2 “Countercyclical capital buffer”) for Sweden and Norway to 2.00 % in each case in 2017 (2016: 1.50 % in each case); this had the effect of increasing the institution-specific countercyclical capital buffer (ICCB) of the pbb Group.

The risk-weighted assets (RWA) of the pbb Group amounted to € 14,515 million as of 31 December 2017 (31 December 2016: € 13,113 million), and have thus increased by approx. € 1.4 billion compared with the end of the previous year.

In accordance with Article 438 letters c to f CRR in conjunction with EU OV1 of the guidelines EBA/GL/2016/11, the following table shows the risk-weighted assets as well as the regulatory capital backing, broken according to risk types.

Table 10: Risk-weighted assets and minimum capital requirements (EU OV1)

All figures in € million

		Risk-weighted assets (RWA)		Minimum capital requirement
		31.12.2017	31.12.2016	31.12.2017
1	**Credit risk (without Counterparty credit risk)**	**12,583**	**11,046**	**1,006**
2	Of which: Standardised approach (CRSA)	280	262	22
2a	Exposures to central governments or central banks	-	-	-
2b	Exposures to regional governments or local authorities	-	-	-
2c	Exposures to other public sector entities	-	-	-
2d	Exposures to multilateral development banks	-	-	-
2e	Exposures to international organisations	-	-	-
2f	Exposures to institutions	-	6	-
2g	Exposures to corporates	118	91	9
2h	Retail exposures	-	-	-
2i	Exposures secured by mortgages on immovable property	7	16	1
2j	Exposures in default	6	5	1
2k	Exposures associated with particularly high risk	-	-	-
2l	Exposures in the form of covered bonds	-	-	-
2m	Exposures to institutions and corporates with short-term credit assessment	-	-	-
2n	Exposures in the form of units or shares in collective investment undertakings (CIUs)	3	3	0.2

All figures in € million

		Risk-weighted assets (RWA)		Minimum capital requirement
		31.12.2017	31.12.2016	31.12.2017
2o	Equity exposures	0.08	0.08	0.01
2p	Other itmes [1]	147	141	12
3	Of which: Foundation IRB (FIRB) approach	-	-	-
4	Of which: Advanced IRB (AIRB) approach	12,303	10,784	984
4a	Exposures to central governments and central banks	2,401	2,445	192
4b	Exposures to institutions	2,414	2,823	193
4c	Exposures to corporates	7,467	5,476	597
4ca	Of which: Small and medium-sized enterprises (SME)	318	2,921	25
4cb	Of which: Spesialised lending exposures	6,587	0	527
4cc	Of which: Other	562	2,555	45
4g	Retail exposures	-	-	-
4h	Other non credit-obligation assets	21	40	2
5	Of which: Equity IRB exposures under the simple risk-weighted approach or the internal model approach (IMA)	-	-	-
5a	Of which: Internal model approach (IMA)	-	-	-
5b	Of which: Simple risk-weighting approach	0.05	0.05	0.004
5ba	Of which: Exchange-traded equity investments	-	-	-
5bb	Of which: Unlisted, but part of a sufficiently deversified portfolio	-	-	-
5bc	Of which: Other investments	0.05	0.05	0.004
6	**Counterparty credit risk [2]**	**661**	**854**	**53**
7	Of which: Mark-to-market method	366	541	29
8	Of which: Original exposure method	-	-	-
9	Of which: Standardised approach	-	-	-
10	Of which: Internal model method (IMM)	-	-	-
11	Of which: Risk exposure amount for contributions to the default fund of a central counterparty (CCP)	1	1	0.1
12	Of which: CVA risk [3]	294	312	24
12a	Of which: Advanced method	-	-	-
12b	Of which: Standardised method	294	312	24
12c	Of which: Alternative method, based on the original exposure method	-	-	-
13	**Settlement risk**	**0**	**0**	**0**
13a	Of which: In the banking book	-	-	-
13b	Of which: In the trading book	-	-	-
14	**Securitisation exposures in the banking book (after the cap)**	**0**	**0**	**0**
15	Of which: IRB approach	-	-	-
16	Of which: IRB supervisory formular approach (SFA)	-	-	-
17	Of which: Internal assessment approach (IAA)	-	-	-
18	Of which: Standardised approach	-	-	-
19	**Market risk**	**370**	**346**	**30**
20	Of which: Standardised approach	370	346	30
20a	Of which: Position risk	-	-	-
20b	Of which: Foreign-exchange risk	370	346	30
20c	Of which: Commodity risk	-	-	-
21	Of which: Internal model approach (IMA)	-	-	-
22	**Large exposures in the trading book [4]**	**0**	**0**	**0**
23	**Operational risk**	**899**	**866**	**72**
24	Of which: Basic indicator approach	-	-	-
25	Of which: Standardised approach	899	866	72
26	Of which: Advanced measurement approach (AMA)	-	-	-
27	Amounts below the thresholds for deduction (subject to 250% risk weight)	146	141	12
28	Floor adjustment	-	-	-
29	**Total**	**14,515**	**13,113**	**1,161**

1) Subject to future profitability, from or not from temporary differences resulting from deferred tax assets.
2) Counterparty credit risk in accordance with Part Three, Title II, Chapter 6 of the CRR (derivative transactions).
3) Credit Value Adjustments; capital requirement for the risk of a adjustment of credit valuation for OTC derivatives.
4) pbb does not maintain a trading book for securities or derivatives portfolios held to realise short-term gains.

In addition, in accordance with Article 438 CRR (last paragraph) in conjunction with EU CR10 of the guidelines EBA/GL/2016/11, the table shows the RWA, the own funds requirement and further information for equity exposures for which the simple IRBA risk weighting is used, as well as for IRBA positions for which the simple IRBA risk weighting for specialised lending is used.

The pbb Group does not use the simple IRBA risk weighting for specialised lending exposures in accordance with Article 153 (5) CRR.

The simple IRBA risk weighting for equity exposures in accordance with Article 155 (2) CRR is used by the pbb Group for insignificant holdings in two companies acquired after 31 December 2007, one financial company and one other company in accordance with Article 4 CRR in conjunction with Section 1 KWG. The carrying amount of these holdings is stated as a total of T€ 13.4. For the equity exposures which in accordance with Article 495 (1) CRR were held before 1 January 2008, the pbb Group uses the possibility of grandfathering. These equity exposures have been temporarily excluded from the IRB approach until 31 December 2017 and are treated in accordance with the regulations of the CRSA; they currently feature a risk weighting of 100 %. From 1 January 2018 onwards, the pbb Group has also been using the simple IRBA risk weighting for these equity exposures.

Disclosure of the table EU INS1 “Non-deducted insurance participations” in accordance with Article 438 letters c and d CRR in conjunction with EU INS1 of the guidelines EBA/GL/2016/11 is not relevant for the pbb Group as of the reporting date. pbb does not hold a major participation in an insurer, a reinsurer or an insurance holding company, nor has any authorisation of the relevant regulatory authority in accordance with Article 49 (1) CRR been provided for such holdings of own funds instruments not to be deducted.

Table 11: Simple risk weight for specialised lending and equities (EU CR10)

All figures in € million, unless otherwise stated

Specialised lending							
Regulatory categories	Remaining maturity	On-balance-sheet amount	Off-balance-sheet amount	Risk weight	Regulatory exposure amounts (EAD)	Risk-weighted assets (RWA)	Expected losses
Category 1	Less than 2.5 years	-	-	50%	-	-	-
	Equal to or more than 2.5 years	-	-	70%	-	-	-
Category 2	Less than 2.5 years	-	-	70%	-	-	-
	Equal to or more than 2.5 years	-	-	90%	-	-	-
Category 3	Less than 2.5 years	-	-	115%	-	-	-
	Equal to or more than 2.5 years	-	-	115%	-	-	-
Category 4	Less than 2.5 years	-	-	250%	-	-	-
	Equal to or more than 2.5 years	-	-	250%	-	-	-
Category 5	Less than 2.5 years	-	-	-	-	-	-
	Equal to or more than 2.5 years	-	-	-	-	-	-
Total	Less than 2.5 years	**0**	**0**		**0**	**0**	**0**
	Equal to or more than 2.5 years	**0**	**0**		**0**	**0**	**0**

Equities under the simple risk-weighted approach						
Categories	On-balance-sheet amount	Off-balance-sheet amount	Risk weight	Regulatory exposure amounts (EAD)	Risk-weighted assets (RWA)	Minimum capital requirement
Private equity exposures in sufficiently deversified portfolios	-	-	190%	-	-	-
Exchange-traded equity exposures	-	-	290%	-	-	-
Other equity exposures	0.01	-	370%	0.01	0.05	0.004
Total	**0.01**	**0**		**0.01**	**0.05**	**0.004**

The increase totalling € 1.4 billion in the risk-weighted assets is attributable to the volume of new business transacted in the financial year 2017 (incl. prolongations with maturities of more than one year) in the two strategic areas of operation Commercial Real Estate Finance (REF) and Public Investment Finance (PIF) as well as changes in the parameters PD (Probability of Default) and LGD (Loss Given Default) for determining the risk weightings for specialised lending.

As a result of a new interpretation decision of the bank regulator, pbb reclassified its real estate financing with regard to borrowers which are managed in the form of a special-purpose vehicle (SPV) to the regulatory category “Specialist financing”. Because some of these positions had previously been classified under the category “Small and mid-size enterprises” (SME), this reclassification is automatically also associated with a decline in the category SME. With regard to the final classification criteria for specialised lending, pbb continues to maintain permanent dialogue with the relevant bank regulatory authority.

The main opposite effects were repayments and redemptions, including the further reduction in the non-strategic portfolio in line with overall strategy, as well as other changes in the loss given default (LGD) for determining the risk weightings.

The minimum own funds requirement for the risk-weighted assets of the pbb Group amounted to a total of € 1,161 million as of the reporting date (31 December 2016: € 1,049 million). In line with the business model of the pbb Group, which focusses on commercial real estate financing and public investment financing, credit risks account for 91 % of the own funds requirement (incl. counterparty credit risks and CVA risks), market risks account for 3 % and operational risks account for 6 %.

The total own funds requirement amounted to € 1,358 million (31 December 2016: € 1,142 million). The increase of € 216 million compared with the minimum own funds requirement is attributable to the above-mentioned increase in the capital conservation buffer to 1.25 % as well as the slight increase in the institution-specific countercyclical capital buffer (ICCB), each in 2017. In accordance with Section 10c (1) KWG and Section 10d (1) KWG, the capital requirement for the capital buffer must be maintained in common equity tier 1 (CET1) capital. After complying with the CET1 ratio of 4.5 % of the total risk amount, a total of € 1,916 million (31 December 2016: € 1,963 million) of common equity tier 1 (CET1) capital is available to the pbb Group for this purpose.

Surplus own resources

As of 31 December 2017, the surplus own resources (own funds less own funds requirement incl. capital buffer) – incl. the cumulative profit 2017 and after deduction of the proposed dividend (subject to the approval of the annual general meeting) – amounted to € 1,358 million for the pbb Group (31 December 2016: € 1,963 million).

3.4 Capital ratios

The regulatory requirements of the Regulation (EU) No. 575/2013 (Capital Requirements Regulation, CRR) and the Directive 2013/36/EU (Capital Requirements Directive, CRD IV) have been applicable since 1 January 2014. These regulations form the basis for determining the regulatory capital and capital ratios.

According to these provisions, the common equity tier 1 ratio (CET1 ratio: common equity tier 1 divided by the risk-weighted assets) must not fall below 4.5 %, the tier 1 ratio (T1 ratio: tier 1 divided by the risk-weighted assets) must not fall below 6.0 % and the own funds ratio (own funds divided by the risk-weighted assets) must not fall below 8.0 % in the financial year 2017. pbb, as the parent company of the institutional group in accordance with Section 10a KWG in conjunction with Article 11 et seq. CRR, is responsible for ensuring compliance with the capital ratios on a summarised basis. The pbb Group has a sound capital base. The provisions regarding the regulatory capital ratios were complied with at all times in the financial year 2017.

Table 12: Capital ratios

All figures in %

	Common Equity Tier 1 ratio		Tier 1 capital ratio		Total capital ratio	
	31.12.2017 1)	31.12.2016 2)	31.12.2017 1)	31.12.2016 2)	31.12.2017 1)	31.12.2016 2)
pbb Group	17.7	19,5	17.7	20,9	22.3	23.7

1) After approved annual financial statements 2017 less the proposed dividend (subject to approval by the Annual General Meeting).
2) After approved annual financial statements 2016 and after result distribution 2016.

SREP

This is also applicable for the requirements regarding the minimum capital of the Supervisory Review and Evaluation Process (SREP) of the European Central Bank (ECB) which exceed the existing regulatory requirements. The objective of this Supervisory Review and Evaluation Process ("SREP") is a comprehensive analysis of institutions supervised by the ECB – comprising an assessment of the business model, risk and corporate governance, risk situation, as well as capitalisation and liquidity status.

Based on the results of the analysis as well as using benchmark comparison, the ECB may impose minimum capitalisation or liquidity requirements, over and above existing regulatory requirements. Asa key result of SREP, pbb Group has been required to maintain a minimum CET1 ratio of 9.0 % for 2017 (excluding the countercyclical capital buffer, which varies according to country, and hence, forspecific portfolios – as at 31 December 2017, it stood at 0.11 %). This capital requirement is based on the Basel III transitional rules and comprises a Pillar 1 minimum capital requirement (4.5 %), a Pillar 2 capital requirement (P2R: 3.25 %) and the capital conservation buffer (CCB:1.25 % phased-in for 2017). Furthermore, pbb Group had to fulfil a total capital requirement of 12.50 % which was newly introduced 2017 compared to 2016 (excluding the countercyclical capital buffer, which varies according to country, and hence, for specific portfolios). It is based on the Basel III transitional rules and comprises a Pillar 1 minimum own funds requirement (8 %), a Pillar 2 capital requirement (3.25 %) and the capital conservation buffer (1.25 % phased-in for 2017). Both requirements, the Group complied with at all times during the year under review.

Toward the end of the year, the ECB notified pbb Group of the regular annual re-determination of minimum capital requirements for 2018.

with effect from 1 January 2018, pbb Group has been required to maintain a minimum CET1 ratio of 9.125 % (excluding the countercyclical capital buffer, which varies according to country, and hence, for specific portfolios – as at 31 December 2017, it stood at 0.11 %). This capital requirement is based on the Basel III transitional rules and comprises a Pillar 1 minimum capital requirement (4.50 %), a Pillar 2 capital requirement (2.75 %) and the capitalconservation buffer (CCB: 1.875 % phased-in for 2018). The CET1 minimum capital requirement that applies for 2018 also represents the threshold for mandatory calculation of a so-called maximum distributable amount (MDA). This generally limits distributions to the CET1 capital, new performance-based remuneration, and interest payments on additional Tier 1 capital.

With effect from 1 January 2018 pbb Group has been required to maintain a total capital requirement of 12.625 % (excluding the countercyclical capital buffer, which varies according to country, and hence, for specific portfolios – as at 31 December 2017, it stood at 0.11 %). It is based on the Basel III transitional rules and comprises a Pillar 1 minimum own funds requirement (8.00 %), a Pillar 2 capital requirement (2.75 %) and the capital conservation buffer (1.875 % phased-in for 2018). The minimum, fully phased-in total capital requirement (valid from 2019 onwards, following expiration of transitional provisions) will be 13.25 %, assuming a constant Pillar 2 capital requirement and excluding the countercyclical capital buffer.

3.5 Leverage ratio

According to Article 429 (2) CRR, the leverage ratio (a capital requirement which is not risk-based) is defined as the capital parameter of an institution divided by that institution's total exposure parameter, and is expressed as a percentage. This figure is not risk-sensitive, and complements the risk-based perspective of capital requirements and capital ratios. The aim is to limit the increase in leverage in the banking sector, to mitigate the risk of borrowings with a destabilising impact which can harm the financial system and the economy and to complement the risk-based requirements with a simple safety mechanism which is not risk-based.

The calculation of the ratio is based on the provisions of the Delegated Regulation (EU) 2015/62 of the Commission of 10 October 2014 for amending the Regulation (EU) No. 575/2013 of the European Parliament and Council with regard to the leverage ratio. According to these provisions, the calculation and disclosure of the regulatory leverage ratio is based on the carrying amount as the relevant measurement of assets. Specific regulatory measurements are applicable for derivatives and security financing transactions (security lending/repo transactions). Off-balance-sheet exposures are also taken into consideration in order to determine the overall risk of leverage.

The total exposure parameter of the leverage ratio for derivatives is calculated on the basis of regulatory mark-to-market method for derivatives, which comprises the current replacement costs plus a regulatory defined add-on for the potential future replacement value. If certain conditions are satisfied, variable additional cash payments (cash collateral) are deducted from the total exposure parameter: in the case of variable additional cash payments received from counterparties, they are deducted from the element which refers to the current replacement costs of derivatives and, in the case of variable additional cash payments made to counterparties, they are deducted from the total exposure parameter resulting from receivables which had been recognised as assets.

The total exposure parameter of the leverage ratio for security financing transactions (security lending/repo transactions) comprises the gross receivables from security financing transactions which are netted with liabilities from security financing transactions if certain conditions are met. In addition to the gross receivables from security financing transactions, an add-on for the counterparty credit risk of security financing transactions is included in the total exposure parameter.

The total exposure parameter of the leverage ratio for off-balance-sheet exposures takes account of the weighting factors (credit conversion factors, CCF) from the standard approach for the credit risk of 0 %, 20 %, 50 % or 100 % depending on risk category, with a lower limit of 10 %.

The total exposure parameter of the leverage ratio for other balance sheet items (excl. derivatives and security financing transactions) comprises the balance sheet value of the respective positions (excl. derivatives and security financing transactions) as well as regulatory adjustments for positions which are deducted for calculating the regulatory tier 1 capital.

In accordance with Article 451 CRR in conjunction with the Implementation Regulation (EU) 2016/200 regarding the disclosure of the leverage ratio of 15 February 2016, the following tables show the leverage ratio factors for the pbb Group. There has so far not been a binding maximum limit in the European Union (EU) for the leverage ratio which has to be complied with by the credit institutions. However, within the framework of the Basel III regulations regarding the maximum leverage ratio, a reference value of > 3 % has been tested and observed. On 3 August 2016, the European Banking Authority (EBA) published its report on the impact assessment and calibration of the leverage ratio (EBA-Op-2016-13). In this report, the EBA recommends the introduction of a binding minimum leverage ratio in the EU from 1 January 2018. The required minimum ratio should be 3 %. In this connection, the draft law published by the European Commission on 23 November 2016 (draft for the CRR II/CRD V/BRRD II) also recommends the introduction of a minimum leverage ratio of 3 % for all credit institutions who fall under the CRR/CRD IV framework. The draft law states that the leverage ratio should be applied two years after coming into force; however, this is still the subject of discussion within the EU institutions.

The leverage ratio for the pbb Group amounted to 4.6 % as of 31 December 2017, and is thus considerably higher than this minimum requirement.

Table 13: Leverage ratio (EU LRSum)

All figures in € million

	Summary reconciliation of accounting assets and leverage ratio exposures	Applicable amount 31.12.2017
1	Total assets as per published financial statements	57,994
2	Adjustment for entities which are consolidated for accounting purposes but are outside the scope of regulatory consolidation	-
3	(Adjustment for fiduciary assets recognised on the balance sheet pursuant to the applicable accounting framework but excluded from the leverage ratio exposure measure in accordance with Article 429 (13) of Regulation (EU) No 575/2013)	-
4	Adjustments for derivative financial instruments	-2,853
5	Adjustments for securities financing transactions (SFTs)	414
6	Adjustment for off-balance sheet items (ie conversion to credit equivalent amounts of off-balance sheet exposures)	2,335
EU-6a	(Adjustment for intragroup exposures excluded from the leverage ratio exposure measure in accordance with Article 429 (7) of Regulation (EU) No 575/2013)	-
EU-6b	(Adjustment for exposures excluded from the leverage ratio exposure measure in accordance with Article 429 (14) of Regulation (EU) No 575/2013)	-111
7	Other adjustments	-1,558
8	**Leverage ratio total exposure measure**	**56,221**

Table 14: Leverage ratio (EU LRCom)

All figures in € million, unless otherwise stated

	Leverage ratio common disclosure	CRR leverage ratio exposures 31.12.2017
	On-balance sheet exposures (excluding derivatives and SFTs)	
1	On-balance sheet items (excluding derivatives, SFTs and fiduciary assets, but including collateral)	54,550
2	(Asset amounts deducted in determining Tier 1 capital)	-111
3	**Total on-balance sheet exposures (excluding derivatives, SFTs and fiduciary assets) (sum of lines 1 and 2)**	**54,439**
	Derivative exposures	
4	Replacement cost associated with all derivatives transactions (ie net of eligible cash variation margin)	201
5	Add-on amounts for PFE associated with all derivatives transactions (mark-to-market method)	408
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	86
7	(Deductions of receivables assets for cash variation margin provided in derivatives transactions)	-1,662
8	(Exempted CCP leg of client-cleared trade exposures)	-
9	Adjusted effective notional amount of written credit derivatives	-
10	(Adjusted effective notional offsets and add-on deductions for written credit derivatives)	-
11	**Total derivative exposures (sum of lines 4 to 10)**	**-967**
	Securities financing transaction exposures	
12	Gross SFT assets (with no recognition of netting), after adjusting for sales accounting transactions	0
13	(Netted amounts of cash payables and cash receivables of gross SFT assets)	-
14	Counterparty credit risk exposure for SFT assets	414
EU-14a	Derogation for SFTs: Counterparty credit risk exposure in accordance with Article 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)**	**414**

All figures in € million, unless otherwise stated

	Leverage ratio common disclosure	CRR leverage ratio exposures 31.12.2017
	Other off-balance sheet exposures	
17	Off-balance sheet exposures at gross notional amount	4,826
18	(Adjustments for conversion to credit equivalent amounts)	-2,491
19	**Other off-balance sheet exposures (sum of lines 17 to 18)**	**2,335**
	Exempted exposures in accordance with CRR Article 429 (7) and (14) (on and off balance sheet)	
EU-19a	(Exemption of intragroup exposures (solo basis) in accordance with Article 429(7) of Regulation (EU) No 575/2013 (on and off balance sheet))	-
EU-19b	(Exposures exempted in accordance with Article 429 (14) of Regulation (EU) No 575/2013 (on and off balance sheet))	-
	Capital and total exposures	
20	**Tier 1 capital**	**2,569**
21	**Total leverage ratio exposures (sum of lines 3, 11, 16, 19, EU-19a and EU-19b)**	**56,221**
	Leverage ratio	
22	**Leverage ratio**	**4.6%**
	Choice on transitional arrangements and amount of derecognised fiduciary items	
EU-23	Choice on transitional arrangements for the definition of the capital measure	-
EU-24	Amount of derecognised fiduciary items in accordance with Article 429(11) of Regulation (EU) NO 575/2013	-

Table 15: Leverage ratio (EU LRSpl)

All figures in € million

	Split-up of on balance sheet exposures (excluding derivatives, SFTs and exempted exposures)	CRR leverage ratio exposures 31.12.2017
EU-1	Total on-balance sheet exposures (excluding derivatives, SFTs, and exempted exposures), thereof:	52,973
EU-2	Trading book exposures	-
EU-3	Banking book exposures, thereof:	52,973
EU-4	Covered bonds	1,458
EU-5	Exposures treated as sovereigns	18,763
EU-6	Exposures to regional governments, MDB, international organisations and PSE NOT treated as sovereigns	3,374
EU-7	Institutions	1,200
EU-8	Secured by mortgages of immovable properties	24,491
EU-9	Retail exposures	1
EU-10	Corporate	3,215
EU-11	Exposures in default	217
EU-12	Other exposures (eg equity, securitisations, and other non-credit obligation assets)	254

The leverage ratio is part of the capital and multi-year planning of the pbb Group. The ratio is determined on a monthly basis and is integrated in the Group's risk management and risk controlling systems. The Management Board of pbb is informed of the leverage ratio on a regular basis (monthly) within the framework of the management report.

As mentioned above, the leverage ratio for the pbb Group as of 31 December 2017 was unchanged compared with the previous year at 4.6 % (31 December 2016: 4.6 %). The slight decline in tier 1 capital has compensated for the decline of approx. € 3 billion in the total exposure parameter. The tier 1 capital (T1) amounted to € 2,569 million as of 31 December 2017 (31 December 2016: € 2,739 million), and the total exposure parameter amounted to € 56,221 million (31 December 2016: € 59,212 million).

Following the expiry of the Basel III transitional regulations (valid after 2018), the leverage ratio is virtually unchanged at 4.5 %.

3.6 Encumbered and unencumbered assets

In accordance with Article 443 CRR in conjunction with the Delegated Regulation (EU) 2017/2295, the following chapter contains information concerning encumbered and unencumbered assets of the pbb Group.

The asset encumbrance of the pbb Group results mainly from its business model using Pfandbriefe as the most important refinancing instrument. The pbb Group specialises in commercial real estate and public investment finance. Most of the extended loans are refinanced on the Pfandbrief market. pbb issues mortgage Pfandbriefe which are backed with property charges and public Pfandbriefe which are backed by public-sector receivables. With an outstanding Pfandbrief volume of € 28.8 billion (nominal), pbb is one of the largest Pfandbrief issuers and is thus also a major issuer of covered bonds in Europe.

As of 31 December 2017, the assets of the pbb Group, based on the median of the quarterly data of the financial year, amounted to € 60.0 billion (31 December 2016: € 65.8 billion); of this figure, € 39.6 billion (66 %) are encumbered (31 December 2016: € 42.0 billion or 64 %). Within the pbb Group, this encumbrance relates exclusively to pbb, in which all strategic business activities of the pbb Group are pooled. The asset encumbrance of the pbb Group was essentially unchanged in the course of 2017.

As was the case in the previous year, Pfandbriefe represented the main source (82 %) of asset encumbrance for the pbb Group. In addition to the issue of mortgage Pfandbriefe and public Pfandbriefe leading to an encumbrance of loans and securities in the mortgage and public cover pools, derivative financial instruments in particular represent a further source (12 %) of asset encumbrance. The remaining percentages are accounted for by security financing transactions (security lending/repo transactions) and the participation of pbb in the ECB series of specific longer-term refinancing transactions II (GLRG-II) in 2017 (maturity until 2021).

There are no mismatches between the accounting framework applied by the pbb Group, the International Financial Reporting Standards (IFRS), assets which are deposited as collateral and transferred on the one hand and the assets which are considered to be encumbered for regulatory purposes on the other. The depositing or transfer of assets in accordance with the IFRS automatically involves the encumbrance of such assets. A distinction between the encumbered assets or collateral according to currencies other than the euro (the reporting currency) is not material for the pbb Group.

According to the EU Implementation Regulation 2015/79, Appendix III, point 1.7, an asset is considered to be encumbered if it has been deposited as collateral or if it is subject to any form of arrangement to secure, collateralise or credit enhance any transaction from which it cannot be freely withdrawn. An asset encumbrance results from the requirement to provide collateral, usually caused by a transaction on the liabilities side of the balance sheet (refinancing side).

Pfandbriefe

As a specialist bank for real estate and public investment finance, pbb issues mortgage Pfandbriefe as well as public Pfandbriefe. These are regularly issued on the international capital market in the benchmark format or as private placements. In line with its lending business on the assets side of the balance sheet, pbb offers its investors Pfandbriefe in various maturities and different currencies with a focus on the Euro, GBP, USD and SEK.

The issue of Pfandbriefe is subject to the stringent provisions of the German Pfandbrief Act (Pfandbriefgesetz, PfandBG), which places stringent requirements on investor protection. These stringent legal standards have meant that, in the past, Pfandbriefe have proved to be of above-average reliability. The guarantee mechanisms provided for by the German Pfandbrief Act work amongst other things through the so-called preferential right in insolvency granted to the Pfandbrief holders. In the event of an insolvency of a Pfandbrief bank, the cover pool used as backing for the Pfandbriefe is first of all available solely to the Pfandbrief holders for settling their claims; only when all claims of the Pfandbrief holders have been settled in full is any remainder of the cover pools available for settling the claims of the insolvency creditors.

Pfandbrief banks are required to provide quarterly reports on the composition and structure of their cover pools. The publications in accordance with the German Pfandbrief Act can be found on the website of pbb under Investors / Mandatory Publications / Publications in accordance with Section 28 German Pfandbrief Act.

Overcollateralization of Pfandbriefe

The German Pfandbrief Act (PfandBG) provides for a net present overcollateralization of 2.0 % for Pfandbriefe; i.e. the present value of the cover pool should always be at least 2.0 % higher than the present value of all Pfandbriefe issued for this cover pool. Nominal cover must also be assured. This means that the total nominal values of all cover pools must at least cover the total nominal values of the Pfandbriefe issued for this cover pool.

The rating agencies also require additional cover, depending on the quality of the cover pool and the desired Pfandbrief rating. The mortgage Pfandbriefe and public Pfandbriefe of pbb were rated as Aa 1 by Moody's as of 31 December 2017. In order to maintain this rating, pbb must provide minimum net present value surplus cover of 5.0 % for mortgage Pfandbriefe and 4.5 % for public Pfandbriefe.

The surplus cover of the mortgage Pfandbriefe as of 31 December 2017 was actually 17.6 % (nominal) and 17.8 % (present value). For the public Pfandbriefe, pbb provided surplus cover of 17.2 % (nominal) and 14.3 % (present value) as of 31 December 2017. The overcollateralization thus exceeded the requirements of the rating agencies and the legislative authorities.

The current surplus cover and the voluntary surplus cover required by Moody's is published by pbb on its website under Investors / Mandatory Publications / Publications according to Section 28 German Pfandbrief Act or Investors / Ratings/ Moody's Reports.

In order to manage the liquidity position and to optimise the quality as well as the cash flows of the cover pools, pbb can also provide more surplus cover than required by law or desired by the rating agencies.

Derivatives and security lending transactions

The pbb Group uses derivatives mainly for hedging market risks which result for instance from changes in interest rates or exchange rates. These hedges are opposed by underlyings of asset of liability positions. The purpose of hedging interest rate and exchange rate risks is accordingly to reduce or avoid market risks. The counterparties in derivative transactions are mainly OECD credit institutions or Eurex Clearing. In addition, the pbb Group provides derivatives for real estate customers and public-sector entities in order to enable them, for instance, to hedge the market risks of commercial real estate financing.

The purpose of using security lending/repo transactions is to assure short-term liquidity management; this is also a key source of the secured refinancing of pbb. The main counterparties are OECD credit institutions and Eurex Clearing.

In connection with its derivative and security lending/repo transactions, pbb uses standard framework agreements including the related collateral agreements. For more detailed information, please refer to chapter 5.3 “Credit risk mitigation techniques", section "Eligible netting agreements",

In accordance with Article 443 CRR in conjunction with the Delegated Regulation (EU) for the disclosure of encumbered and unencumbered assets of 4 September 2017, the following tables show the asset encumbrance of the pbb Group. The figures are based on median values of the quarterly data of the financial year 2017.

Table 16: Encumbered and unencumbered assets

All figures in € million

	Encumbered and unencumbered assets	Carrying amount of encumbered assets		Fair value of encumbered assets		Carrying amount of unencumbered assets		Fair value of unencumbered assets	
			of which: notionally eligible EHQLA and HQLA [1]		of which: notionally eligible EHQLA and HQLA [1]		of which: EHQLA and HQLA [1]		of which: EHQLA and HQLA [1]
		010	030	040	050	060	080	090	100
010	**Assets of the reporting institution**	**39,606**	n/a	—	—	**20,431**	n/a	—	—
030	Equity instruments	-	n/a	—	—	-	n/a	—	—
040	Debt securities	5,768	n/a	5,760	n/a	5,823	n/a	5,754	n/a
050	Of which: Covered bonds	1,308	n/a	1,308	n/a	165	n/a	170	n/a
060	Of which: Asset-backed securities (ABS)	-	n/a	-	n/a	-	n/a	-	n/a
070	Of which: Issued by general governments	2,446	n/a	2,438	n/a	3,976	n/a	3,758	n/a
080	Of which: Issued by financial corporations	2,545	n/a	2,544	n/a	1,715	n/a	1,736	n/a
090	Of which: Issued by non-financial corporations	545	n/a	545	n/a	218	n/a	260	n/a
120	Other assets	3,591	n/a	—	—	486	n/a	—	—
121	Of which: Derivatives	3,591	n/a	—	—	299	n/a	—	—

1) The disclosure of the asset quality indicators EHQLA and HQLA is required by the Delegated Regulation (EU) 2017/2295 from 2 January 2019:
EHQLA: Assets of extremely high liquidity and credit quality, "Level 1 assets" (Extremely High Quality Liquid Assets).
HQLA: Assets of high liquidity and credit quality, "Level 2 A/B assets" (High Quality Liquid Assets).

Table 17: Collateral received

All figures in € million

	Collateral received	Fair value of encumbered collateral received or own debt securities issued		Unencumbered Fair value of collateral received or own debt securities issued available for encumbrance	
			of which: notionally eligible EHQLA and HQLA 1)		of which: EHQLA and HQLAA 1)
		010	030	040	060
130	**Collateral received by the reporting institution**	**0**	n/a	**0**	n/a
140	Loans on demand	-	n/a	-	n/a
150	Equity instruments	-	n/a	-	n/a
160	Debt securities	-	n/a	-	n/a
170	Of which: Covered bonds	-	n/a	-	n/a
180	Of which: Asset-backed securities (ABS)	-	n/a	-	n/a
190	Of which: Issued by general governments	-	n/a	-	n/a
200	Of which: Issued by financial corporations	-	n/a	-	n/a
210	Of which: Issued by non-financial corporations	-	n/a	-	n/a
220	Loans and advances other than loans on demand	-	n/a	-	n/a
230	Other collateral received	-	n/a	-	n/a
240	**Own debt securities issued other than own covered bonds or asset-backed securities**	**0**	n/a	**0**	n/a
241	**Own covered bonds and asset-backed securities issued and not yet pledged**	—	—	**0**	n/a
250	**Total assets, collateral received and own debt securities issued**	**39,606**	n/a	—	—

1) The disclosure of the asset quality indicators EHQLA and HQLA is required by the Delegated Regulation (EU) 2017/2295 from 2 January 2019:
EHQLA: Assets of extremely high liquidity and credit quality, "Level 1 assets" (Extremely High Quality Liquid Assets).
HQLA: Assets of high liquidity and credit quality, "Level 2 A/B assets" (High Quality Liquid Assets).

Table 18: Sources of encumbrances

All figures in € million

	Sources of encumbrance	Matching liabilities, contingent liabilities or securities lent	Assets, collateral received and own debt securities issued other than covered bonds and asset-backed securities encumbered
		010	030
010	**Carrying amount of selected financial liabilities**	**32,911**	**39,079**
011	Derivatives	4,100	3,591
012	Of which: Over the counter (OTC)	4,100	3,591
013	Deposits	125	176
014	Of which: Repurchase agreements	125	176
015	Of which: Collateralised deposits other than repurchase agreements	-	-
016	Debt securities issued	28,748	35,312
017	Of which: Covered bonds issued	28,748	35,312
018	Of which: Asset-backed securities (ABS) issued	-	-
019	Other sources of encumbrance	-	394
020	Of which: Securities-lending transactions	-	394

The other assets shown in the table “Encumbered and unencumbered assets” (line 120) mainly comprise the derivatives (96 %), most of which are encumbered. It also shows unencumbered assets such as tax claims (3 %) as well as other tangible and intangible assets (property, plant and equipment/operating and business equipment, purchased software and software developed in-house), which are generally not available for encumbrance purposes.

4 Risk management and risk-oriented overall bank management

pbb Group has implemented a Group-wide risk management and risk control system, which provides for uniform risk identification, measurement and limitation in accordance with section 91 (2) of the German Stock Corporation Act (AktG) and section 25 a of the German Banking Act (Kreditwesengesetz – "KWG"). With the approval of the European Central Bank (ECB) granted in August 2017, Deutsche Pfandbriefbank AG, at a single-entity level, applies an exemption according to section 2a (2) of the KWG. The exemption refers to the requirements concerning the risk control function pursuant to section 25a (1) sentence 3 nos. 1, 2, 3b and 3c of the KWG.

Declarations of the Management Board

The disclosure requirements in accordance with Article 435 (1) letters a to f CRR in conjunction with EU OVA, EU CRA, EU CCRA and EU MRA of the guidelines EBA/GL/2016/11 as well as EU LIQA of the guidelines EBA/GL/2017/01 concerning the risk management strategy, the risk management processes and risk management policy are implemented in this Disclosure Report as in the risk and opportunity report in the annual report 2017 of the pbb Group. The annual report is published on the website of pbb under Investors / Financial Reports. The Disclosure Report and the risk/opportunity report show the risks and opportunities identified for the various risk categories within the framework of the implemented risk management and risk controlling system. With regard to enterprise-wide and general company-specific risks and opportunities, please also refer to the information set out in the forecast report of the annual report 2017 of the pbb Group.

The Management Board of pbb considers that the existing risk management system in accordance with Article 435 (1) letter e CRR in conjunction with EU LIQA of the EBA/GL/2016/11 is consistent with the risk profile and the risk strategy of the pbb Group. pbb is assuming that the methods, models and processes implemented in the pbb Group are suitable at all times for assuring a risk management and risk controlling system which is consistent with the business strategy and the risk profile.

The risk declaration of the Management Board in accordance with Article 435 (1) letter f CRR in conjunction with EU LIQA of the EBA/GL/2016/11, regarding the general risk profile of the pbb Group associated with the business strategy as well as corresponding key indicators and figures, are set out in this Disclosure Report and also in the risk and opportunity report in the annual report 2017 of the pbb Group. The Management Board of pbb confirms that, to the best of its knowledge, the internal risk management procedures used in the pbb Group are suitable for constantly providing a comprehensive picture of the risk profile of the pbb Group and also for sustainably assuring the bank's risk-bearing capacity.

4.1 General organisation and risk management principles

Organisation and committees

Management Board

The Management Board of pbb is responsible for the risk management system, and decides on the strategies and material issues of risk management and risk organisation at pbb Group.

The principles, methods and processes of pbb Group's risk management system are specified centrally by pbb's Risk Management and Controlling, and are applied throughout pbb Group, subject to any special requirements at single-entity level. The risk management system comprises the plausible and systematic identification, analysis, valuation, management, documentation, monitoring and communication of all major risks.

The following are major components of the risk management system in the responsibility of the Management Board:

- Defining, updating and communicating business and risk strategies as the basis of business activities and risk acceptance within pbb Group
- Defining and improving organisation structures within pbb Group and in particular for risk management, which ensures that all major risks of pbb Group are managed and monitored
- Adopting credit competences as a decision-making framework along the credit processes within pbb Group
- Taking decisions regarding (portfolio) management measures outside the delegated competences.

The Management Board notifies the Supervisory Board with regard to significant changes in the business and risk strategies as well as the risk profile of pbb Group. The Risk Management and Liquidity Strategy Committee (RLA) of the Supervisory Board is mainly responsible for controlling the overall risk situation and for monitoring, establishing and improving an efficient risk management system, and is also responsible for the liquidity management and assurance of pbb Group and resolves upon necessary credit approvals for credit decisions. The Management Board notifies this committee of all increases to specific allowances and the creation of new specific allowances in excess of € 5 million and also notifies this committee at regular intervals of major exposures with higher levels of risk.

The committees detailed in the following have been set up at pbb Group level with the involvement of the respective decision-makers.

Risk Committee

The Risk Committee (RC), consists of the CRO (Chairman), the CFO (Deputy Chairperson), the Chief Credit Officers REF/PIF (CCO), the Head of "Projekte Risk Management" as well as the Head of Risk Management & Control (RMC). In general, the committee meets on a monthly basis and discusses the risk development, adopts guidelines/policies, methods for risk measurement, the related parameters as well as methods of monitoring for all risk types. The RC is responsible for the development of standard guidelines of risk management and risk controlling across the Group and also monitors the development of the risk-bearing capacity, economic capital, available financial resources as well as the credit portfolio and the compliance with limits. The Risk Committee discusses the portfolio developments of pbb Group.

Additional sub-committees have been established below the Risk Committee, as outlined below.

Credit Committee

The Credit Committee is chaired by the CRO or a CCO. As a general rule, the committee meets at least once a week and takes credit decisions on new business, prolongations and material changes that fall within the scope of its authority. It also votes on all credit decisions which are in the respon- sibility of the Management Board or which have to be approved by the Risk Management and Liquidity Strategy Committee. The responsible decision-makers ensure that the credit decisions are consistent with the prevailing business and risk strategy.

Watchlist Committee

The Watchlist Committee is chaired by the CCOs (with delegation opportunities to a Senior Credit Executive) and meets every month. All exposures identified by the early warning system are discussed and, if appropriate, individual measures are decided there; these measures have to be subsequently implemented by the relevant departments. Where necessary, the committee takes decisions regarding the need to transfer exposures to CRM REF Workout, which then takes the necessary steps for restructuring or workout on the basis of an individual exposure strategy. All necessary credit decisions are taken by the key personnel in line with the allocation of credit powers or in the Credit Committee.

Risk Provisioning Committee

If there are any objective indications of an impairment in accordance with IAS 39.59 of an exposure, the extent of the impairment is first determined and the result is presented in the Risk Provisioning Committee (RPC). It is chaired by the CRO. The RPC decides upon recognition, charge-off and reversals of loan loss provisions, within the scope of a pre-defined assignment of approval powers and in accordance with IFRS and the German Commercial Code (HGB); where the RPC cannot take a final decision, it issues a recommendation. Finally, the RPC decides upon any foreclosures which may be necessary. The recommendations made by the committee form the basis of decisions to be made in line with the relevant set of rules governing powers.

New Product Process Committee

The New Product Process Committee ("NPPC") comprises representatives from the most important units reponsible for infrastructure and controls. The representatives are determined by the RC. The NPPC convenes on an event-driven basis; it ensures that, before business commences with new products or in new markets, the resulting risks as well as the related impact on processes, controls and infrastructure are systematically analysed and duly addressed. Only after approval of new product process committee business with new products or in new markets can be started.

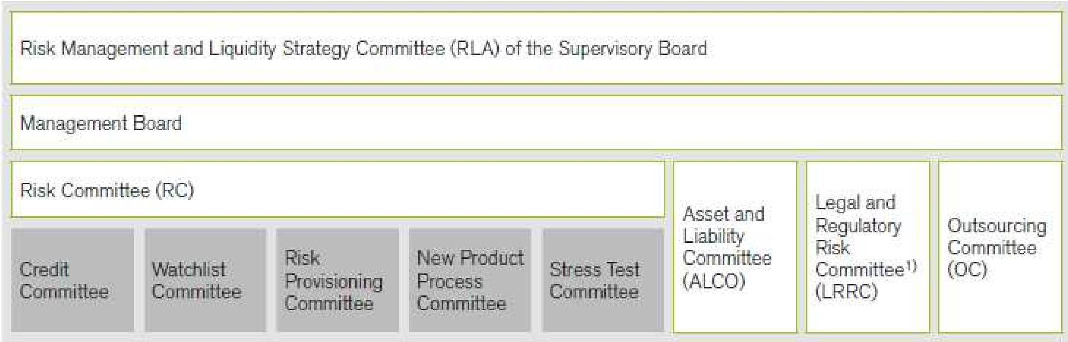
Stress Test Committee

The Stress Test Committee is responsible for the methodology, performance and monitoring of the internal stress tests. It is chaired by the CRO. The Committee also contributes to the preparation of scenarios for the Recovery Plan which every bank is required by law to prepare.

Asset and Liability Committee / Legal and Regulatory Risk Committee / Outsourcing-Committee

Besides the Risk Committee, there are the Asset and Liability Committee (ALCO) as well as the Legal and Regulatory Risk Committee (LRRC). The tasks of the ALCO are: managing liquidity as well as pbb Group's balance sheet structure, defining long-term financing strategies, managing capital, regulatory capital ratios, as well as market risk exposure. The LRRC advises on legal and regulatory requirements, and may assign responsibility for implementation to business divisions, following consultation. The Outsourcing Committee deals with the preparation of, and compliance with, guidelines as well as with the overall management and monitoring of outsourced activities.

Figure 4: Risk management organisation



[1] Reporting via Compliance.

Chief Risk Officer (CRO)

In addition to the above-mentioned committees, the following organisation units of the CRO, form an integral part of the risk management system of pbb Group:

Figure 5: Chief Risk Officer organisation

The organisation of the CRO function comprises the following monitoring and back-office units at pbb Group level:

- The unit Risk Management & Control, which is amongst others responsible for monitoring market, credit, operational and liquidity risks as well as the risk-bearing capacity of pbb Group and which is also responsible for Group-wide uniform risk measuring methods and risk reports.
- The units of the Chief Credit Officers REF/PIF and "Projekte Risk Management" of pbb Group, which are each responsible for the analysis of new business and portfolio management. In addition, CRM REF also comprises the Workout (Real Estate) unit, which is responsible for the recovery and workout of all critical exposures in the Real Estate Finance segment, and the central unit Credit Processes, which is responsible in particular for the organisation of the Credit Committee and implementation of regulatory requirements in the credit processes.
- The unit Operations, which is responsible for the global servicing and administration of the loan portfolio (including technical implementation of loan agreements), settlement of capital markets transactions, administration and processing of the Group's securities and derivatives portfolios, as well for handling domestic and international payments.
- The unit Property Analysis & Valuation, which is responsible for the analysis and uniform valuation of properties serving as collateral, using market valuation and loan-to-value methods as well as for the monitoring of financed developments.

In addition to the CRO function, the Corporate Office/Compliance entity and the Group Internal Audit entity (indepen-dent) complement the risk management system of pbb Group. Compliance has established checking and reporting processes with regard to money laundering, sanctions, embargos and other criminal acts, as well as for other Compliance topics. Moreover, Compliance is responsible for the central coordination of key controls within the framework of the Internal Control System. Corporate

Office/Compliance is also represented in various committees. The area of responsibility of Group Internal Audit comprises risk-oriented regular as well as event-driven audits of processes, controls and systems. This also includes the revision of the risk management system. Regarding legal issues Risk Management is also supported by the Legal department. The Head of the unit Group Internal Audit has changed in the reporting period.

Risk strategy and policies

Together with pbb's business strategy, the risk strategy forms the foundation for pbb Group's planning. The risk strategy has been defined on the basis of the Group-wide risk tolerance; it reflects pbb Group's strategic direction as a specialist for real estate finance and public investment finance with a focus on Pfandbrief funding. Subject to any special requirements at single-entity level, the risk strategy is applicable for pbb Group's operating segments and legal entities. It is reviewed at least annually, and updated if applicable.

In 2017 the risk strategy was revised during the course of the annual strategy development process as well as during the period. Each update was adopted by the management board and approved by the supervisory board respectively.

The operationalisation of the risk strategy is carried out via risk policies for the individual operating segments as well as for all major risk types (credit risk, market risk, liquidity risk, business risk, prop- erty risk, pension risk and operational risk); these risk policies describe risk measurement, risk monitoring, risk management, the limitation process as well as the escalation process if a limit is exceeded. The policies are reviewed regularly and updated if necessary.

Risk reporting

Risk reporting reflects the structure of the operating segments. The Management Board of pbb receives regular risk reports which include an extensive overview as well as detailed information concerning the risk situation for each risk type as well as other management-relevant information. The supervisory bodies are also notified of risk-relevant issues at regular intervals.

In addition, special reports are prepared on an ad hoc basis or at the request of the Management Board or Supervisory Board; such special reports consider specific and acute risk issues, for instance in relation to critical markets, products or counterparties.

Risk quantification risk control and management

For the purposes of systematically identifying and analysing potential risks arising from the business model or pbb Group's external environment, the Group carries out a comprehensive risk inventory at least once a year. The objective of this risk inventory is to establish a full risk profile which identifies any and all risks, provides an assessment as to whether these risks are material for pbb Group, and scans them for the existence of potential risk concentrations. Where possible, risks are quantified using applicable risk models or other methods.

Risks which cannot be quantified (or only in part) are monitored and managed using dedicated capital buffers or separate management tools, as well as by way of regular, detailed reports and clearly-defined requirements such as the Compliance and Corporate Governance guidelines.

As part of its risk strategy, pbb Group has implemented four approaches to risk and capital management, which pursue different objectives: besides two approaches under the Internal Capital Adequacy Assessment Process (ICAAP), the risk strategy also provides two approaches according to which the Group manages regulatory capital and focuses on its liquidity position.

pbb Group's risk management is therefore based on the following approaches or objectives:

- to ensure compliance with minimum regulatory capital ratios, via the going-concern approach of the ICAAP
- to protect senior creditors in the event of liquidation, via the gone-concern approach of the ICAAP
- to ensure the regulatory capital base, in order to monitor the own funds ratio as well as the CET1 ratio
- to monitor the liquidity status, in order to ascertain pbb's ability to meet its payment obligations at all times.

Besides the measurement, limitation and monitoring of risks, all risk management approaches also comprise regular reporting as well as escalation processes; they are supplemented by scenario analyses and stress testing. Within the framework of these strategic management approaches and objectives, pbb Group defines its risk appetite – which sets out the scope within which pbb Group is prepared to assume risks.

Limit and early warning systems have been implemented, in line with the risk appetite, for each type of risk as well as across risk types, at the level of capital management circuits. The strategy underlying the respective type of risk, together with the associated risk definition, risk calculation methods, and risk reporting systems are described in detail in the following chapters.

Internal Audit

The need for an Internal Audit function is based on specific legal provisions, such as Section 25a (1) sentence 3 No. 3 KWG in conjunction with MaRisk (Minimum requirements for risk management according to BaFin; in particular AT 4.4.3 in conjunction with BT2) and Section 91 (2) AktG.

For this purpose, the Internal Audit function is an integral part of the internal control system. The "Internal Control System" (ICS) comprises all types of control activities which are directly or indirectly integrated in the workflows to be monitored (= process-oriented control). The Internal Audit function also acts as an instrument of the Management Board for risk-based monitoring of operating and business procedures, risk management, risk controlling as well as the Internal Control System (= process-independent control).

The Management Board confers on the Internal Audit function the right of initiative including the authorisation to directly communicate with every employee so as to audit any activity or business unit and gain access to all documents, files or data of pbb, including management information and the minutes of all advisory and decision-making bodies whenever this appears to be relevant within the framework of their task. This also includes (physical) access to all premises as well as technical access to the IT systems.

In line with the Institutsvergütungsverordnung (Remuneration Ordinance for Institutions), the Internal Audit function is independently involved in monitoring the remuneration systems (in accordance with Section 2 (9) in conjunction with Section 3 (3) InstitutsVergV).

The Internal Audit function reports directly to the Management Board of pbb. The chairman of the Supervisory Board / Audit Committee may request information directly from the head of the Internal Audit function by involving the Management Board. In addition, the head of the Internal Audit function regularly reports audit results/planning to the Audit Committee.

The audit activities must cover all operating and business procedures, activities and processes based on a risk-oriented audit approach, taking account of the potential amount of loss and the probability of occurrence.

In particular, the following items are audited and assessed in accordance with MaRisk (Minimum requirements for risk management according to BaFin):

- The Internal Control System (ICS)
- The risk management and controlling processes
- The reporting and Information systems

- Finance and accounting
- Compliance with existing legal and regulatory requirements as well as other regulations
- Compliance with operational guidelines, ordinances and regulations and
- the security of the assets.

Audits also include outsourced functions. In addition, the tasks of the Internal Audit function also comprise special audits commissioned by the Management Board. The Internal Audit function also has to become involved in major projects, whilst maintaining its independence. It has to be informed in advance of all major projects so that it is able to define the nature and extent of project support in a timely manner.

The Internal Audit function has a complete and unlimited information right which must be guaranteed at all times. The requested information and documents must be promptly delivered to the Internal Audit function, and the Internal Audit function must be allowed to view the activities and processes as well as the IT systems.

In addition, all organisational units must automatically inform the Internal Audit function when serious defects are identified or considerable loss has occurred in their area of competence or in the event of an initial suspicion.

In particular, any significant risk-related information must also be immediately forwarded to the head of the Internal Audit function as well as to the management team and the responsible staff.

4.2 Risk types

pbb Group distinguishes the following major risk types for its business activities:

- Credit risk (including counterparty credit risk)
- Market risk
- Liquidity risk
- Operational risk (including legal risk)
- Business risk
- Property risk
- Pension risk.

The following are major risk types of pbb Group which are not quantified but capitalised by suitable buffers, are limited by reports, guidelines and policies:

- Strategic risks
- Regulatory risks
- Tenant cluster risk (as part of credit risk).

In addition to the general principles of risk management described in chapter 4, further information is set out in chapters 5.1, 6.1, 7.1 and 8.1 of the Disclosure Report regarding the risk management objectives and policy for the risk types credit risk (incl. counterparty credit risk), market risk, liquidity risk and operational risk (incl. legal risk). The risk types business risk, real estate risk and pension risk are defined as follows:

Business Risk

pbb Group generally defines business risk as the risk of reductions in profit, due to changes in the external business environment which affect the Bank's economic conditions. Business risk comprises risks to income, as well as funding risk.

Property Risk

Property risk is defined as potential negative changes in the value of the Company's own property portfolio, due to a deterioration of the general real estate situation or a negative change of the specific characteristics of the individual property – caused by the property being vacant, changed usage options, building damages, investment requirements, changes to the legal framework or economic environment as well as other factors.

pbb Group's own property portfolio contains exclusively the result of salvage acquisitions carried out by subsidiaries of pbb Group. Since pbb sold all properties held during the year under review, it no longer carried any own property as at 31 December 2017. Salvage acquisitions are not regarded as a part of the Company's objectives (within the meaning of its business strategy) but are subject to a case-by-case assessment. In this context, the fundamental objective is to develop such properties with reference to comprehensive real estate criteria, such as costs vs. income, increasing occupancy ratios, optimising usage options as well as further development of the location, and to work out solutions in individual cases – or to subsequently sell the property with the most favourable impact on value.

By calculating economic capital at portfolio level, property risk as a whole is quantified, monitored and reported via the Capital Adequacy Assessment Process.

The administration and active risk management of salvage acquisitions is carried out by the Bank's Rescue Deal Management unit, which is specialised on this business area.

Pension Risk

Pension risk is defined as the risk of incurring additional expenses due to insufficient capitalisation of pension obligations from defined benefit plans.

4.3 Economic capital and risk-bearing capacity

Internal Capital Adequacy Assessment Process (ICAAP)

Pursuant to section 91 (2) of the German Stock Corporation Act (AktG) and section 25a (1) of the German Banking Act (Kreditwesengesetz – "KWG"), credit institutions are obliged to set up adequate and effective internal procedures to determine and sustainably maintain their risk-bearing capacity. The Internal Capital Adequacy Assessment Process (ICAAP) is the subject of regulatory reviews (within the Supervisory Review and Evaluation Process – SREP); it complements the regulatory procedures under Pillar 1 of the Basel III framework, as laid down in the Capital Requirements Regulation ("CRR") and the Capital Requirements Directive IV ("CRD IV").

The risk inventory carried out in 2017 identified market risk, credit risk, business risk, operational risk and property risk as higher-level risks having an impact on capital and income; accordingly, these five types of risk were included in the ICAAP, and are being quantified using models or other methods. Within these types of risk, there are additional sub-risks on a granular level which were taken into account in the ICAAP during the period under review. Certain material types of risk, such as extension risk, settlement risk, realisation risk for defaulted loans, or pension risk, are integrated into the ICAAP in the form of buffers which are validated on a regular basis. Liquidity risk in the narrower sense is not being taken into consideration as part of calculating the risk-bearing capacity, since the Group's solvency is ascertained through a separate management approach.

pbb Group has implemented a risk-bearing capacity analysis based on the ICAAP. This analysis uses the concept of economic capital to quantify risk. Economic capital is defined as the quantity of capital required by a bank in order to cover the potential losses with a defined probability (the confidence level) over a time horizon of one year. It is calculated for all relevant types of risk, and aggregated to form total economic capital (after diversification effects). Evidence of the bank's risk-bearing capacity is provided by comparing aggregate diversified economic capital to the corresponding available financial resources: If the latter exceed the former, the risk-bearing capacity is evidenced.

To evidence its risk-bearing capacity, pbb Group applies a going-concern approach as one of two management approaches: this is explicitly based on the assumption that business will continue, and the bank's specific minimum regulatory capital ratios, as defined by the SREP, will be complied with. For this purpose, minimum ratios derived from SREP requirements are protected, thus ensuring that pbb Group will remain sufficiently capitalised, even upon occurrence of an adverse economic scenario and the associated losses.

In addition, pbb Group has also implemented a gone-concern approach as an additional management approach. The objective of the gone-concern approach is to protect senior creditors in a hypothetical liquidation scenario, after the bank has incurred extreme losses. Besides a higher confidence level, the gone-concern approach encompasses a different level of available financial resources and different risk exposures in the liquidation scenario, compared to the going-concern approach. Moreover, given the assumed liquidation, the gone-concern approach also takes hidden losses as well as credit spread risks of securities in the banking book into consideration.

The methods of calculating economic capital for the individual risk types, as well as current risk indicators, are described in greater detail in the following subsections, and in the section "Result of Risk-bearing Capacity Analysis".

Over and above the risk-bearing capacity analysis, the ICAAP comprises additional management tools, including a system of limits and early-warning thresholds, as well as a comprehensive monthly monitoring and reporting process. Moreover, stress tests are employed to analyse the impact of hypothetical developments on the risk-bearing capacity.

The results of the ICAAP and of the stress tests are regularly presented to the Management Board and the Risk Com-mittee. The results are discussed there and if necessary management measures are defined.

Method used for the individual risk types

Economic capital for quantifiable risks is determined using models or scenario analyses, and aggregated into overall bank risk using a mathematical-statistical approach, taking specific correlations between market and credit risks into account. Risks are calculated for a one-year period, using a confidence level of 99.91 % for the gone-concern and 95 % for the going-concern approach.

The methods of calculating economic capital for the individual material risk types for 2017 are explained below:

Credit risk in the ICAAP

For calculating the credit risk at the portfolio level, pbb Group uses a credit portfolio model which is based on the approach of a so-called asset value model. The fundamental concept used involves the repeated simulation of correlated rating migrations for borrowers, whereby the associated portfolio revaluation is used to derive a statistical distribution of losses – which is in turn used to derive economic capital in terms of unexpected losses. Economic capital quantifies the maximum unexpected loss, given a pre-defined confidence level, which may be incurred due to rating migrations (including defaults) in the lending business within a single year. Besides the loss distribution of the credit portfolio, as a significant result of this process, credit risk capital can be assigned to individual borrower units in line with the risks involved, using the so-called expected shortfall principle. This ensures a fair, risk-adequate allocation to borrowers, and thus constitutes a major cornerstone in the risk-oriented management of the credit portfolio. During the observation period, correlations between borrowers, borrower groups and regions were reviewed during the course of the regular validation process; updated correlations were applied during the fourth quarter of 2017.

Credit risk reported comprises default and migration risk, transfer and conversion risk, as well as concentration risk. Certain elements of credit risk, such as the realisation risk for defaulted clients, settlement risk, and extension risk are not reported directly as part of credit risk, but are instead taken into account as deductions in the available financial resources. The credit portfolio model is used to examine the appropriateness of these deductions on a regular basis. Furthermore, tenant risk is backed by capital using a buffer for risks which can only be partially quantified, or which cannot be quantified at all.

Market risk in the ICAAP (including pension risk)

The purpose of calculating economic capital for market risk is to identify potential financial losses resulting from price changes affecting all positions. In this process, the potential non-systematic losses are derived from an analysis of historical time series of specific influencing factors (risk factors), including interest rates, exchange rates and credit spreads, over the preceding seven years. The seven-year horizon ensures that economic phases which were not favourable for the bank are also taken into account in the model. Ultimately, using a simulation procedure and applying sensitivities of financial instruments to risk factors, the annual loss distribution of portfolio market value is determined, which allows to determine economic capital at the set confidence level.

Besides the risk types described in the “Market Risk” chapter, the ICAAP also encompasses pension risk, which is not disclosed directly under market risk; instead, it is deducted from available financial resources in the form of a buffer, which is validated on a regular basis.

Operational risk in the ICAAP

Within the framework of the ICAAP, operational risk is quantified using the so-called loss distribution approach (LDA), whereby distributions for damage amounts and frequency are determined individually, using internal loss data from the loss database. External and scenario-based data is also included in the modelling approach. The full loss distribution is generated using Monte Carlo simulation techniques; diversification effects between the various sub-types of risk and modelling categories are not being considered. Furthermore, care is taken to ensure that the economic capital figure calculated for operational risk does not fall short of a floor defined at 90 % of adjusted regulatory capital determined in accordance with the standardised approach pursuant to the EU Capital Requirements Regulation (575/2013 (EU) – “CRR”). Sub-types of operational risk which can only be partially quantified, or which cannot be quantified at all, such as for instance model risk, are covered by way of a capital buffer.

Business risk in the ICAAP

Business Risk comprises risks to income, as well as funding risks. Adopting a conservative approach, planned income from new business is fully excluded from available financial resources thereby. The funding risk comprises funding requirement risk (defined as the risk of an unexpected increase in funding costs, due to higher funding requirements) and funding spread risk (defined as an increase in funding costs due to widened funding spreads). Funding risks are quantified via scenario-based approaches, and reported explicitly in business risk. Unquantifiable risks such as regulatory or strategic risk are backed by capital using a buffer for risks which can only be partially quantified, or which cannot be quantified at all, deducted from available financial resources.

Property risk in the ICAAP

pbb Group's property risk is calculated using a mathematical-statistical model that enables the Bank to make state-ments on the probability of potential declines in the value of properties in its portfolio. Model parameters are essentially based on time series of representative real estate indices for the individual properties of the portfolio, and on valuations of individual properties.

Liquidity risk in the ICAAP

Capital backing of liquidity risk in the narrower sense is not possible. Liquidity risk in the broader sense – i. e. the risk of higher funding costs for unexpected potential funding requirements, is mapped in economic capital for business risk.

Result of the risk-bearing capacity analysis

Going-Concern

The going-concern approach explicitly focuses on protecting regulatory minimum capitalisation, and hence, on the continuation of pbb Group's business activities during periods of difficult economic downturns. In order to prove the risk-bearing capacity the first step is to calculate the economic capital, using a confidence level of 95 %. This includes the risk types which pbb Group defines as being material, namely credit risk, market risk, operational risk, funding risk (as part of the business risk), and property risk.

Table 19: Risk-bearing capacity based on a going-concern approach

All figures in € million

Risk types	Going-Concern: Economic capital		
	31.12.2017	31.12.2016	Change
Credit risk	238	188	50
Market risk	175	177	-2
Operational risk	25	21	4
Business risk	-	-	-
Property risk	-	1	-1
Total before diversification effects	**438**	**387**	**51**
Total after diversification effects	**403**	**357**	**46**
Available financial resources (free capital)	987	955	32
Excess capital (+) / capital shortfall (-)	+584	+598	-14

An increase in diversified risk was observed as at the reporting date, mainly in terms of credit risk. This increase was mainly driven by a harmonisation of risk models by the European Central Bank, as well as regular adjustments of credit portfolio model parameters to prevailing developments and validation results. Economic capital for market risk only changed slightly as at the reporting date; during the course of the year, however, it was subject to fluctuations which were mainly due to changes in medium- and long-term interest rates, and in the credit spreads for some European countries. The increase in operational risk was due to regular model updates, whilst property risk was neutralised altogether during the period under review, given the sale of remaining own property and foreclosed assets.

Total risk (after diversification effects) is opposed by available financial resources in the form of so-called free capital, largely comprising available CET1 capital, plus accrued profits, less the CET1 capital necessary for covering the regulatory bank-specific minimum ratios according to the SREP and additional adjustment items. In accordance with the principle of prudence, an additional charge in relation to risk-weighted assets is taken into account in order to determine the CET1 capital necessary for covering the regulatory minimum ratios.

Calculation of free capital was modified in 2017. At the year-end 2016, free capital was calculated both as at the reporting date as well as 12 months forward, with the lower of the two used as free capital. (At the reporting date of 31 December 2016, this was the 12-month projection.)

This minimum-value analysis was replaced at the beginning of 2017; since then, free capital has been calculated as at the reporting date, backed up by an extensive early warning system, which closely monitors planned changes or trends in regulatory capitalisation and risk-weighted assets, over a 12-month forward period. The results of this forward-looking monitoring are incorporated into the overall risk-bearing capacity status, thus enabling the early identification of potentially adverse developments, and the timely adoption of measures if required. The changeover from projections to actual figures as at the reporting date was the main reason for the € 32 million increase in available financial resources.

To enhance the comparability of year-end figures, a pro-forma calculation as at 31 December 2016 was carried out, based on the figures prevailing at that date: this yielded available financial resources of €1,220 million, translating into a € 233 million reduction for the period under review. This decline was predominantly attributable to an increase in CET1 capital tied up for regulatory purposes, which in turn reflected higher risk-weighted assets (due to the harmonisation of risk models) as well as the update of the Bank's specific SREP ratios for 2017. Accordingly, the Bank had less CET1 capital available for covering economic risk at the reporting date.

The increase in economic capital (after diversification effects) and the simultaneous increase in available financial resources (compared to the 2016 Annual Report) together led to lower excess coverage. Overall, the Bank's risk-bearing capacity at the reporting date was evidenced under this approach. Likewise, the forward-looking monitoring of free capital also did not indicate any critical developments.

Gone-Concern

Supplementing the going-concern approach, pbb Group uses a gone-concern approach (liquidation perspective) as an additional, parallel management approach. The objective of the gone-concern approach is to guarantee protection of senior lenders in a hypothetical liquidation scenario, with a very high probability. pbb Group has selected a confidence level of 99.91 % that is harmonised with the generally conservative parametrisation of the models. However, this liquidation scenario does not assume an opportunistic winding up of portfolios as postulated by the German Pfandbrief Act, and instead assumes an immediate sale of assets recognised at fair value and of securities in the investment book. In line with this assumption, over and above the material risks from the going-concern approach (as mentioned above), credit spread risks arising from securities in the banking book are additionally taken into account when calculating economic capital for market risk, whilst net hidden losses attributable to these securities is deducted when determining available financial resources. Furthermore, rating migration risks are included (as part of credit risk) for all positions of the credit portfolio.

Table 20: Risk-bearing capacity based on a gone-concern approach

All figures in € million

Risk types	Gone-Concern: Economic capital 31.12.2017	31.12.2016	Change
Credit risk	1,213	1,140	73
Market risk	883	916	-33
Operational risk	78	85	-7
Business risk	21	15	6
Property risk	-	2	-2
Total before diversification effects	**2,195**	**2,158**	**38**
Total after diversification effects	**1,990**	**1,951**	**39**
Available financial resources before net hidden losses	3,179	3,267	-88
Net hidden losses	-	-	-
Available financial resources	**3,179**	**3,267**	**-88**
Excess capital (+) / capital shortfall (-)	+1.189	+1.316	-127

Diversified economic capital increased during the period under review, mainly due to higher credit risk and business risk. As in the going-concern approach, a harmonisation of risk models by the European Central Bank was the main factor driving economic capital for credit risk. The increase was also due to regular adjustments of credit portfolio model parameters to prevailing developments, and to higher exposure given new business originated.

Business risk rose year-on-year, reflecting higher funding risk, particularly driven by new business transacted during the second half of 2017. The reduction in market risk was largely due to changes in interest rate risk and credit spread risk, reflecting changes in medium- and long-term interest rates, and in the credit spreads for some European countries. Following the disposal of a property in Spain in December 2017, pbb no longer holds any own property; as a result, property risk has been neutralised altogether, as in the going-concern approach. The change in the risk contribution from operational risk was the result of regular model adjustments carried out. Given the changes outlined above, overall economic capital after diversification effects increased.

In contrast, available financial resources declined by € 88 million during 2017, mainly reflecting the repurchase of hybrid capital and maturities of subordinated capital instruments. However, this effect was partially offset by the issue of various Tier 2 bonds, an increase in equity in accordance with IFRS (mainly due to accrued profits), as well as the positive development of AfS reserves due to changes in credit spreads. Hence, excess coverage declined in 2017, compared to the 2016 year-end; evidence of the risk-bearing capacity in the gone-concern approach was thus provided as at the reporting date as well.

Should the European sovereign debt crisis escalate again, with credit spreads widening and credit ratings of numerous European debtors worsening as a consequence, both a corresponding increase in counterparty credit risk as well as a reduction in available financial resources (given an increase in net hidden encumbrances and lower equity) is to be expected, notwithstanding any countermeasures taken.

Opportunities

pbb Group observed a decline of credit spreads on the bond markets of some Southern European countries during the course of 2017. If confidence in European sovereign budgets were to be fully restored, narrowing credit spreads and systematic rating improvements for public-sector issuers might reduce risks, thus further strengthening available financial resources and hence, excess coverage in the ICAAP.

Stress testing

Stress tests play an important role, both from a supervisory perspective and for the Bank's internal management. All activities, developments and decisions relating to stress tests are brought together within the Stress Test Committee, which reports directly to the Risk Committee.

As part of an integrated approach, the impact of macroeconomic stress scenarios on all material risks and on available financial resources under stressed market parameters was calculated for a horizon of several years during the period under review. These scenarios focus on an escalation of the sovereign debt crisis and on unfavourable developments on the real estate markets.

Furthermore, stress tests relating to economic capital and available financial resources are used to obtain a deeper understanding of the sensitivity of risk-bearing capacity to adverse changes in economic factors. In addition, inverse stress tests are conducted regularly. The results of these tests describe specific constellations of parameters under which the risk-bearing capacity would be at risk.

5 Credit risk

5.1 Management of credit risk (including counterparty credit risk)

Definition

The credit risk in general is defined as the risk due to a threatened unexpected default or decline inthe market value of a receivable (loan or bond) or a derivative (alternatively of an entire portfolio of claims/derivatives). The reason for this can be either a deterioration in a country's or counterparty's creditworthiness or by a deterioration in collateralization.

The credit risk comprises the default risk, migration risk, realization risk of defaulted positions, transfer and conversion risk, tenant risk, settlement risk, extension risk as well as concentration risk, which are defined as follow in pbb Group's risk strategy.

Default Risk

Default risk comprises risk due to defaults of other parties. This includes defaults of loans and other traditional credit products (loan risk) or bonds and other securities (issuer risk) and counterparty risk due to default of a counterparty of derivatives (replacement risk) and money market transactions (repayment risk). The impact of rating migrations of state or regional governments is also included (sovereign risk).

Migration Risk

Migration risk is the risk of a decline in value through rating migration. This includes rating migrations of loans and other traditional credit products (loan risk) or bonds and other securities (issuer risk) and counterparty risk caused through rating migrations of a counterparty of derivatives (replacement risk) and money market transac-tions (repayment risk). The impact of rating-migrations of state or regional governments is also included (sovereign default risk).

Realization Risk

Realization risk of defaulted positions is the risk that the existing general and specific loan loss provisions change during the timeframe of the evaluation or that deviations occur in the case of realization.

Transfer Risk

Transfer risk is the risk that a government or central bank restricts the use of the currency to their own country. This includes the conversion risk, which is the risk that a government or central bank declares its own currency as non-convertible. Together with the sovereign risk, the transfer and the conversion risk form the country risk.

Tenant Risk

Tenant risk describes the risk that losses in rental income for properties will negatively influence the respective borrowers' debt service capacity. In addition, it includes the secondary concentration risk (tenant cluster risk), which arises when one and the same tenant is involved in multipleproperties funded by the bank.

Fulfilment Risk

Fulfilment risk is defined as the risk that the Bank makes a payment or delivers an asset which has been sold to a counterparty but does not receive a payment or the purchased asset.

Extension Risk

Extension risk is the risk of an unexpected extension of the holding period of a credit risk related asset.

Concentration risk

Concentration risk is defined as the risk of cluster formation in relation to a risk factor or counterparty, or a strongly correlated group of risk factors or counterparties.

Risk strategy and principles

pbb Group has broken down the overall credit portfolio into the segments Real Estate Finance (REF), Public Invest-ment Finance (PIF), Value Portfolio (VP) and “Consolidation & Adjustments” (C&A). The strategic business is attribu-table to commercial Real Estate Finance (REF) and Public Investment Finance (PIF). The risk strategy of pbb Group also reflects this structure.

Please refer to the information in chapter 2.1 “Organisational and legal structure” for a description of the business focus with regard to strategic portfolios, and for statements outlining the strategy adopted for the run-down portfolio.

Risk reporting

The credit risk reports of pbb Group provide information about the following main components:

Group risk report

The pbb Group Risk Report contains the development in volumes as well as relevant credit risk management indicators such as the development of the expected loss as well as the unexpected loss via value at risk (VaR). The report shows the credit risk at the level of pbb Group in the context of the overall bank risk and the risk-bearing capacity, it reports limit utilisations and violations of existing limits, and also identifies risk concentrations. Key indicators, such as the development of the exposure at default (EaD), the expected loss (EL), the credit value at risk (Credit VaR) as well as problem loans are integrated in this report and are discussed by the Management Board; the report is also submitted to the RLA of the Supervisory Board to be noted.

Neu business

For decisions to be made regarding new business, or regarding material changes to the credit quality of existing financings (such as a maturity extension), key financial indicators, content and analysis are presented to, and dis-cussed by the Credit Committee.

Active business

In the active business, further regular reports support operational management with regard to the management and timely recognition of risks at the sub-portfolio level.

Unusual developments

Unusual developments which might result in a major deterioration in the risk position of an individual exposure are ad-hoc reported to a wider group up to the CRO by way of so-called “Credit Issue Notes”.

Risk quantification via economic capital and risk-weighted assets according to CRR

Credit portfolio model

For calculating the economic capital for credit risk pbb Group uses a credit portfolio model. For details concerning this model and economic credit risk quantification, please refer to chapter 4.3 “Economic capital and risk-bearing capacity” (ICAAP).

Stress tests

The stress tests for economic capital in credit risk are described in greater detail in chapter 4.3 “Economic capital and risk-bearing capacity” (ICAAP).

In addition to the stress tests for economic capital, there are also RWA reverse stress tests. They investigate the extent to which a certain risk parameter (e. g. rating, loss given default (LGD), cur- rency) can change before a minimum common equity tier 1ratio (CET1) is no longer met. The minimum level for the common equity tier 1 (CET1) ratio is derived from the bank's individual SREP CET1 ratio. Tolerance change levels have been defined for all tested risk parameters; these levels must not be violated if the test of pbb Group is to be successfully completed.

Risk quantification according to CRR

The Basel III Framework Agreement of the Basel Committee was implemented in the European context by means of the Capital Requirements Regulation ("CRR"). pbb Group applies the so-called Advanced Internal Rating-Based Approach (Advanced IRBA) for determining the regulatory capital backing.

Risk management and monitoring

Risk management

At the portfolio level, the intended portfolio structure is defined in the risk strategy by means of structure components. The limits are also based on the available financial resources, and include for pbb Group for example:

- Limiting of country risks
- Definition of strategic risk parameters (e.g. regions, financing duration).

The following reports and measures are key elements for monitoring compliance with the defined limits and the intended risk and return parameters at the portfolio level and also at the level of individual transactions:

- Analysis of portfolio developments in the Risk Committee
- Determining the credit-VaR at the portfolio level by way of a credit portfolio model and partly limiting at the segment level; analysis of concentration risks and various stress tests
- Central Group-wide monitoring of risk concentrations by way of special, regular and ad hoc evaluations, such as regional or product-specific evaluations
- Continuous analysis of the portfolio and the relevant markets by the local Credit Risk Management units
- Regular evaluation of the collateral
- Special reports for exposures which are potentially at risk (e. g. "credit issue notes")
- Calculation of a risk-adjusted margin using the economic return after tax.

Depending upon the counterparty group, Expected Loss class or exposure size at GCC (Group of Connected Clients) level, the lending authority regulations determine the approval powers for new as well as existing exposures. Approval powers are assigned to individual employees in line with their individual experience and qualification.

Risk management and monitoring

At the level of individual transactions, the credit process guidelines define the necessary steps of assessing risk for new business as well as for substantial changes as prolongations or increase of credit limit and the procedures for transferring exposures to the watchlist or workout.

Core processes of credit risk management and monitoring as well as the relevant areas of the CRO function which are involved are described in the following:

The CRM entities carry out the initial risk analysis for new business and annual risk analysis for existing business. Probability of default (PD) and loss given default (LGD) rating tools, which are developed by Credit Risk as part of RMC and annually validated and calibrated, are used for valuation purposes and for preparing the credit decision in new and prolongation business. Property Analysis & Valuation (PAV) provides support for analysing and valuing collateralised properties.

The Legal department, where appropriate together with external lawyers/lawyers' offices, is respon- sible for the contract and collateral organisation.

Defined early warning indicators are constantly monitored by CRM. If essential problems are iden- tified, an exceptional test is performed on the credit risk (including a review of the value of collateral) and appropriate alternative actions are identified. Such cases are also included in a monthly, at least quarterly monitoring cycle and presented in the Watchlist Committee.

If there are any objective indications of an impairment, the extent of such an impairment is determined. In the Risk Provisioning Committee, the results are discussed and, where necessary, decisions are taken with regard to creating or reversing impairments.

Where an individual decision is taken as to whether a critical or impaired exposure is to be restructured or liquidated, scenario analyses outlining the potential development of the borrower, of collateral and/or the relevant market, are taken into account. These analyses are presented to the Credit Committee, which approves them or issues a recommendation for approval to holders of higher lending authority.

Critical exposures (watchlist) as well as restructuring and workout cases (non-performing loans) are reported on an aggregate basis monthly in the Group Risk Report and in the Risk Committee and also, upon request, in special analy-ses to the Management Board and Supervisory Board.

Risk hedging and risk mitigation

Real Estate Finance

In the REF segment, financing arrangements are normally backed by property charges. On the occasion of the regular credit reports for existing financing arrangements or as part of the decision- making process in the case of new finan-cing, the LTVs (loan-to-value) as well as the property (amongst others micro and macro location, rental situation, condition of property) and market circumstances are discussed and are also taken into consideration as part of the assessment process for individual loans.

In addition to the property charge, the financing security in the REF segment also generally com- prises amongst others rent assignation as well as the assignation of insurance claims, accompanied by extensive notification and consultation obligations of the borrowers. Apart from the property charges, only a few more selected securities are considered to be of value in the credit assessment process or in the calculation of LGD, and in particular this is applicable for cash security, furthermore under certain circumstances bank guarantees, other credit protections as well as guarantees of public-sector institutions. Corresponding haircuts are recognised in relation to foreign currency collateral, that means in a currency differing from the loan currency, in order to take account of potential exchange rate risks.

Properties in the REF business are valued using strict quality criteria. Property collateral values are determined when the loan is initially granted, and reviewed on an annual basis. pbb maintains a separate department of real estate analysts and surveyors (reporting directly to the CRO); the majority of staff members in this department have either passed the HypZert examination or qualifications (such as RICS certification). This department is always involved in the initial valuation (when a new loan is granted) or regular revaluations, as well as in the valuation reviews which are carried out at least once a year. Depending on the type and location of the property involved, market developments and other risk indicators, valuation reviews may also be carried out, in some cases, by credit department staff, based on defined parameters and processes.

For development financings, regular project monitoring comprises the monitoring of planning progress, budget, procurements, construction schedule, sales/letting progress and construction stage, amongst other factors. As a rule, for complex developments, such monitoring is carried out by renowned external project monitors on the bank's behalf, coordinated by PAV – usually on a monthly, but at least on a quarterly basis. For less complex residential real estate developments, construction progress is generally monitored, every three months, by experienced internal property analysts. CRM always monitors costs, thus facilitating a current overview of actual costs, as well as a cost projection for development projects, which is reconciled against the results of internal monitoring (as well as external monitoring, if applicable). This allows for recognition of any divergence from project planning (and hence, project risks during construction) as early as possible.

Public Sector Finance

In the PIF segment, guarantees are often accepted as collateral (including contractual guarantees from public-sector authorities, export credit guarantees). Moreover, Public Investment Finance exposures often involve a specific legal framework, such as the maintenance obligation (Anstaltslast) of public-sector entities, or other (direct and indirect) cover mechanisms which allow for recourse to a public-sector institution in the case of borrowers organised under public law. For some exposures in PIF, guarantees and indemnities or the legal framework are supplemented by additional loan collateral, as well as borrowers' disclosure or consultation duties. However, such additional loan collateral is generally not considered as valuable in assessing the exposure, or for the purposes of calculating LGD.

Treasury

In Treasury, mainly cash contributions and securities are made available or accepted as collateral when trading with other banks. The collateralisation is based on standard agreements, which can be amended in individual cases if required or which can be subjected to individual review by the legal department.

Opportunities

The parameters for the risk dimensions for the credit risk are defined using statistical methods on the basis of nume-rous historical observations. The risk measures also depend on assumptions relating to future developments of macro-economic factors as well as developments on the credit markets. These economic conditions may turn out to be more positive than anticipated; in which case, potential losses from counterparty credit risk may theoretically be lower than quantified by the risk measures. Such potentially positive developments then represent opportunities for pbb Group which can be utilised for reducing risk.

In specific terms, there are opportunities if fewer loans in future are affected by a default in performance than is assumed as part of the risk quantification process.

There are also opportunities if there are in future fewer migrations to less positive rating categories than assumed.

There are also opportunities if the loss ratios of non-performing loans in future are lower than was assumed as part of the risk quantification process. Lower loss ratios may be triggered by various positive developments. Firstly, it is possible that the process of disposing of collateral might generate higher proceeds than was originally assumed in the risk quantification process. Secondly, it is possible that a higher percentage of non-performing loans subsequently become performing loans again without any losses than had been the case in the past.

Besides positive developments in default rates or loss ratios, opportunities may arise in connection with counterparty credit risk – theoretically, and regardless of other corporate objectives – in the event of declining portfolio exposure. For instance, this may occur if borrowers redeem or repay their loans faster than anticipated, given contractual agreements or historical data. Exposure values in the derivatives portfolio may decline where the market values of positions associated with replacement risk decrease, due to changes in certain market parameters such as interest rates or exchange rates.

5.2 General information concerning the credit risk

In accordance with Article 442 CRR in conjunction with the guidelines EBA/GL/2016/11, the following sections contain information concerning the credit risk, for exposures for which the pbb Group calculates the risk-weighted receivables using the standard approach (CRSA) or the advanced IRB approach (IRBA) based on the bank's internal rating procedures.

This is not applicable for exposures for which the receivable is calculated in accordance with part 3, title II, chapter 6 "Counterparty credit risk" or part 3, title II, chapter 5 "Securitisation" of the CRR. These derivative transactions and securitisations are described in the chapters 5.6 "Counterparty credit risk" and 5.8 "Securitisations".

Credit portfolio

The net value of the on-balance-sheet and off-balance-sheet exposures amounted to a total of € 57,856 million as of 31 December 2017; of this figure, € 55,727 million (96 %) is attributable to the IRB approach and € 2,129 million (4 %) is attributable to the standard approach. The net value of an exposure is defined as the gross carrying amount after deduction of impairments as well as provisions as well as after depreciation, but before the application of credit risk mitigation techniques and before credit conversion factors (CCF) for off-balance-sheet receivables.

The first table in accordance with Article 442 letter c CRR in conjunction with EU CRB-B of the EBA/GL/2016/11 shows the net value of exposures as well as the average amount of the exposures in the course of the reporting period, broken down in each case according to the IRB approach and the standard approach and also broken down according to IRBA and CRSA exposure categories.

The following three tables in accordance with Article 442 letters d, e and f CRR in conjunction with EU CRB-C, EU CRB-D and EU CRB-E of the EBA/GL/2016/11 show the net value of the exposures according to major geographical regions, economic sectors (NACE code) as well as remaining maturities. Due to considerations of materiality, the pbb Group does not disclose the individual CRSA exposure categories for these three tables, and summarises them in a line "Total amount in the standard approach".

Table 21: Total and average amount of exposures (EU CRB-B)

All figures in € million

	Exposure classes IRB approach and Standardised approach	Net value of exposures [1)] 31.12.2017	Average net exposures [2)] over the period 01.01. bis 31.12.2017
		a	b
1	Central governments and central banks	17,779	18,889
2	Institutions	6,711	7,009
3	Corporates	31,237	30,275
4	Of which: Specialised lending	24,095	11,766
5	Of which: Small and medium-sized enterprises (SME)	2,350	4,346
6	Retail	-	
14	Equity	0.01	0.01
15	**Total IRB approach**	**55,727**	**56,173**
16	Central governments or central banks	-	-
17	Regional governments or local authorities	133	139
18	Public sector entities	0.4	0.5
19	Multilateral development banks	976	996
20	International organisations	-	-
21	Institutions	-	-
22	Corporates	928	1,019
23	Of which: Small and medium-sized enterprises (SME)	3	25
24	Retail	1	1
25	Of which: Small and medium-sized enterprises (SME)	-	-
26	Secured by mortgages on immovable property	20	24
27	Of which: Small and medium-sized enterprises (SME)	12	13
28	Exposures in default	5	2
29	Exposures associated with particularly high risk	-	-
30	Covered bonds	-	-
31	Exposures to institutions and corporates with short-term credit assessment	-	-
32	Exposures in the form of units or shares in collective investment undertakings (CIUs)	3	3
33	Equity exposures	0.04	0.04
34	Other itmes	64	60
35	**Total standardised approach**	**2,129**	**2,244**
36	**Total**	**57,856**	**58,417**

1) Net value of the exposure: Gross carrying value after deduction of allowances/impairments and provisions as well as write-offs, but before considering any credit risk mitigation (CRM) techniques and Credit Conversion Factors (CCF).

2) The average is based on a quarterly determination of the net exposure values, calculated at the end of each quarter during the reporting period.

Table 22: Exposures by geographical area (EU CRB-C)

All figures in € million

	Significant geographical areas [1]	Net value of exposures [2]																		
		Euro area countries							Other EU countries				Rest of Europe	Africa	America		Asia	Oceania	Other areas [3]	Total
		Of which:	Germany	France	Austria	Luxem-burg	Spain	Italy	Of which:	United Kingdom	Poland	Sweden			Of which:	USA				
		a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s
1	Central governments and central banks	16,644	6,012	1,721	4,794	-	1,696	1,407	535	4	309	44	57	48	-	-	332	-	163	17,779
2	Institutions	6,119	1,465	2,156	293	2	1,215	669	515	513	1	1	51	-	25	4	0.1	-	-	6,711
3	Corporates	22,152	11,517	3,657	728	3,941	183	70	5,165	1,655	1,258	1,602	1,778	166	1,947	1,140	29	-	-	31,237
3a	Of which: Specialised lending	15,778	6,825	3,219	375	3,893	183	4	4,922	1,413	1,258	1,602	1,748	84	1,563	1,026	-	-	-	24,095
3b	Of which: SMEs	2,198	2,090	44	17	48	-	-	124	123	-	-	28	-	-	-	-	-	-	2,350
4	Retail	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5	Equity	0.01	0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.01
6	**Total IRB approach**	**44,916**	**18,994**	**7,535**	**5,816**	**3,943**	**3,095**	**2,146**	**6,216**	**2,172**	**1,568**	**1,648**	**1,885**	**214**	**1,972**	**1,144**	**361**	**0**	**163**	**55,727**
23	**Total standardised approach**	**902**	**248**	**57**	**524**	**3**	**0**	**0**	**68**	**68**	**0**	**0**	**63**	**0**	**66**	**0**	**54**	**0**	**976**	**2,129**
24	**Total**	**45,817**	**19,243**	**7,592**	**6,339**	**3,946**	**3,095**	**2,146**	**6,283**	**2,240**	**1,568**	**1,648**	**1,949**	**214**	**2,039**	**1,144**	**415**	**0**	**1,139**	**57,856**

1) The regional allocation depends on the country of residence of the immediate borrower, counterparty or issuer and corresponds to the "Nomenclature of countries" of the German Central Bank.
2) Net value of the exposure: Gross carrying value after deduction of allowances/impairments and provisions as well as write-offs, but before considering any credit risk mitigation (CRM) techniques and Credit Conversion Factors (CCF).
3) Includes supranational organisations, which, according to EBA/GL/2016/11, are not to be assigned to the country where the Institute has its headquarters, but under "Other (geographical) areas".

Table 23: Exposures by industry (EU CRB-D)

All figures in € million

	Significant industries according to NACE-Code [2]	Net value of exposures [1]																				
		Agriculture, forestry and fishing	Mining and quarrying	Manufacturing	Electricity, gas, steam and air conditioning supply	Water supply	Construction	Wholesale and retail trade	Transport and storage	Accommodation and food service activities	Information and communication	Financial and insurance activities	Real estate activities	Professional, scientific and technical activities	Administrative and support service activities	Public administration and defence, compulsory social security	Education	Human health services and social work activities	Arts, entertainment and recreation	Other services	Activities of households as employers	Total
		a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u
1	Central governments and central banks	-	176	-	-	-	-	-	-	-	-	1,848	97	-	138	14,919	-	602	-	-	-	17,779
2	Institutions	-	-	-	-	529	-	-	10	-	-	3,130	198	-	25	2,689	-	128	-	-	-	6,711
3	Corporates	-	-	1	80	4	769	19	328	461	37	1,239	27,183	431	244	128	40	10	1	-	260	31,237
3a	Of which: Specialised lending	-	-	-	-	-	583	12	-	265	-	618	22,612	1	5	-	-	-	-	-	-	24,095
3b	Of which: SMEs	-	-	-	-	-	119	1	-	5	-	140	1,869	65	1	1	-	7	-	-	143	2,350
4	Retail	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	0
5	Equity	-	-	-	-	-	-	-	-	-	-	0.01	-	-	-	-	-		-	-	-	0.01
6	**Total IRB approach**	**0**	**176**	**1**	**80**	**533**	**769**	**19**	**338**	**461**	**37**	**6,217**	**27,478**	**431**	**408**	**17,737**	**40**	**741**	**1**	**0**	**260**	**55,727**
23	**Total standardised approach**	**0**	**0**	**54**	**5**	**0**	**89**	**1**	**64**	**0**	**0**	**1,637**	**16**	**0**	**1**	**196**	**0**	**0**	**56**	**0**	**9**	**2,129**
24	**Total**	**0**	**176**	**55**	**85**	**533**	**858**	**20**	**402**	**461**	**37**	**7,854**	**27,494**	**431**	**409**	**17,933**	**40**	**741**	**57**	**0**	**269**	**57,856**

1) Net value of the exposure: Gross carrying value after deduction of allowances/impairments and provisions as well as write-offs, but before considering any credit risk mitigation (CRM) techniques and Credit Conversion Factors (CCF).
2) NACE Regulation; Statistical classification of economic activities in the European Community. The allocation depends on the basis of the principal activity of the immediate counterparty.

Table 24: Exposures by residual maturity (EU CRB-E)

All figures in € million

	Residual maturity	Net value of exposures [1]					
		On demand	≤ 1 year	> 1 year to ≤ 5 years	> 5 years	No stated maturity	Total
		a	b	c	d	e	f
1	Central governments and central banks	6	1,708	2,852	13,214	-	17,779
2	Institutions	472	491	1,376	4,372	-	6,711
3	Corporates	59	2,528	18,772	9,878	-	31,237
3a	Of which: Specialised lending	51	2,296	16,600	5,149	-	24,095
3b	Of which: SMEs	-	90	781	1,480	-	2,350
4	Retail	-	-	-	-	-	-
5	Equity	-	-	-	-	0.01	0.01
6	**Total IRB approach**	**537**	**4,727**	**22,999**	**27,464**	**0**	**55,727**
23	**Total standardised approach**	**64**	**186**	**443**	**1,436**	**0**	**2,129**
24	**Total**	**601**	**4,913**	**23,442**	**28,900**	**0**	**57,856**

1) Net value of the exposure: Gross carrying value after deduction of allowances/impairments and provisions as well as write-offs, but before considering any credit risk mitigation (CRM) techniques and Credit Conversion Factors (CCF).

The regional focus of the exposures of the pbb Group was Germany and Western Europe (unchanged) as of the reporting date. With approx. € 19.2 billion, Germany continues to account for the main percentage of exposures (35 %). The other countries of the European Monetary Union (excl. Germany) account for € 26.6 billion (46 %), and other EU countries account for € 6.2 billion (11 %). The pbb Group has been operating in the US real estate market since the second half of 2016. In the USA, the net value of the exposures amounts to approx. € 1.1 billion (2 %) due to the new business in the strategic business unit Commercial Real Estate Financing.

The main focus of the sectors using the NACE codes (based on the main business activity of the counterparty) continues to comprise the sectors "Real estate and renting" with a volume of € 27.5 billion (46 %), "Public administration, defence, compulsory social security" with € 17.9 billion (39 %) and "Rendering of financial and insurance services" with € 7.9 billion (9 %). The other economic sectors in accordance with the NACE code together account for approximately 5 %; when considered individually, they generally account for max. 1 % of the exposures.

Credit quality

The following tables in accordance with Article 442 letters g and h CRR in conjunction with EU CR1-A, EU CR1-B, EU CR1-C, EU CR1-D, EU CR1-E and CRB-A of the EBA/GL/2016/11 contain information regarding the credit quality of the on-balance-sheet and off-balance-sheet exposures. They also show the defaulted and non-defaulted exposures, the non-performing and forborne exposures, the past-due on-balance-sheet exposures as well as credit risk adjustments and write-downs in the course of the reporting period. These tables also show a break-down according to exposure categories, based on major geographical regions or economic sectors (NACE code), past-due ranges or the type of the exposure. For the table EU CR1-A, the pbb Group does not disclose the individual CRSA exposure categories due to considerations of materiality, and summarises them in a line "Total amount in the standard approach".

Table 25: Credit quality of exposures by exposure class and instrument (EU CR1-A)

All figures in € million

	Exposure classes and instruments	Gross carrying values of		Specific credit risk adjustment	General credit risk adjustment	Accumulated write-offs in the year 2017	Credit risk adjustment charges in the year 2017 [1]	Net values [2]
		Defaulted exposures	Non-defaulted exposures					(a + b - c - d)
		a	b	c	d	e	f	g
1	Central governments and central banks	-	17,789	9	-	-	-	17,779
2	Institutions	-	6,716	6	-	-	-	6,711
3	Corporates	111	31,194	68	-	65	6	31,237
4	Of which: Specialised lending	70	24,069	44	-	49	6	24,095
5	Of which: SMEs	10	2,342	2	-	6	-	2,350
6	Retail	-	-	-	-	-	-	-
14	Equity	-	-	-	-	-	-	-
15	**Total IRB approach**	**111**	**55,699**	**84**	**0**	**65**	**6**	**55,727**
35	**Total standardised approach**	**6**	**2,124**	**1**	**0**	**0**	**1**	**2,129**
36	**Total**	**117**	**57,823**	**85**	**0**	**65**	**7**	**57,856**
37	Of which: Loans	114	41,824	71	-	65	7	41,867
38	Of which: Debt securities	-	10,636	14	-	-	-	10,622
39	Of which: Off-balance-sheet exposures	3	4,782	-	-	-	-	4,786

1) Additions less reversals of value adjustments on loans and advances (specific allowances and portfolio-based allowances) as well as provisions for contingent liabilities and other commitments. The carrying amounts of financial assets (debt securities and other fixed-income securities) were reduced by portfolio-based allowances totalling € 14 million.
2) Net value of the exposure: Gross carrying value after deduction of allowances/impairments and provisions as well as write-offs, but before considering any credit risk mitigation (CRM) techniques and Credit Conversion Factors (CCF).

Table 26: Credit quality of exposures by industry (EU CR1-B)

All figures in € million

	Significant industries [1]	Gross carrying values of		Specific credit risk adjustment	General credit risk adjustment	Accumulated write-offs in the year 2017	Credit risk adjustment charges in the year 2017 [2]	Net values [3]
		Defaulted exposures	Non-defaulted exposures					(a + b - c - d)
		a	b	c	d	e	f	g
1	Agriculture, forestry and fishing	-	-	-	-	-	-	-
2	Mining and quarrying	-	177	1	-	-	-	176
3	Manufacturing	-	55	-	-	-	-	55
4	Electricity, gas, steam and air conditioning supply	-	85	-	-	-	-	85
5	Water supply	-	533	-	-	-	-	533
6	Construction	-	858	-	-	-	-	858
7	Wholesale and retail trade	5	16	1	-	5	1	20
8	Transport and storage	-	402	-	-	-	-	402
9	Accommodation and food service activities	-	461	-	-	-	-	461
10	Information and communication	-	37	-	-	-	-	37
10a	Financial and insurance activities	-	7,856	2	-	1	-	7,854
11	Real estate activities	108	27,432	46	-	58	6	27,494
12	Professional, scientific and technical activities	-	445	14	-	-	-	431
13	Administrative and support service activities	1	415	7	-	-	-	409
14	Public administration and defence, compulsory social security	-	17,944	12	-	-	-	17,933
15	Education	-	40	-	-	-	-	40
16	Human health services and social work activities	-	741	-	-	-	-	741
17	Arts, entertainment and recreation	-	57	-	-	-	-	57
18	Other services	-	-	-	-	-	-	-
18a	Activities of households as employers	2	268	1	-	-	-	269
19	**Total**	**117**	**57,823**	**85**	**0**	**65**	**7**	**57,856**

1) According to NACE Regulation; Statistical classification of economic activities in the European Community. The allocation depends on the basis of the principal activity of the immediate counterparty.
2) Additions less reversals of value adjustments on loans and advances (specific allowances and portfolio-based allowances) as well as provisions for contingent liabilities and other commitments. The carrying amounts of financial assets (debt securities and other fixed-income securities) were reduced by portfolio-based allowances totalling € 14 million.
3) Net value of the exposure: Gross carrying value after deduction of allowances/impairments and provisions as well as write-offs, but before considering any credit risk mitigation (CRM) techniques and Credit Conversion Factors (CCF).

Table 27: Credit quality of exposures by geographical areas (EU CR1-C)

All figures in € million

	Significant geographical areas [1]	Gross carrying values of: Defaulted exposures	Gross carrying values of: Non-defaulted exposures	Specific credit risk adjustment	General credit risk adjustment	Accumulated write-offs in the year 2017	Credit risk adjustment charges in the year 2017 [2]	Net values [3] (a + b - c - d)
		a	b	c	d	e	f	g
1	Euro area countries	85	45,802	70	-	12	6	45,817
2	Of which: Germany	69	19,191	17	-	8	1	19,243
3	Of which: France	-	7,597	5	-	1	-	7,592
4	Of which: Austria	-	6,340	-	-	-	-	6,339
5	Of which: Luxemburg	-	3,948	2	-	-	-	3,946
6	Of which: Spain	-	3,103	9	-	3	-	3,095
7	Of which: Italy	14	2,143	10		-	4	2,146
8	Other EU countries	28	6,263	8	-	1	1	6,283
9	Of which: United Kingdom	-	2,241	1	-	-	-	2,240
10	Of which: Poland	-	1,570	2	-	-	-	1,568
11	Of which: Sweden	-	1,648	1	-	-	-	1,648
12	Rest of Europe	3	1,950	5	-	52	-	1,949
13	Africa	-	214	-	-	-	-	214
14	America		2,040	1	-	-	-	2,039
15	Of which: United States of America	-	1,145	1	-	-	-	1,144
16	Asia	-	415	-	-	-	-	415
17	Oceania	-	-	-	-	-	-	-
18	Other geographical areas [4]	-	1,139	-	-	-	-	1,139
19	**Total**	**117**	**57,823**	**85**	**0**	**65**	**7**	**57,856**

1) The regional allocation depends on the country of residence of the immediate borrower, counterparty or issuer and corresponds to the "Nomenclature of countries" of the German Central Bank.
2) Additions less reversals of value adjustments on loans and advances (specific allowances and portfolio-based allowances) as well as provisions for contingent liabilities and other commitments. The carrying amounts of financial assets (debt securities and other fixed-income securities) were reduced by portfolio-based allowances totalling € 14 million.
3) Net value of the exposure: Gross carrying value after deduction of allowances/impairments and provisions as well as write-offs, but before considering any credit risk mitigation (CRM) techniques and Credit Conversion Factors (CCF).
4) Includes supranational organisations, which, according to EBA/GL/2016/11, are not to be assigned to the country where the Institute has its headquarters, but under "Other geographical areas".

Table 28: Maturity structure of past-due exposures (EU CR1-D)

All figures in € million

	Past-due bands	Gross carrying values [1]: $\leq$ 30 days	> 30 days to $\leq$ 60 days	> 60 days to $\leq$ 90 days	> 90 days to $\leq$ 180 days	> 180 days to $\leq$ 1 year	> 1 year
		a	b	c	d	e	f
1	Loans	1	-	-	1	0.4	160
2	Debt securities	-	-	-	-	-	-
3	**Total**	**1**	**0**	**0**	**1**	**0.4**	**160**

1) Gross carrying value before deduction of allowances and provisions, but after write-offs.

Table 29: Non-performing and forborne exposures (EU CR1-E)

All figures in € million

		Gross carrying values of performing and non-performing exposures[1]							Accumulated impairment and provisions and negative fair value adjustments due to credit risk				Collaterals and financial guarantees received	
			Of which performing but past due > 30 days and ≤ 90 days	Of which performing forborne	Of which non-performing[2]				On performing exposures		On non-performing exposures		On non-performing exposures	On forborne exposures
						Of which defaulted	Of which impaired	Of which forborne		Of which forborne		Of which forborne		
		a	b	c	d	e	f	g	h	i	j	k	l	m
1	Debt securities	10,636	-	-	-	-	-	-	14	-	-	-	-	-
2	Loans and advances	41,938	-	-	242	242	208	218	46	-	25	13	217	205
3	Off-balance-sheet exposures	4,785	-	-	3	3	-	3	-	-	-	-	-	-

1) Gross carrying value before deduction of allowances and provisions, but after write-offs.
2) Including the defaulted single loan, of the underlying loan portfolio of the synthetic securitisation transaction Estate UK-3, in the amount of € 128 million.

Defaulted and non-defaulted exposures

The non-defaulted exposures amounted to € 57.8 billion as of the reporting date (99.8 %) on the basis of gross carrying amount.

The gross carrying amount of the defaulted exposures was stated as € 117 million as of 31 December 2017; of this figure, € 111 million is attributable to the IRB approach and € 6 million is attributable to the standard approach. An impairment (individual allowance and portfolio-based allowance) totalling € 85 million has already been created in relation to the defaulted exposures.

An exposure in the IRB approach and in the standard approach is considered to be "defaulted" if there is a default as defined in Article 178 CRR or if another contractual or regulatory trigger is applicable. The pbb Group assumes a default if for instance a borrower is more than 90 days overdue with significant arrears/overdrawn facilities or if it is not likely that the borrower will fully meet his payment obligations. The exposures of a borrower which satisfy one or more default criteria are given a PD category to which a probability of default (PD) of 100 % is allocated.

Non-defaulted exposures are receivables which, in accordance with Article 178 CRR, are not considered to be defaulted; i.e. for which none of the default events specified at that point has occurred.

Non-performing exposure

All exposures for which a default is considered to exist in accordance with Article 178 CRR are also considered to be "non-performing" by the pbb Group. Accordingly, the defaulted receivables of € 117 million specified above (0.2 % of the gross carrying amounts) are considered to be "non-performing" exposures.

The Implementing Regulation (EU) 2015/227 considers an exposure to be "non-performing" if one of the following criteria is satisfied: It is a major exposure which is more than 90 days past due, or it is an exposure for which it is unlikely that the obligor will settle his liabilities in full without using collateral, irrespective of whether payments are already past due and irrespective of the number of days of any delay in payment.

An exposure is classified as "non-performing" irrespective of whether the exposure is classified as "defaulted" for regulatory purposes in accordance with Article 178 CRR or is classified as impaired for accounting purposes in accordance with the relevant IFRS accounting framework.

Impaired exposures

An exposure is considered to be "impaired" if an individual impairment (individual allowance) has been created in accordance with the accounting framework applied by the pbb Group, namely the International Financial Reporting Standards (IFRS). The volume of individual allowances in relation to receivables amounted to € 24 million as of 31 December 2017, and the gross carrying amount of the impaired loans was € 208 million.

The pbb Group impairs receivables and financial assets if there is objective evidence for impairment. At least at each balance sheet date, the pbb Group assesses on a case-by-case basis whether there is objective evidence for impairment. The criteria for establishing such objective evidence as well as further information for distinguishing between individual allowances and portfolio-based allowances and also regarding the amount of the impairments which are created are explained in the following section "Credit risk adjustments".

The total volume of allowances relating to receivables (individual allowances and portfolio-based allowances) amounted to € 71 million as of 31 December 2017. In addition, the carrying amounts of financial assets (bonds and other fixed-income securities) were reduced in the reporting year by portfolio-based allowances totalling € 14 million. Overall therefore, the credit risk adjustments amounted to € 85 million.

All exposures for which an impairment (individual allowance) has been identified in accordance with the IFRS accounting framework are also considered by the pbb Group to be "non-performing" in accordance with the Implementing Regulation (EU) 2015/227 specified above.

Past-due exposures

An exposure is classified as "past due" (for accounting and also for regulatory purposes), for past-due receivables if the obligor has failed to meet his contractually agreed payments of interest or principal on time.

The gross carrying amount of the partially or entirely past-due exposures was stated as € 160 million as of the reporting date. The past-due but not impaired receivables amounted to a total of € 3 million; of this figure, the receivables which are past due by more than 90 days and which are not impaired account for € 2 million. No individual allowance has been created for these receivables because the pbb Group does not consider that there are any problems regarding the recoverability of these receivables or the collateral underlying these loans. In the course of normal business activity, debt repayment delays of up to three months are not unusual, and therefore are not automatically an indication of limited recoverability.

Rescheduled (restructured) exposures

If a borrower is experiencing financial difficulties, receivables which are at risk of default are restructured by the pbb Group if there is a positive going-concern forecast for the respective loan exposure.

In this connection, rescheduled exposures are debt agreements in relation to which rescheduling measures have been applied. Rescheduling measures represent concessions to an obligor who has difficulty in meeting his financial obligations or who is facing such difficulties in the immediate future (financial difficulties). A concession may be a modification of the original contract conditions which the obligor, in the opinion of the pbb Group, is not able to fulfil as a result of his financial difficulties and the resultant inadequate ability to service debt which however would not have been approved for the obligor without his financial difficulties, or a complete or partial rescheduling of a non-performing contract which would not have been approved for the obligor without his financial difficulties.

The gross carrying amount of the rescheduled receivables (loans) was stated as € 218 million as of the reporting date; these mostly consist of standstill agreements and the suspension of contractual agreements. The receivables which have already been impaired from this gross carrying amount were stated as € 187 million; the remaining € 31 million are not past due, nor has an individual allowance been created in relation to such receivables. The rescheduled receivables accounted for 0.4 % of the total gross carrying amounts.

Credit risk adjustments

Impairment

According to IAS 39.58, all financial assets must be tested for impairment. At least at every balance sheet date, the pbb Group assesses on a case-by-case basis whether there is objective evidence for impairment. The following are the main criteria for determining whether such objective evidence exists:

- Considerable financial difficulties of the borrower
- Past-due contractual interest payments or redemption payments or other breaches of contract
- Increased probability that the borrower will enter bankruptcy or other financial restructuring
- Renegotiations as a result of economic problems
- Decline in the fair value of a financial asset to a level below its (amortised) cost of purchase.

Receivables at risk of default are restructured by the pbb Group if the financial position of the borrower has deteriorated but if there is still a positive going-concern forecast for the respective loan exposure. This is achieved by modifying the terms and conditions or ancillary agreements by means of a unilateral or mutual declaration(s) of intent. Restructuring agreements should maximise the opportunities for the pbb Group to realise its outstanding receivables or at least minimise the risk of default of the loan exposure. These generally include standstill agreements, lifetime extensions, changed interest payment/repayment terms, interest/repayment reductions or the suspension of contractual agreements (for instance financial covenants) so that the borrower is again able to meet his payment obligations. The credit risk associated with restructured loans is the responsibility of the credit risk management units of the Group.

The pbb Group impairs receivables and financial investments whose conditions have been renegotiated if there is objective evidence for impairment.

Recognition in the balance sheet and in the income statement

The pbb Group distinguishes two types of impairment: individual allowances and portfolio-based allowances.

Allowances recognised in relation to receivables are shown in a separate account (allowances for losses on loans and advances) instead of directly reducing the carrying amount of this asset. The expense is recognised in provisions for losses on loans and advances in the income statement. Changes in an impairment which has already been recognised are recorded as changes in the allowance and are also disclosed in the income statement as a component of loan loss provisions.

Individual allowances recognised in relation to AfS financial investments as well as individual allowances and portfolio-based allowances recognised in relation to LaR financial investments directly reduce the carrying amount of the asset. In the income statement, the expense is shown in the net income from financial investments. For financial investments which are subsequently measured with their fair value in the income statement, an impairment is implied in the fair value.

The pbb Group consistently applies the accounting and valuation methods in accordance with the framework concept of the IFRS as well as IAS 1 and IAS 8.

Amount of value adjustment

The following factors in particular are taken into consideration for determining the amount of the impairment:

- The aggregate exposure of the pbb Group to the customer
- The amount and timing of the expected interest and redemption payments
- The realisable value of collateral and probability and time of successful repossession
- The probable costs of collecting outstanding amounts
- The market price of the asset, if available.

If there is no reasonable prospect for repayment of the loan or advance, and the collateral is realised or transferred to the pbb Group, the respective loan or advance and the associated allowance is written off.

For the purpose of calculating portfolio-based allowances, financial assets measured at amortised cost for which no impairment has been identified are pooled in portfolios according to their credit risk. The portfolio-based allowances recognise impairments which have occurred but which have not yet been identified. The parameters used to determine the portfolio-based allowances are regularly reviewed and adjusted if necessary.

The allowances are in particular determined after taking account of the following factors:

- Historical loss rates in portfolios with similar credit risk characteristics
- An assessment as to whether the current economic conditions and credit conditions have improved or deteriorated compared with the past
- The estimated period between the point at which an impairment occurs and the point at which it is identified
- The status of the current economic cycle.

Portfolio-based allowances are calculated using risk parameters which are compliant with Basel III, such as probability of default (PD) and loss given default (LGD). The resultant expected loss in relation to a time horizon of one year is scaled in relation to a time horizon of one year using an IFRS-compliant conversion factor to the period which on average is required for identifying the impairment event at pbb.

If differences are identified between long-term average values for the parameters PD and LGD on the one hand and the current figures on the other as a result of the market environment in some portfolios of the operating segments, these are taken into consideration accordingly.

Risk provisioning approval

The individual allowances are approved in the Risk Provisioning Committee (RPC). The RPC takes decisions within the framework of a defined competence guideline and in line with the IFRS/HGB regulations. The committee issues regulations with regard to the creation, use or reversal of risk provisioning if the final decision cannot be taken by the RPC. And the committee also takes decisions regarding any salvage acquisitions which may be necessary. The recommendations made by the committee form the basis of decisions to be made in line with the relevant set of rules governing powers. The Risk Provisioning Committee is chaired by the Chief Risk Officer (CRO).

Types of risk provisioning

As explained above, credit risk provisioning is created if there is objective evidence indicating that it will not be possible for the entire amount due under the original contractual conditions to be recovered. The risk provisioning is essentially based on expectations regarding loan defaults, the structure and quality of the loan portfolio as well as macro-economic parameters on an individual and portfolio basis.

In this respect, the pbb Group breaks down risk provisioning into allowances relating to loans and advances, the individual allowances and the portfolio-based allowances, as well as provisions for contingent liabilities and other obligations such as loan commitments which have not yet been utilised.

Individual allowances

For all recognisable default risks, the risk provision corresponds to the difference between the carrying amount of the asset and the present value of the anticipated future cash flows. The latter is calculated on the basis of the original effective interest rate. Changes in market interest rates do not have any impact in this respect. The increase in the present value of an adjusted receivable which occurs over a period of time (so-called unwinding) is shown as interest income.

Portfolio-based allowances

In accordance with IAS 39.64, loans for which no individual allowances have been created are pooled in risk-inherent portfolios. Portfolio-based allowances are created for these portfolios; the amount of these allowances is determined on the basis of current events, information regarding significant changes with a negative impact in the technology, market, economic or legal environment as well as historical default rates.

Provisions for contingent liabilities and other obligations

The provisions for contingent liabilities and other obligations mainly comprise provisions for guarantee risks, letters of credit, irrevocable loan commitments and litigation risks in the lending business.

An impairment recognised in relation to receivables is shown as a deduction on the assets side of the balance sheet; on the other hand, a provision for contingent liabilities and other obligations is shown on the liabilities side of the balance sheet. The income statement shows all effects in provisions for losses on loans and advances. Only the income from the time-related increase in the present value of the impaired receivables is shown under net interest income.

In accordance with Article 442 letter i CRR in conjunction with EU CR2-A and EU CR2-B of the EBA/GL/2016/11, the following tables contain information concerning the credit risk adjustments for the on-balance-sheet and off-balance-sheet exposures. They also show a reconciliation for the specific credit risk adjustments (general credit risk adjustments are not relevant for the pbb Group) as well as, additionally, a reconciliation of the defaulted exposures.

Table 30: Changes in the stock of credit risk adjustments (EU CR2-A)

All figures in € million

	Loan loss provisions	Accumulated specific credit risk adjustment [1]	Accumulated general credit risk adjustment
		a	b
1	**Opening balance 01.01.2017**	**130**	**0**
2	Increases due to amounts set aside for estimated loan losses during the period	14	-
3	Decreases due to amounts reversed for estimated loan losses during the period	-7	-
4	Decreases due to amounts taken against accumulated credit risk adjustments	-65	-
5	Transfers between credit risk adjustments	-	-
6	Impact of exchange rate differences	-	-
7	Business combinations, including acquisitions and disposals of subsidiaries	-	-
8	Other adjustments (e.g. Unwinding)	-1	-
9	**Closing balance 31.12.2017**	**71**	**0**
10	Recoveries on credit risk adjustments recorded directly to the statement of profit or loss	1	-
11	Specific credit risk adjustments directly recorded to the statement of profit or loss	-	-

1) Allowances on loans and advances (specific allowances and portfolio-based allowances) as well as provisions for contingent liabilities and other commitments.
The carrying amounts of financial assets (debt securities and other fixed-income securities) were reduced by portfolio-based allowances totalling € 14 million (31 December 2016: € 10 Mio.)

Table 31: Credit risk adjustments by types of risk provisioning

All figures in € million

	Types of loan loss provisions	Balance 31.12.2016	Additions	Reversals	Consumption / utilisation	Exchange-rate related and other changes [1]	Balance 31.12.2017
		a	b	c	d	e	f
1	Specific allowances on loans and advances	86	7	-4	-64	-1	24
2	Portfolio-based allowances	44	7	-3	-1	-	47
3	Provisions for contingent liabilities and other commitments	-	-	-	-	-	-
4	**Total**	**130**	**14**	**-7**	**-65**	**-1**	**71**

1) Increase of the present value of impaired receivables due to passage of time (Unwinding).

Table 32: Changes in the stock of defaulted and impaired exposures (EU CR2-B)

All figures in € million

	Defaulted loans and debt securities	Gross carrying value [1] defaulted exposures [2]
		a
1	**Opening balance 01.01.2017**	**258**
2	Loans and debt securities that have defaulted or impaired since the last reporting period	3
3	Returned to non-defaulted status	-
4	Amounts written off	64
5	Other changes [3]	79
6	**Closing balance 31.12.2017**	**117**

1) Gross carrying value before deduction of allowances and provisions, but after write-offs.
2) Withou the defaulted single loan, of the underlying loan portfolio of the synthetic securitisation transaction Estate UK-3, in the amount of € 128 million, because this is not considered as risk position for regulatory purposes due to the synthetic hedging by the securitisation transaction.
3) This includes in particular repayments/ redemption payments as well as write-offs.

In the financial year 2017, a net figure (additions less reversals) of € 7 million was added to credit risk provisions – individual allowances, portfolio-based allowances and provisions for contingent liabilities and other obligations (2016: net additions of € 5 million). For receivables which had previously been written down, payments of € 1 million were received (2016: € 4 million); this was recognised in the income statement. Although this was higher than the credit risk provisions of the previous year, they are still below expectations in relation to the total portfolio.

As of 31 December 2017, the amount of impairments recognised in relation to receivables (individual allowances and portfolio-based allowances) amounted to € 71 million (31 December 2016: € 130 million). The individual allowances for a small number of exposures in the Real Estate Finance segment were increased by a net figure (additions less reversals) of € 3 million in 2017 (2016: net reversals of € 6 million). In 2017, a net figure (additions less reversals) of € 4 million was added to the portfolio-based allowances (2016: net additions of € 12 million) mainly as a result of the changed risk assessment for a region of Southern Europe. As of 31 December 2017, the stock of provisions for contingent liabilities and other obligations was unchanged compared with the previous year (€ 0 million; 31 December 2016: € 0 million). This item mainly comprises provisions for guarantee risks, letters of credit, irrevocable loan commitments and litigation risk associated with the loan business.

The volume of defaulted exposures as of 31 December 2017 declined to € 117 million compared with the end of the previous year (31 December 2016: € 258 million). This decline is mainly attributable to repayments/redemption payments as well as write-downs and consumptions of impairments. An impairment of € 85 million was created in relation to the defaulted exposures. The financial year 2017 saw new defaults in exposures of € 3 million. As of the reporting date, the percentage of defaulted exposures amounted to 0.2 % of the loan portfolio on the basis of the gross carrying amount.

Early Warning System

The early warning system of pbb Group has defined criteria respectively threshold values (triggers) for including loans in the watchlist and for being classified as workout loans (e. g. past due payments, failure to meet financial ratios – e. g. loan-to-value [LTV], interest service coverage [ISC]). The system constantly monitors whether a trigger has been set off. In the event of any problems being identified, the credit exposure is analysed and, where appropriate, promptly transferred to restructuring or workout loans. In this context an assessment is made to deter-mine whether there is an objective indication of an impairment. Watchlist and non-performing loans (restructuring and workout loans) are defined as follows:

Watchlist Loans

Payments past due by more than 60 days or another defined early warning signal is triggered (for instance insolvency of a main tenant in the REF segment).

Restructuring Loans

A default has occurred (for example, due to payments past due by more than 90 days, or the borrower's insolvency), or another contractual or regulatory trigger is applicable. The focus with restructuring is on active implementation of a restructuring concept – with the objective of either returning the exposure to regular coverage, or realising collateral on the market, without enforcement measures. An SLLP test is always performed, and a single loan loss provision recognised if necessary.

Workout Loans

There are no indications that the loan can be restructured. Enforcement measures have been/will be introduced, respectively specific allowances have been created or are planned if necessary.

CRM REF Workout is also responsible for carrying out an impairment test in line with the relevant accounting regulations (HGB and IFRS).

5.3 Credit risk mitigation techniques

In accordance with Article 453 CRR in conjunction with the guidelines EBA/GL/2016/11, the information in this chapter shows the credit risk mitigation techniques employed in the pbb Group. The strategic business units of the pbb Group are Commercial Real Estate Finance (REF) and Public Investment Finance (PIF); the focus is on Pfandbrief-eligible business. Within the framework of credit risk mitigation, the pbb Group accepts the following collateral:

- Real estate (property charges)
- Warranties and guarantees
- Financial collateral

In this context, property charges (real estate) are particularly important for real estate financing operations. The pbb Group also accepts warranties and guarantees as well as financial collateral (mainly cash collateral and securities in certain cases) as collateral. The pbb Group uses financial securities as collateral within the framework of netting agreements in the context of derivative or security lending/repo transactions. The main counterparties are OECD credit institutions or Eurex Clearing. The main guarantors are financial institutions and public-sector customers. The guarantors and the credit derivative counterparties have a very good credit rating. The main guarantors are addressed in the pbb Group's risk reporting on a regular basis.

Non-cash collateral is taken into consideration with the effect of reducing credit risk for the purpose of estimating the loss given default (LGD). For the purpose of calculating the EAD (of the exposure values), financial collateral is taken into consideration with the effect of reducing credit risk. Warranties and guarantees are taken into consideration for mitigating credit risk by way of regular PD substitution. This ensures that the lower risk weighting of the guarantor is attributed to the secured portion of an exposure.

In real estate financing, the financing collateral generally comprises not only the property charges but also rental concessions and the assignment of insurance payments, which however are not recognised as mitigating credit risk in accordance with CRR.

In the pbb Group, the procedures for accepting collateral are governed in internal processing guidelines for every type of collateral. In order to enable legal enforceability, standard contracts are generally used; these are constantly monitored in view of changing legal environments. For this purpose, a group-wide process has been implemented to ensure that the enforceability of all CRR-relevant collateral is constantly subjected to legal monitoring. The calculation and fixing of the collateral values is documented transparently. Expert opinions used to estimate a liquidation value contain information regarding the marketability of the collateral.

In accordance with Article 453 letter f and g CRR in conjunction with EU CR3 of the EBA/GL/2016/11, the following table shows the receivables secured by means of eligible collateral, separately for each exposure category of the approaches used by the pbb Group for determining the own funds requirements for the credit risk, the advanced IRB approach based on internal rating procedures of the bank and the standard approach.

Table 33: Credit risk mitigation techniques – Overview (EU CR3)

All figures in € million

	Exposure classes and instruments	Net value of exposures [1]				
		Exposures unsecured	Exposures secured [2]	Exposures secured by collateral [3]	Exposures secured by financial guarantees	Exposures secured by credit derivatives
		a	b	c	d	e
1	Total loans	14,539	27,327	24,567	2,531	-
1a	Total off-balance-sheet	580	4,205	2,860	127	-
2	Total debt securities	8,749	1,873	-	1,873	-
3	**Total exposures**	**23,869**	**33,406**	**27,427**	**4,531**	**0**
4	Of which defaulted	4	88	88	-	-
5	Central governments and central banks	17,319	460	-	458	-
6	Institutions	5,486	1,225	-	1,225	-
7	Corporates	342	30,895	27,407	2,074	-
8	Of which: Specialised lending	164	23,931	22,629	-	-
9	Of which: Small and medium-sized enterprises (SME)	7	2,343	2,242	54	-
10	Retail	-	-	-	-	-
18	Equity	0.01	-	-	-	-
19	**Total IRB approach**	**23,147**	**32,580**	**27,407**	**3,756**	**0**
20	Central governments or central banks	-	-	-	-	-
21	Regional governments or local authorities	133	-	-	-	-
22	Public sector entities	-	-	-	-	-
23	Multilateral development banks	976	-	-	-	-
24	International organisations	-	-	-	-	-
25	Institutions	-	-	-	-	-
26	Corporates	128	801	-	775	-
27	Of which: Small and medium-sized enterprises (SME)	1	2	-	1	
28	Retail	-	1	-	-	-
29	Of which: Small and medium-sized enterprises (SME)	-	-	-	-	
30	Secured by mortgages on immovable property	-	20	20	-	-
31	Of which: Small and medium-sized enterprises (SME)	-	12	12	-	
32	Exposures in default	-	5	-	-	-
33	Exposures associated with particularly high risk	-	-	-	-	-
34	Covered bonds	-	-	-	-	-
35	Exposures to institutions and corporates with short-term credit assessment	-	-	-	-	-
36	Exposures in the form of units or shares in collective investment undertakings (CIUs)	3	-	-	-	-
37	Equity exposures	0.04	-	-	-	-
38	Other itmes	64	-	-	-	-
39	**Total standardised approach**	**1,303**	**826**	**20**	**775**	**0**
40	**Total**	**24,450**	**33,406**	**27,427**	**4,531**	**0**

1) Net value of the exposure: Gross carrying value after deduction of allowances/impairments and provisions as well as write-offs, but before considering any credit risk mitigation (CRM) techniques and Credit Conversion Factors (CCF).
2) Contains only by eligible credit collateral secured risk positions. This means collaterals which pursuant to Part Three, Title II, Chapter 4 of the CRR be used to reduce the capital requirement under Pillar 1. In addition to physical collaterals / guarantees, assignments of rental claims or of insurance benefits are generally used. But these are not taken into account in order to mitigate the credit risk pursuant to CRR and are therefore not shown in the table.
3) Risk positions secured by secured on real estate property / mortgages.

Valuation and administration of collateral

Depending on the type of collateral, the pbb Group uses different valuation, control and verification methods. These procedures are a major component of the above-mentioned ad-hoc and annual loan exposure review or the procedure for approving new loans.

For the valuation of the various types of collateral, the pbb Group has established processing principles. The recoverability of collateral which is provided is reviewed within the framework of the credit approval process or the regular annual review of borrowers or in the event of material changes. Collateral which is subject to major fluctuations in value is monitored more frequently (in accordance with the contractual conditions); they are monitored at least on a quarterly basis.

The measurement of property charges is based on a written valuation appraisal and is documented in writing. Fluctuations in value are monitored constantly by the pbb Group on the basis of defined parameters (e.g. loan to value).

Real estate

Each property used as collateral is subject to a written market value opinion prepared by a property valuer or an independent expert. For real estate collateral intended for the Pfandbrief cover pool (for refinancing using Pfandbrief issues), an additional loan value report is prepared. Third-party opinions are subject to a plausibility check carried out by an internal real estate expert.

The regular monitoring and review of real estate collateral is based on the market value of the property:

- The aim of monitoring is to identify types of properties and/or markets (or combinations of types of properties and markets) which might be affected by a potential loss in value on the basis of documentary and general information. For this purpose, a rough analysis is sufficient without taking into consideration individual properties.
- Reviews are carried out in order to further check properties identified within the framework of the monitoring process. Irrespective of the result of monitoring, real estate collateral with a loan amount of more than € 3 million is reviewed at least every three years.
- Revaluations apply to properties which have seen a market price decline of over 10 % as well as for properties which, in accordance with Article 208 (3) letter b CRR, are subject to a mandatory revaluation at least every three years. In these cases, the current market value and, where appropriate, the current loan-to-value ratio are determined by an independent property valuer.

For more information concerning quality aspects in connection with the valuation of real estate in the pbb Group, please refer to the previous section “Risk hedging and risk mitigation” of chapter 5.1 “Management of credit risk (including counterparty credit risk)”.

Warranties/guarantees

The pbb Group accepts warranties and guarantees as collateral for the purpose of risk management as well as for risk mitigation in accordance with Article 213 to 215 CRR. In order to be recognised for credit risk mitigation purposes, the warranties/guarantees as well as the guarantors must comply with the regulatory requirements. Warranties and guarantees are recognised for credit risk mitigation purposes by way of regular PD substitution.

Financial collateral

The pbb Group uses financial collateral (mainly cash collateral and securities in certain cases) within the framework of netting agreements in the context of derivative or security lending/repo transactions. For further information regarding the use of netting within the framework of credit risk mitigation, the netting regulations and financial collateral used by the pbb Group, please refer to the following section “Eligible netting agreements” and also the chapter 5.6 “Counterparty credit risk”.

Eligible netting agreements

Within the framework of credit risk mitigation, the pbb Group uses the regulatory regulations of off-balance-sheet netting for derivative financial instruments as well as for security lending/repo transactions if the contractual agreements meet the requirements for being recognised for risk mitigation purposes in accordance with Article 296 CRR or Article 206 CRR. As of 31 December 2017, the pbb Group had utilised the possibility of derivative netting in the amount of € 2.2 billion (31 December 2016: € 3.0 billion). Within the framework of security lending/repo transactions, the pbb Group had not utilised any netting possibilities as of 31 December 2017 (31 December 2016: € 1.8 billion).

pbb uses on-balance-sheet netting for derivatives concluded with Eurex Clearing if these derivatives meet the requirements applicable for on-balance-sheet netting (IFRS). Within the framework of the European Market Infrastructure Regulation (EMIR), there is a clearing obligation for standard OTC derivatives. Eurex Clearing is the central clearing body for derivatives used by pbb. On-balance-sheet netting is used for transactions settled with Eurex Clearing. On-balance-sheet netting is carried out for each currency and comprises not only the carrying amounts of derivatives but also the margins which are imposed or credited and established in this connection by Eurex Clearing. As of 31 December 2017, there was a reduction totalling € 1.6 billion in the balance sheet total for these derivatives (31 December 2016: € 1.8 billion). For further information concerning on-balance-sheet netting, please refer to the notes of the annual report 2017, note 76 "Netting of financial instruments".

In connection with its derivative and security lending/repo transactions, the pbb Group uses the standard framework agreements (e.g. German Framework Agreement for Financial Futures (DRV) or ISDA Master Agreement or Global Master Repurchase Agreement (GMRA)) incl. the respective collateral agreements (e.g. German Collateral Annex for the DRV or ISDA Credit Support Annex). The framework agreements which are used for derivatives and also for security lending/repo transactions contain a netting agreement which establishes a single legal obligation for all transactions concluded under the terms of the framework agreement, so that (in the event of the default of the contractual partner) pbb is only entitled to the balance of the positive and negative market values of the recognised individual transactions or is obliged to make a corresponding payment (so-called "close-out netting"). This reduces the credit risk in relation to the respective contractual partner. One of the criteria applicable for recognition for risk mitigation purposes is that a review has to be carried out regarding the validity and enforceability of the contractual netting agreement in the respective legal system. This is carried out on a regular basis and also on an ad-hoc basis, using legal appraisals which are obtained.

Financial collateral, mainly cash collateral and securities in certain cases, is received as collateral within the framework of the netting agreements. In the case of cash collateral, the collateral is provided by way of the transfer of full ownership; in the case of securities, collateral is provided by way of pledging. Derivatives in bilateral interbank transactions are backed in accordance with the standard collateral annexes. pbb provides or receives cash collateral, usually in euros. If derivatives are cleared by a central counterparty, collateral is provided either by way of pledging securities or by way of providing cash collateral. Whereas cash collateral is usually provided for bilateral repo transactions, collateral in the form of securities is generally provided for repo transactions cleared via a central counterparty. The collateral which is provided must meet the regulatory requirements if it is to be recognised for credit risk mitigation purposes in accordance with CRR. The validity and enforceability of the collateral must also be assessed on the basis of legal appraisals.

Transactions are valued on a daily basis. Collateral agreements normally do not provide for an allowance threshold; there are only so-called minimum transfer amounts. In a small number of cases, these amounts depend on the rating.

Risk concentrations which are taken on

Within the eligible collateral instruments which are used, there may be major risk concentrations in terms of the real estate property charges due to the natural correlation between such collateral and the general development in the real estate market of a particular country. The break-down of the loan portfolio according to regions and according to loan and property types is shown in the risk and opportunity report of the annual report 2017. The pbb Group limits risk concentrations of this type by means of country limit management.

Maximum limits in certain rating ranges are allocated to each individual country or group of countries (depending on the results of the internal rating procedure); these limit the business activities of the pbb Group. All country ratings and country limits are reviewed by credit risk management at least once every year.

5.4 Standard approach

The following chapter in accordance with Article 444 CRR in conjunction with the guidelines EBA/GL/2016/11 (incl. EU CRD) contains information concerning default exposures for which the pbb Group calculates the risk-weighted receivable amounts using the standard approach (CRSA). The net value of the on-balance-sheet and off-balance-sheet exposures amounted to a total of € 57,856 million as of 31 December 2017; of this figure, € 2,129 million (4 %) was attributable to the standard approach.

This is not applicable for exposures for which the value of the receivable is calculated in accordance with part 3, title II, chapter 6 “Counterparty credit risk” or part 3, title II, chapter 5 “Securitisation” of the CRR. These derivative transactions and securitisations are described in the chapters 5.6 “Counterparty credit risk” and 5.8 “Securitisations”.

Application of partial use in accordance with Article 150 CRR

For determining the own funds requirements for credit risks, the pbb Group uses the advanced IRB approach based on internal rating methods (IRBA) as well as the standard approach (CRSA). Some clearly defined sub-portfolios are not covered by the IRB approach and are subject to the standard approach instead. These are as follows:

- Default exposures associated with German municipalities in accordance with Article 150 letter d CRR
- Default exposures which belong to an area which is being phased out in accordance with Article 150 letter c CRR in conjunction with Section 14 SolvV (e.g. small-volume retail loans, credit standing assessed by means of retail scoring)
- Treatment of equity exposures which were held before 1 January 2008 in accordance with Article 495 (1) CRR
- Receivables due from central counterparties (Eurex Clearing)
- Other default exposures which are not subject to any rating procedure according to the IRB approach approved by the German banking regulator.

Impact of credit risk mitigation

The following tables in accordance with Article 453 letters f and g CRR as well as Article 444 letter e CRR in conjunction with EU CR4 and EU CR5 of the guidelines EBA/GL/2016/11 show the impact of eligible collateral for these exposures which are treated under the standard approach (CRSA). Table EU CR4 shows, for each CRSA exposure category, the receivables before and after the application of credit risk mitigation techniques and credit conversion factors (CFF), and also contains information concerning the risk-weighted receivables (RWA) and the RWA density. Table EU CR5 shows the break-down of the CRSA receivables (after credit risk mitigation and CCF) according to individual rating categories (risk weightings) for each CRSA exposure category.

Table 34: CRSA exposures and credit risk mitigation effects (EU CR4)

All figures in € million, unless otherwise stated

	Exposure classes Standardised approach	Exposures before CCF and CRM [1]		Exposures post CCF and CRM [2]		RWAs and RWA density	
		On-balance-sheet amount	Off-balance-sheet amount	On-balance-sheet amount	Off-balance-sheet amount	Risk-weighted assets (RWA)	RWA-density [3] in %
		a	b	c	d	e	f
1	Central governments or central banks	-	-	216	15	-	-
2	Regional governments or local authorities	133	-	826	-	-	-
3	Public sector entities	-	-	-	-	-	-
4	Multilateral development banks	976	-	976	-	-	-
5	International organisations	-	-	-	-	-	-
6	Institutions	-	-	-	-	-	-
7	Corporates	826	103	80	37	118	100%
8	Retail	1	-	1	-	-	
9	Secured by mortgages on immovable property	20	-	20	-	7	35%
10	Exposures in default	5	-	5	-	6	123%
11	Exposures associated with particularly high risk	-	-	-	-	-	-
12	Covered bonds	-	-	-	-	-	-
13	Exposures to institutions and corporates with short-term credit assessment	-	-	-	-	-	-
14	Exposures in the form of units or shares in collective investment undertakings (CIUs)	3	-	3	-	3	100%
15	Equity exposures	0.04	-	0.04	-	0.08	192%
16	Other itmes	64	-	64	-	147	227%
17	**Total**	**2,026**	**103**	**2,190**	**52**	**280**	**12%**

1) Exposure value after deduction of allowances/impairments, provisions and write-offs, but before considering any credit risk mitigation (CRM) techniques and Credit Conversion Factors (CCF).
2) Exposure value after deduction of allowances/impairments, provisions and write-offs as well as after considering any credit risk mitigation (CRM) techniques and Credit Conversion Factors (CCF).
3) Risk-weighted assets (RWA) divided by the exposure after considering any credit risk mitigation (CRM) techniques and Credit Conversion Factors (CCF).

Table 35: CRSA exposures and risk weights (EU CR5)

All figures in € million, unless otherwise stated

	Exposure classes Standardised approach	Risk weight																Total [1]	Of which unrated [2]
		0%	2%	4%	10%	20%	35%	50%	70%	75%	100%	150%	250%	370%	1.250%	Others	Deducted		
		a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r
1	Central governments or central banks	231	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	231	-
2	Regional governments or local authorities	826	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	826	302
3	Public sector entities	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4	Multilateral development banks	976	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	976	-
5	International organisations	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6	Institutions	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7	Corporates	-	-	-	-	-	-	-	-	-	117	-	-	-	-	-	-	117	117
8	Retail	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	1	1
9	Secured by mortgages on immovable property	-	-	-	-	-	20	-	-	-	-	-	-	-	-	-	-	20	20
10	Exposures in default	-	-	-	-	-	-	-	-	-	3	2	-	-	-	-	-	5	5
11	Exposures associated with particularly high risk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12	Covered bonds	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13	Exposures to institutions and corporates with short-term credit assessment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14	Exposures in the form of units or shares in collective investment undertakings (CIUs)	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-	-	3	3
15	Equity exposures	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16	Other itmes	6	-	-	-	-	-	-	-	-	-	-	58	-	-	-	-	64	64
17	**Total**	**2,039**	**0**	**0**	**0**	**0**	**20**	**0**	**0**	**1**	**123**	**2**	**58**	**0**	**0**	**0**	**0**	**2,242**	**511**

1) Exposure value after deduction of allowances/impairments, provisions and write-offs as well as after considering any credit risk mitigation (CRM) techniques and Credit Conversion Factors (CCF).
2) A credit assessment by a nominated ECAI (External Credit Assessment Institutions) is not available.

The increase of € 113 million (in total) in the exposures after credit risk mitigation is mainly due to the netting of warranties/guarantees (substitution approach). The guarantors are mainly financial institutions and public-sector customers. The substitution effects resulting from warranties/guarantees mean that the secured portion of an IRBA receivable (e.g. of a company) is shown with the lower risk weighting of the guarantor (for instance a public body) in the standard approach or, that guaranteed CRSA receivables are assigned to the lower risk weighting of the guarantor. In the pbb Group, default exposures with regard to German municipalities are treated in the standard approach.

Use of rating agencies

External rating agencies

For assessing credit ratings using the standard approach, the pbb Group only uses external ratings provided by Standard & Poor's and Moody's. These rating agencies are nominated for all CRSA receivable categories.

Transfer of credit ratings

Issue ratings are not transferred to comparable receivables of equal or higher rank.

Assignment of external credit ratings

For assigning the external ratings of the rating agencies to the rating categories of the standard approach, the pbb Group uses the method provided by the European Banking Authority (EBA) in accordance with CRR.

5.5 IRB approach

In accordance with the Articles 452 and 453 CRR in conjunction with the guidelines EBA/GL/2016/11 (incl. EU CRE), the following chapter contains information concerning default exposures for which the pbb Group calculates the risk-weighted receivables amounts using the advanced IRB approach based on internal rating methods (IRBA). The net value of the on-balance-sheet and off-balance-sheet exposures amounted to a total of € 57,856 million; of this figure, € 55,727 million (96 %) was attributable to the IRB approach.

This is not applicable for exposures for which the value of the receivable is calculated in accordance with part 3, title II, chapter 6 “Counterparty credit risk” or part 3, title II, chapter 5 “Securitisation” of the CRR. These derivative transactions and securitisations are described in the chapters 5.6 “Counterparty credit risk” and 5.8 “Securitisations”. However, the following descriptions for the IRBA rating systems and the IRBA parameters which are used are applicable for the entire loan portfolio.

Approved IRB approaches

The pbb Group has received approval for applying the advanced IRB approach for the rating systems set out in the following. The rating systems have been accepted by the regulator.

With these IRBA rating systems, and as of 31 December 2017, the pbb Group achieves coverage of 97 % with regard to the exposure values (exposure at default, EAD) and 99 % regarding the risk-weighted assets (RWA).

There are currently no plans for expanding the IRBA coverage to new exposure categories in the form of an implementation plan. Otherwise, the pbb Group continues to use the standard approach only for segments which are to a large extent immaterial.

Figure 6: Rating systems in the IRB approach

No.	Parameter	Model	Risk position class [1]	Scope [2]	Modelling approach [3]
1	PD	Sovereigns	Central states and central banks	The obligor is a state	Mainly shadow rating models
2	PD	Regional governments	Central states and central banks Banks	The obligor is a regional government	
3	PD	Public-sector entities	Central states and central banks Banks Corporates	The obligor is a public-sector entity, i.e. the company does not have any rights to raise its own taxes; however, the company is supported by a central, regional or local body which has these rights (in general central, regional or local public-sector authorities)	
4	PD	Banks	Central states and central banks Banks	The obligor is a commercial or investment bank, securities bank, a specialist state financing institution or a holding company of banks and other holding companies	
5	PD	Large corporates	Central states and central banks Banks	The obligor is a company	
6	PD	SPV developer	Corporates/ Specialised financing	The obligor is an SPV (special-purpose vehicle), whereby the financed property/property portfolio is the sole business purpose and asset of the SPV and the liability is limited to the SPV (non-recourse financing)	Based on statistical default models
7	PD	SPV investors	Corporates/ Specialised financing		
8	PD	Housing associations	Corporates	Real estate customers whose main business comprises management of their own housing stock and whose credit standing is essentially related to this aspect	
9	PD	Developers who prepare balance sheets	Corporates	Customers who prepare balance sheets, main business activity comprising the acquisition, planning, building, refurbishment projects with the aim of selling property	
10	PD	Investors who prepare balance sheets	Corporates	Customers who prepare balance sheets and whose main income is derived from real estate assets	
11	PD	Investors who do not prepare balance sheets	Corporates	Customers who do not prepare balance sheets, whose main income is derived from real estate assets	
12	PD	Gesellschaften bürgerlichen Rechts (Civil-law partnerships)	Corporates	The customer is a Gesellschaft bürgerlichen Rechts (GbR - civil-law partnership) and certain criteria for the existing rating documents are satisfied	
13	PD	Small and mid-size enterprises	Corporates	The customer prepares balance sheets and generates most of his income from the production or service sector, income not generated with property transaction or property management, balance sheet total € < 10 billion	
14	PD	Retail clients	Corporates	Customers who derive most of their income from non-property sources (e.g. employment, self-employment)	
15	LGD	Sovereigns	Central states and central banks	The obligor is a state	Structure models
16	LGD	Regional governments	Central states and central banks Banks	The obligor is a regional government	
17	LGD	Banks	Central states and central banks Banks Corporates	The obligor is a commercial or investment bank, securities bank, a specialist state financial institution or a holding company of banks and other holding companies	
18	LGD	Corporates	Central states and central banks Banks Corporates	The obligor is a company	
19	LGD	International real estate financing (defaulted and non-defaulted obligors)	Corporates incl. specialised lending	Secured property financing, with main emphasis outside Germany	Stochastic simulation methods
20	LGD	National real estate financing (defaulted and non-defaulted obligors)	Corporates incl. specialised lending	Secured property financing, with main emphasis within Germany	Structure model
21	LGD	Defaulted obligors for non-property financing	-	Obligor with non-property financing after default	Structure model
22	CCF	Credit conversion factor	Corporates incl. specialised lending	Mortgage loans	Historical mean

1) IRBA risk position classes relevant as of 31 December 2017, for line 21 there is no volume of receivables as of the reporting date.
2) Simplified presentation of the scopes of the rating methods. The precise scopes are defined in the relevant work instructions.
3) Method underlying the rating procedure.

Internal rating systems must meet the minimum requirements regarding the use of the IRB approach in accordance with the Articles 143 and 144 CRR. In addition to requirements regarding methods and process organisation, the rating systems must have demonstrated their suitability for risk classification for existing business as well as new business. In accordance with Article 142 CRR, rating or appraisal systems are considered to be the totality of all methods, procedures, controls, data collation and IT systems which are used for assessing credit risks, for allocating exposures to rating classes or categories as well as for quantifying default and loss assessments for a certain exposure type.

PD, LGD and CCF rating systems

In the pbb Group, the defined application scopes of the rating systems are used for allocating a debtor of an IRBA default exposure to the PD, LGD and CCF rating systems. Compliance with the scopes of application is assessed in the rating process or is assured by technical means in the system.

The PD, LGD and CCF rating systems of the pbb Group essentially follow a through-the-cycle philosophy, whereby the form of this philosophy can distinguish between the various models due to various factors, including the risk factors recognised in the model. Current default rates, loss rates and CCF ratios may thus differ from the through-the-cycle forecasts depending on the current position in the economic cycle.

PD rating systems

The PD rating systems for commercial real estate financing are based on logistic regression models which have been developed and calibrated on the basis of historical internal obligor data (default information and qualitative as well as quantitative risk factors) as well as expert assessments. The calibration is based on data for a period of min. seven years. The risk factors are weighted and aggregated to form a score which is transformed to an individual probability of default. This is subsequently translated to a PD category with the aid of a uniform PD master scale. The PD rating systems for commercial real estate financing take account of traditional parameters such as the ratio between the amount of the loan and the market value of a property or the capital service coverage but also, in general, information concerning the property or property portfolio of the obligor (for instance quality of the location, vacancy rate, regional information) as well as information concerning the obligor himself (e.g. commercial/technical skills, information concerning the client/bank relationship).

Most of the other PD rating systems are based on a statistical method, the aim of which is to achieve maximum correlation with external rating assessments. These shadow rating model approaches are a wide-spread modelling method for low-default portfolios, i.e. portfolios with a low number of internal defaults, but for which external rating assessments are available, so that the long-standing historical default rates observed by rating agencies (min. since 1981) can be used for calibrating such shadow rating models. The models derived with the aid of this method can then also be transferred to obligors without an external rating for the purpose of determining the PD. In shadow rating models, the first step is to determine a score by means of weighting qualitative and quantitative risk factors; this is then translated into a rating based on letters. In a second stage, this rating based on letters is translated into a PD category with the aid of a mapping table and using historical default information of Standard & Poor's. The risk factors recognised in the models may differ depending on the application scope of the model, and generally cover information relating to assets, liquidity and income. For public-sector obligors, a further relevant consideration is the strength and probability of possible support, for instance provided by a state or a central, regional or local authority. The pbb Group currently uses three different tables for mapping ratings based on letters to PD categories, depending on particular segments.

In addition to quantitative and qualitative risk factors, the PD rating systems of the pbb Group also take account of varying degrees of warning signals. Warning signals generally identify rare events; for instance, a negative feature which has a negative impact on the rating but which, if it occurs, has a significant influence on the rating of the obligor. In addition, the PD rating systems of the pbb Group ensure that the PD of an obligor cannot be better than the PD of the country which is relevant for the obligor. This so-called sovereign ceiling takes account of state-related additional risks, for instance transfer risks, for creating a rating for a customer.

The pbb Group uses a uniform PD master scale of 27 PD categories for obligors who have not yet defaulted; this is identical for all rating systems and across all exposure classes, meaning that the rating classification is equivalent for all default exposures. Unique probabilities of default as PD estimates as well as upper and lower limits of probabilities of default are allocated to the 27 PD categories of the PD master scale.

LGD rating systems

The LGD rating systems of the pbb Group result in estimated loss percentages relating to the exposure at default (EAD).

The LGD rating system for international commercial real estate financing is based on a stochastic simulation method which, in addition to future macro-economic developments, also simulates future developments which are specific to the real estate market and which calculates the impact on the cash flows and the real estate market value of the specific financing arrangement. Historical defaults since 2008 have been taken into consideration for calibrating the model.

The LGD rating system for real estate financing in Germany is based on a structural approach, in which the market value of the real estate collateral plays a key role in the LGD estimate. Individual parameters of the model (for instance revenue ratios, processing durations) are determined for differentiated segments (incl. property types) on the basis of historical data of the pbb Group as well as the data pooling initiative of the Verband deutscher Pfandbriefbanken (VdP). Data at least since 2008 are generally used for this purpose.

The other LGD rating systems for non-defaulted obligors are structure models in which model components, such as revenue ratios and settlement durations, are determined using historical data mainly from external data sources. The historical data extend at least back to the year 1998.

For the individual LGD rating systems, downturn analyses and statistical significance tests ensure that the models are suitable for forecasting downturn LGDs.

CCF rating system

In the pbb Group, there is a model for predicting a credit conversion factor (CCF) for mortgage loans. This is based on the observed drawing pattern of historical internal defaults since 2008 in the period of twelve months before the actual default. A CCF of 100 % is used for all other products (for instance guarantees).

Further use of internal estimates

The internal estimations of probability of default (PD) and loss given default (LGD) are important parameters for risk management and credit decisions. Within the framework of the lending decision-making process, these risk parameters are used to determine the risk and capital costs which form the basis for risk-adjusted pricing and the lending decision.

The PD and LGD risk parameters are used to derive expected loss (EL) categories which form the basis for the allocation of competences in the pbb Group within the framework of loan approvals and loan processing.

The results of the internal rating systems are also included in the internal capital adequacy assessment process (ICAAP), and are taken into consideration for determining on-balance-sheet risk provisioning.

Recognition of credit risk mitigation techniques

Within the framework of credit risk mitigation, the pbb Group recognises the following as collateral:

- Real estate (property charges)
- Financial collateral
- Warranties and guarantees.

The main types of physical collateral used for the purpose of mitigating credit risk in the LGD models for estimating loss given default are property charges (real estate) for commercial real estate mortgages. Financial collateral (mainly cash collateral), such as is used mainly for derivative default exposures by means of collateral agreements with the counterparties, are recognised in EAD as a credit risk mitigating factor. In addition to the above-mentioned collateral, warranties and guarantees are also taken into consideration as a risk-mitigating factor.

The value of collateral is verified on an ad-hoc basis and also within the framework of the regular annual credit rating assessment of borrowers by the loan officers; external or internal appraisals are also used in the case of real estate collateral. For further information regarding the allowable collateral, the corresponding valuation and administration, please refer to chapter 5.3 “Credit risk mitigation techniques”.

Implemented control mechanisms for rating systems

The Group Risk Committee (GRC) is responsible for developing and validating the rating systems in the pbb Group. The GRC is a sub-committee of the Management Board, and is the decision-making committee with regard to issues relating to the risk method, the definition of risk parameters or risk monitoring and relevant related guidelines.

The GRC commissions work on developing new models or extending existing models, drawing up validation concepts and carrying out validations in Risk Management & Control (RMC). The RMC function is independent of areas which are responsible for initiating and concluding transactions. The credit risk monitoring unit in this particular area has group-wide responsibility for the development, introduction, maintenance, monitoring and further development of all rating systems. The resultant results are presented to the GRC and must be approved by the GRC.

All PD and LGD rating systems are subject to an annual validation process. The calibration, selectivity and stability of the procedures, the data quality as well as the model design are assessed on the basis of statistical and qualitative analyses as well as on the basis of user feedback.

For the German real estate financing LGD rating system, the pbb Group is additionally part of the pool validation by the association of German Pfandbrief banks (VdP).

Technical control mechanisms have been implemented for the purpose of checking the completeness and validating the input data for the rating systems; these include a release process based on a dual control principle.

The Internal Audit function acts as a process-independent organisation and is responsible for regularly checking whether the internal rating systems are appropriate and comply with the minimum requirements for rating systems as well as implemented process changes.

Types of receivables per IRBA exposure category

The pbb Group attributes obligors of IRBA credit exposures to the PD and LGD rating systems based on the defined scope of application; this has to be assessed in the rating process.

Exposures to central governments and central banks, institutions, companies

Rating systems which consist of statistical model cores and which have been extended to include expert model components in risk classification are used for the exposure categories Central governments and central banks, institutions and companies (incl.

specialised lending). With all rating systems which are used, the initial rating is followed by a subsequent rating at least once every year. In the event of information with a major impact on the credit rating, a re-rating process is carried out in the course of the year.

For the purpose of data processing, all relevant input values and the rating results are stored in order to ensure a complete rating history for every obligor and every guarantor as well as every transaction which is prone to credit risks.

Obligors are allocated to PD categories on the basis of probabilities of default in accordance with a 27-stage PD master scale or by means of tables which map letter ratings to PD categories depending on the particular segment.

Retail exposures

The IRBA exposure category Retail does not apply to the pbb Group.

Equity exposures

According to Article 495 (1) CRR, equity exposures which were held by the pbb Group before 1 January 2008 are temporarily exempt from the application of IRBA, and are currently treated in accordance with the rules of the CRSA (for the last time as of 31 December 2017). The pbb Group has been using the simple IRBA risk weighting for these exposures since 1 January 2018.

Holdings acquired after 31 December 2007 – non-significant holdings of pbb in two companies, one financial company and one other company in accordance with Article 4 CRR in conjunction with Section 1 KWG – are treated as IRBA equity exposures and are recognised with the simple IRBA risk weighting in accordance with Article 155 (2) CRR.

Definition of default

The definition of a default used in the pbb Group is set out in Article 178 CRR.

IRBA parameters

The exposure at default (EAD) is the relevant regulatory parameter used for determining the risk-weighted assets (RWA) and for calculating the own funds requirements.

The EAD for IRBA positions in line with CRR shows the outstanding receivable in the event of a default. For most products, this is the IFRS carrying amount shown in the balance sheet, incl. cumulative interest. In the event of a committed credit line, this is multiplied by the product-specific credit conversion factor (CCF) and forms a further part of the EAD. The credit conversion factor (CCF) expresses the expected utilisation (in percent) of an existing undrawn credit line within one year until the event of a default. The CCF is currently 50 % for mortgage loans and 100 % for all other products (e.g. guarantee loans and public investment finance).

Derivatives and security financing transactions (security lending/repo transactions) form an exception in this respect; for these transactions, the EAD does not correspond to the carrying amount, and instead has to be established with a different method in accordance with CRR (e.g. for derivatives in accordance with the mark-to-market method: market value plus regulatory add-on for potential future increases in market value, taking account of any effects of netting and collateral which is provided). Further special features of derivatives are considered in the chapter 5.6 “Counterparty credit risk”.

The EAD is established for all receivables, irrespective of whether or not a default has occurred.

The following table in accordance with Article 452 letters d to f CRR in conjunction with EU CR6 of the guidelines EBA/GL/2016/11 shows (broken down according to PD areas and IRBA exposure categories) the (on-balance-sheet and off-balance-sheet) original receivable amounts as well as the corresponding IRBA exposure amounts (EAD) as well as the risk-weighted receivable amounts (RWA) together with the RWA density, in conjunction with the main parameters which are used for calculating the own funds requirements with the rating systems described above: These include the weighted average IRBA parameters probability of default (PD), loss given default (LGD), product-specific credit conversion factor (CCF) and maturity (in years) as well as the amounts of the expected loss (EL) and the impairments/provisions which have been created.

In accordance with Article 452 letter j (i) CRR, the information is shown altogether and additionally for every region of the credit exposures (i.e. the accounting office of the transaction). Accordingly, for credit exposures in Germany where pbb is authorised as well as in the countries in which the pbb Group carries out its transactions by way of a branch or subsidiary. pbb has branches in London, Madrid, Paris and Stockholm. The IRBA exposures (EAD) totalling € 54,520 million are spread over the corresponding countries as follows:

- Germany € 45,442 million or 83 %
- France € 4,294 million or 8 %
- United Kingdom € 3,096 million or 6 %
- Sweden € 1,130 million or 2 %
- Spain € 558 million or 1 %

Table 36a: IRBA exposures and PD ranges (EU CR6) – Total

All figures in € million, unless otherwise stated

	Exposure classes according to PD ranges IRB approach	Original on-balance-sheet gross exposures [1]	Off-balance-sheet exposures pre-CCF [2]	Average CCF [3] in %	Exposure at default (EAD) post CRM and post CCF [4]	Average PD [5] in %	Number of obligors	Average LGD [6] in %	Average maturity in years	Risk-weighted assets (RWA)	RWA density [7] in %	Expected loss (EL)	Value adjustments (allowances) and provisions
		a	b	c	d	e	f	g	h	i	j	k	l
1	Central governments and central banks												
2	0,00 to < 0,15	16,787	87	100%	19,611	0.01%	96	24%	4	1,442	7%	1	—
3	0,15 to < 0,25	-	-	-	-	-	-	-	-	-	-	-	—
4	0,25 to < 0,50	655	-	-	655	0.45%	5	49%	4	607	93%	1	—
5	0,50 to < 0,75	-	-	-	-	-	-	-	-	-	-	-	—
6	0,75 to < 2,50	33	-	-	33	2.00%	1	43%	5	50	150%	-	—
7	2,50 to < 10,00	-	48	100%	2	5.00%	1	10%	5	1	42%	-	—
8	10,00 to < 100,00	178	-	-	178	10.00%	1	41%	1	302	170%	8	—
9	100,00 (Default)	-	-	-	-	-	-	-	-	-	-	-	—
10	Subtotal	17,654	135	100%	20,479	0.12%	104	25%	4	2,402	12%	10	9
11	Institutions												
12	0,00 to < 0,15	3,434	204	100%	3,647	0.04%	129	41%	4	1,039	28%	1	—
13	0,15 to < 0,25	1,227	-	-	209	0.20%	15	20%	1	49	23%	-	—
14	0,25 to < 0,50	1,564	-	-	1,564	0.43%	8	13%	3	431	28%	1	—
15	0,50 to < 0,75	-	-	-	-	-	-	-	-	-	-	-	—
16	0,75 to < 2,50	244	-	-	244	1.50%	1	11%	4	107	44%	-	—
17	2,50 to < 10,00	-	-	-	-	-	-	-	-	-	-	-	—
18	10,00 to < 100,00	44	-	-	224	21.51%	3	58%	4	790	353%	28	—
19	100,00 (Default)	-	-	-	-	-	-	-	-	-	-	-	—
20	Subtotal	6,513	204	100%	5,888	1.03%	156	32%	4	2,415	41%	30	6
21	Corporates												
22	0,00 to < 0,15	1,750	21	50%	1,238	0.08%	88	9%	4	69	6%	0.1	—
23	0,15 to < 0,25	2,187	267	60%	2,124	0.20%	114	9%	4	255	12%	0.4	—
24	0,25 to < 0,50	7,003	372	57%	6,995	0.38%	316	9%	4	1,007	14%	2	—
25	0,50 to < 0,75	-	-	-	-	-	-	-	-	-	-	-	—
26	0,75 to < 2,50	10,674	1,401	85%	11,299	1.27%	362	12%	3	3,211	28%	16	—
27	2,50 to < 10,00	4,773	2,111	85%	6,220	3.93%	168	13%	3	2,690	43%	32	—
28	10,00 to < 100,00	466	170	54%	166	13.70%	17	31%	3	234	141%	7	—
29	100,00 (Default)	108	3	100%	111	100%	16	41%	3	-	-	45	—
30	Subtotal	26,961	4,344	81%	28,153	1.97%	1,081	11%	4	7,466	27%	103	68

All figures in € million, unless otherwise stated

	Exposure classes according to PD ranges IRB approach	**Original on-balance-sheet gross exposures** [1]	**Off-balance-sheet exposures pre-CCF** [2]	**Average CCF** [3] in %	**Exposure at default (EAD) post CRM and post CCF** [4]	**Average PD** [5] in %	**Number of obligors**	**Average LGD** [6] in %	**Average maturity** in years	**Risk-weighted assets (RWA)**	**RWA density** [7] in %	**Expected loss (EL)**	**Value adjustments (allowances) and provisions**
		a	b	c	d	e	f	g	h	i	j	k	l
31	Of which: Specialised lending												
32	0,00 to < 0,15	298	17	50%	307	0.10%	16	8%	3	18	6%	-	—
33	0,15 to < 0,25	1,369	132	50%	1,435	0.20%	38	8%	4	149	10%	-	—
34	0,25 to < 0,50	5,333	280	52%	5,477	0.37%	160	10%	4	867	16%	2	—
35	0,50 to < 0,75	-	-	-	-	-	-	-	-	-	-	-	—
36	0,75 to < 2,50	9,005	944	77%	9,652	1.28%	190	12%	3	2,733	28%	14	—
37	2,50 to < 10,00	4,409	2,059	84%	5,976	3.97%	113	13%	3	2,598	43%	31	—
38	10,00 to < 100,00	96	125	50%	159	13.82%	4	31%	3	222	140%	7	—
39	100,00 (Default)	69	1	100%	70	100%	7	59%	2	-	0%	41	—
40	Subtotal	20,580	3,558	79%	23,075	2.07%	528	12%	3	6,587	29%	95	44
41	Of which: SMEs												
42	0,00 to < 0,15	82	-	-	62	0.08%	25	3%	5	2	3%	-	—
43	0,15 to < 0,25	115	-	-	112	0.20%	55	6%	5	9	8%	-	—
44	0,25 to < 0,50	1,035	58	78%	1,067	0.40%	91	5%	4	90	8%	-	—
45	0,50 to < 0,75	-	-	-	-	-	-	-	-	-	-	-	—
46	0,75 to < 2,50	845	175	93%	976	1.13%	83	9%	4	210	22%	1	—
47	2,50 to < 10,00	32	-	-	32	3.31%	18	7%	4	6	19%	-	—
48	10,00 to < 100,00	-	-	-	-	-	-	-	-	-	-	-	—
49	100,00 (Default)	10	-	-	10	100%	4	28%	5	-	-	3	—
50	Subtotal	2,119	233	90%	2,259	1.19%	276	7%	4	316	14%	4	2
51	Retail	-	-	-	-	-	-	-	-	-	-	-	-
52	Equity	0.01	-	-	0.01	-	-	-	-	0.05	370%	-	—
53	Of which: Internal model approach (IMA)	-	-	-	-	-	-	-	-	-	-	-	—
54	Of which: PD-/LGD approach	-	-	-	-	-	-	-	-	-	-	-	—
55	Of which: Simple risk-weighting approach	0.01	-	-	0.01	-	-	-	-	0.05	370%	-	—
56	**Total IRB approach**	**51,127**	**4,683**	**83%**	**54,520**	**1.17%**	**1,341**	**18%**	**4**	**12,283**	**23%**	**143**	**83**

1) Gross carrying value before deduction of allowances (but after write-offs) as well as before considering any credit risk mitigation (CRM) techniques.
2) Nominal value before deduction of provisions as well as before considering any credit risk mitigation (CRM) techniques and Credit Conversion Factors (CCF).
3) Relationship between column (d) and column (b) for off-balance-sheet exposures.
4) IRBA regulatory exposure value (Exposure at Default, EAD), i.e. after considering any credit risk mitigation (CRM) techniques and Credit Conversion Factors (CCF), but before credit risk adjustment (allowances and provisions).
5) Average probability of default (PD) weighted by the EAD.
6) Average loss given default (LGD) weighted by the EAD.
7) Relationship between column (i) and column (d).

Table 36b: IRBA exposures and PD ranges (EU CR6) – Germany

All figures in € million, unless otherwise stated

	Exposure classes according to PD ranges IRB approach	Original on-balance-sheet gross exposures [1]	Off-balance-sheet exposures pre-CCF [2]	Average CCF [3] in %	Exposure at default (EAD) post CRM and post CCF [4]	Average PD [5] in %	Number of obligors	Average LGD [6] in %	Average maturity in years	Risk-weighted assets (RWA)	RWA density [7] in %	Expected loss (EL)	Value adjustments (allowances) and provisions
		a	b	c	d	e	f	g	h	i	j	k	l
1	Central governments and central banks												
2	0,00 to < 0,15	15,510	87	100%	17,908	0.01%	60	23%	4	1,317	7%	1	—
3	0,15 to < 0,25	-	-	-	-	-	-	-	-	-	-	-	—
4	0,25 to < 0,50	655	-	-	655	0.45%	5	49%	4	607	93%	1	—
5	0,50 to < 0,75	-	-	-	-	-	-	-	-	-	-	-	—
6	0,75 to < 2,50	-	-	-	-	-	-	-	-	-	-	-	—
7	2,50 to < 10,00	-	48	100%	2	5.00%	1	10%	5	1	42%	-	—
8	10,00 to < 100,00	178	-	-	178	10.00%	1	41%	1	302	170%	8	—
9	100,00 (Default)	-	-	-	-	-	-	-	-	-	-	-	—
10	Subtotal	16,343	135	100%	18,743	0.12%	67	24%	4	2,227	12%	10	9
11	Institutions												
12	0,00 to < 0,15	1,955	174	100%	2,088	0.05%	65	41%	4	653	31%	1	—
13	0,15 to < 0,25	1,227	-	-	209	0.20%	14	20%	1	49	23%	-	—
14	0,25 to < 0,50	1,564	-	-	1,564	0.43%	7	13%	3	431	28%	1	—
15	0,50 to < 0,75	-	-	-	-	-	-	-	-	-	-	-	—
16	0,75 to < 2,50	244	-	-	244	1.50%	1	11%	4	107	44%	-	—
17	2,50 to < 10,00	-	-	-	-	-	-	-	-	-	-	-	—
18	10,00 to < 100,00	44	-	-	224	21.51%	3	58%	4	790	353%	28	—
19	100,00 (Default)	-	-	-	-	-	-	-	-	-	-	-	—
20	Subtotal	5,033	174	100%	4,329	1.39%	90	29%	4	2,029	47%	30	6
21	Corporates												
22	0,00 to < 0,15	1,636	21	50%	1,132	0.09%	85	7%	4	57	5%	0.1	—
23	0,15 to < 0,25	1,978	267	60%	1,925	0.20%	108	9%	4	237	12%	0.4	—
24	0,25 to < 0,50	5,693	362	57%	5,798	0.38%	278	9%	4	887	15%	2	—
25	0,50 to < 0,75	-	-	-	-	-	-	-	-	-	-	-	—
26	0,75 to < 2,50	7,951	1,357	86%	8,722	1.28%	318	12%	4	2,669	31%	13	—
27	2,50 to < 10,00	2,988	2,061	85%	4,582	3.85%	135	15%	4	2,275	50%	26	—
28	10,00 to < 100,00	437	97	59%	100	11.21%	16	30%	3	133	133%	3	—
29	100,00 (Default)	108	3	100%	111	100%	15	41%	3	-	-	45	—
30	Subtotal	20,791	4,169	82%	22,369	1.95%	955	12%	4	6,259	28%	90	62

All figures in € million, unless otherwise stated

	Exposure classes according to PD ranges IRB approach	Original on-balance-sheet gross exposures [1]	Off-balance-sheet exposures pre-CCF [2]	Average CCF [3] in %	Exposure at default (EAD) post CRM and post CCF [4]	Average PD [5] in %	Number of obligors	Average LGD [6] in %	Average maturity in years	Risk-weighted assets (RWA)	RWA density [7] in %	Expected loss (EL)	Value adjustments (allowances) and provisions
		a	b	c	d	e	f	g	h	i	j	k	l
31	Of which: Specialised lending												
32	0,00 to < 0,15	298	17	50%	307	0.10%	16	8%	3	18	6%	-	—
33	0,15 to < 0,25	1,170	132	50%	1,236	0.20%	33	8%	4	132	11%	-	—
34	0,25 to < 0,50	4,141	270	52%	4,280	0.38%	125	10%	4	747	17%	2	—
35	0,50 to < 0,75	-	-	-	-	-	-	-	-	-	-	-	—
36	0,75 to < 2,50	6,458	901	78%	7,083	1.30%	153	12%	4	2,201	31%	11	—
37	2,50 to < 10,00	2,914	2,010	85%	4,457	3.88%	90	15%	4	2,215	50%	25	—
38	10,00 to < 100,00	67	53	50%	93	11.22%	3	30%	3	121	130%	3	—
39	100,00 (Default)	69	1	100%	70	100%	7	59%	2	-	-	41	—
40	Subtotal	15,118	3,383	80%	17,525	2.08%	427	12%	4	5,434	31%	83	38
41	Of which: SMEs												
42	0,00 to < 0,15	82	-	-	62	0.08%	25	3%	5	2	3%	-	—
43	0,15 to < 0,25	115	-	-	112	0.20%	55	6%	5	9	8%	-	—
44	0,25 to < 0,50	1,035	58	78%	1,067	0.40%	91	5%	4	90	8%	-	—
45	0,50 to < 0,75	-	-	-	-	-	-	-	-	-	-	-	—
46	0,75 to < 2,50	845	175	93%	976	1.13%	83	9%	4	210	22%	1	—
47	2,50 to < 10,00	32	-	-	32	3.31%	18	7%	4	6	19%	-	—
48	10,00 to < 100,00	-	-	-	-	-	-	-	-	-	-	-	—
49	100,00 (Default)	10	-	-	10	100%	4	28%	5	-	-	3	—
50	Subtotal	2,119	233	90%	2,259	1.19%	276	7%	4	316	14%	4	2
51	Retail	-	-	-	-	-	-	-	-	-	-	-	-
52	Equity	0.01	-	-	0.01	-	-	-	-	0.05	370%	-	—
53	Of which: Internal model approach (IMA)	-	-	-	-	-	-	-	-	-	-	-	—
54	Of which: PD-/LGD approach	-	-	-	-	-	-	-	-	-	-	-	—
55	Of which: Simple risk-weighting approach	0.01	-	-	0.01	-	-	-	-	0.05	370%	-	—
56	**Total IRB approach**	**42,167**	**4,477**	**84%**	**45,442**	**1.14%**	**1,112**	**18%**	**4**	**10,515**	**23%**	**130**	**76**

1) Gross carrying value before deduction of allowances (but after write-offs) as well as before considering any credit risk mitigation (CRM) techniques.
2) Nominal value before deduction of provisions as well as before considering any credit risk mitigation (CRM) techniques and Credit Conversion Factors (CCF).
3) Relationship between column (d) and column (b) for off-balance-sheet exposures.
4) IRBA regulatory exposure value (Exposure at Default, EAD), i.e. after considering any credit risk mitigation (CRM) techniques and Credit Conversion Factors (CCF), but before credit risk adjustment (allowances and provisions).
5) Average probability of default (PD) weighted by the EAD.
6) Average loss given default (LGD) weighted by the EAD.
7) Relationship between column (i) and column (d).

Table 36c: IRBA exposures and PD ranges (EU CR6) – France

All figures in € million, unless otherwise stated

	Exposure classes according to PD ranges IRB approach	Original on-balance-sheet gross exposures [1]	Off-balance-sheet exposures pre-CCF [2]	Average CCF [3] in %	Exposure at default (EAD) post CRM and post CCF [4]	Average PD [5] in %	Number of obligors	Average LGD [6] in %	Average maturity in years	Risk-weighted assets (RWA)	RWA density [7] in %	Expected loss (EL)	Value adjustments (allowances) and provisions
		a	b	c	d	e	f	g	h	i	j	k	l
1	Central governments and central banks												
2	0,00 to < 0,15	779	-	-	982	0.00%	24	30%	5	2	0.2%	0.001	—
3	0,15 to < 0,25	-	-	-	-	-	-	-	-	-	-	-	—
4	0,25 to < 0,50	-	-	-	-	-	-	-	-	-	-	-	—
5	0,50 to < 0,75	-	-	-	-	-	-	-	-	-	-	-	—
6	0,75 to < 2,50	33	-	-	33	2.00%	1	43%	5	50	150%	0.3	—
7	2,50 to < 10,00	-	-	-	-	-	-	-	-	-	-	-	—
8	10,00 to < 100,00	-	-	-	-	-	-	-	-	-	-	-	—
9	100,00 (Default)	-	-	-	-	-	-	-	-	-	-	-	—
10	Subtotal	812	-	-	1,015	0.07%	25	30%	5	52	5%	0.3	0
11	Institutions												
12	0,00 to < 0,15	1,462	18	100%	1,530	0.03%	61	41%	5	382	25%	0.2	—
13	0,15 to < 0,25	0.1	-	-	0.1	0.20%	1	14%	1	0.02	13%	0.0	—
14	0,25 to < 0,50	-	-	-	-	-	-	-	-	-	-	-	—
15	0,50 to < 0,75	-	-	-	-	-	-	-	-	-	-	-	—
16	0,75 to < 2,50	-	-	-	-	-	-	-	-	-	-	-	—
17	2,50 to < 10,00	-	-	-	-	-	-	-	-	-	-	-	—
18	10,00 to < 100,00	-	-	-	-	-	-	-	-	-	-	-	—
19	100,00 (Default)	-	-	-	-	-	-	-	-	-	-	-	—
20	Subtotal	1,462	18	100%	1,530	0.03%	62	41%	5	382	25%	0.2	0
21	Corporates												
22	0,00 to < 0,15	114	-	-	106	0.03%	3	34%	2	12	11%	0.01	—
23	0,15 to < 0,25	151	-	-	141	0.20%	3	7%	4	14	10%	0.02	—
24	0,25 to < 0,50	345	1	50%	324	0.36%	18	7%	3	30	9%	0.09	—
25	0,50 to < 0,75	-	-	-	-	-	-	-	-	-	-	-	—
26	0,75 to < 2,50	486	18	50%	389	1.25%	13	13%	2	105	27%	1	—
27	2,50 to < 10,00	888	16	50%	788	3.46%	15	10%	2	209	27%	3	—
28	10,00 to < 100,00	-	-	-	-	-	-	-	-	-	-	-	—
29	100,00 (Default)	-	-	-	-	-	-	-	-	-	-	-	—
30	Subtotal	1,983	35	50%	1,749	1.92%	52	11%	3	370	21%	3	1

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All figures in € million, unless otherwise stated

	Exposure classes according to PD ranges IRB approach	Original on-balance-sheet gross exposures [1]	Off-balance-sheet exposures pre-CCF [2]	Average CCF [3] in %	Exposure at default (EAD) post CRM and post CCF [4]	Average PD [5] in %	Number of obligors	Average LGD [6] in %	Average maturity in years	Risk-weighted assets (RWA)	RWA density [7] in %	Expected loss (EL)	Value adjustments (allowances) and provisions
		a	b	c	d	e	f	g	h	i	j	k	l
31	Of which: Specialised lending												
32	0,00 to < 0,15	-	-	-	-	-	-	-	-	-	-	-	—
33	0,15 to < 0,25	141	-	-	141	0.20%	2	7%	4	14	10%	0.02	—
34	0,25 to < 0,50	323	1	50%	324	0.36%	17	7%	3	30	9%	0.1	—
35	0,50 to < 0,75	-	-	-	-	-	-	-	-	-	-	-	—
36	0,75 to < 2,50	373	18	50%	382	1.25%	7	12%	2	95	25%	1	—
37	2,50 to < 10,00	661	16	50%	669	3.54%	10	10%	2	177	26%	2	—
38	10,00 to < 100,00	-	-	-	-	-	-	-	-	-	-	-	—
39	100,00 (Default)	-	-	-	-	-	-	-	-	-	-	-	—
40	Subtotal	1,498	35	50%	1,516	1.97%	36	10%	2	316	21%	3	1
41	Of which: SMEs												
42	0,00 to < 0,15	-	-	-	-	-	-	-	-	-	-	-	—
43	0,15 to < 0,25	-	-	-	-	-	-	-	-	-	-	-	—
44	0,25 to < 0,50	-	-	-	-	-	-	-	-	-	-	-	—
45	0,50 to < 0,75	-	-	-	-	-	-	-	-	-	-	-	—
46	0,75 to < 2,50	-	-	-	-	-	-	-	-	-	-	-	—
47	2,50 to < 10,00	-	-	-	-	-	-	-	-	-	-	-	—
48	10,00 to < 100,00	-	-	-	-	-	-	-	-	-	-	-	—
49	100,00 (Default)	-	-	-	-	-	-	-	-	-	-	-	—
50	Subtotal	-	-	-	-	-	-	-	-	-	-	-	-
51	Retail	-	-	-	-	-	-	-	-	-	-	-	-
52	Equity	-	-	-	-	-	-	-	-	-	-	-	—
53	Of which: Internal model approach (IMA)	-	-	-	-	-	-	-	-	-	-	-	—
54	Of which: PD-/LGD approach	-	-	-	-	-	-	-	-	-	-	-	—
55	Of which: Simple risk-weighting approach	-	-	-	-	-	-	-	-	-	-	-	—
56	**Total IRB approach**	**4,258**	**53**	**76%**	**4,294**	**0.81%**	**139**	**26%**	**4**	**804**	**19%**	**4**	**2**

1) Gross carrying value before deduction of allowances (but after write-offs) as well as before considering any credit risk mitigation (CRM) techniques.
2) Nominal value before deduction of provisions as well as before considering any credit risk mitigation (CRM) techniques and Credit Conversion Factors (CCF).
3) Relationship between column (d) and column (b) for off-balance-sheet exposures.
4) IRBA regulatory exposure value (Exposure at Default, EAD), i.e. after considering any credit risk mitigation (CRM) techniques and Credit Conversion Factors (CCF), but before credit risk adjustment (allowances and provisions).
5) Average probability of default (PD) weighted by the EAD.
6) Average loss given default (LGD) weighted by the EAD.
7) Relationship between column (i) and column (d).

Table 36d: IRBA exposures and PD ranges (EU CR6) – United Kingdom

All figures in € million, unless otherwise stated

	Exposure classes according to PD ranges IRB approach	Original on-balance-sheet gross exposures [1]	Off-balance-sheet exposures pre-CCF [2]	Average CCF [3] in %	Exposure at default (EAD) post CRM and post CCF [4]	Average PD [5] in %	Number of obligors	Average LGD [6] in %	Average maturity in years	Risk-weighted assets (RWA)	RWA density [7] in %	Expected loss (EL)	Value adjustments (allowances) and provisions
		a	b	c	d	e	f	g	h	i	j	k	l
1	Central governments and central banks												
2	0,00 to < 0,15	4	-	-	227	0.00%	1	11%	5	0	0%	0	—
3	0,15 to < 0,25	-	-	-	-	-	-	-	-	-	-	-	—
4	0,25 to < 0,50	-	-	-	-	-	-	-	-	-	-	-	—
5	0,50 to < 0,75	-	-	-	-	-	-	-	-	-	-	-	—
6	0,75 to < 2,50	-	-	-	-	-	-	-	-	-	-	-	—
7	2,50 to < 10,00	-	-	-	-	-	-	-	-	-	-	-	—
8	10,00 to < 100,00	-	-	-	-	-	-	-	-	-	-	-	—
9	100,00 (Default)	-	-	-	-	-	-	-	-	-	-	-	—
10	Subtotal	4	-	-	227	0.00%	1	11%	5	0	0%	0	0
11	Institutions												
12	0,00 to < 0,15	17	11	100%	29	0.04%	2	28%	4	5	17%	0	—
13	0,15 to < 0,25	-	-	-	-	-	-	-	-	-	-	-	—
14	0,25 to < 0,50	-	-	-	-	-	-	-	-	-	-	-	—
15	0,50 to < 0,75	-	-	-	-	-	-	-	-	-	-	-	—
16	0,75 to < 2,50	-	-	-	-	-	-	-	-	-	-	-	—
17	2,50 to < 10,00	-	-	-	-	-	-	-	-	-	-	-	—
18	10,00 to < 100,00	-	-	-	-	-	-	-	-	-	-	-	—
19	100,00 (Default)	-	-	-	-	-	-	-	-	-	-	-	—
20	Subtotal	17	11	100%	29	0.04%	2	28%	4	5	17%	0	0
21	Corporates												
22	0,00 to < 0,15	-	-	-	-	-	-	-	-	-	-	-	—
23	0,15 to < 0,25	58	-	-	58	0.20%	3	7%	3	4	6%	0.01	—
24	0,25 to < 0,50	640	9	50%	548	0.35%	14	7%	3	55	10%	0.14	—
25	0,50 to < 0,75	-	-	-	-	-	-	-	-	-	-	-	—
26	0,75 to < 2,50	1,509	19	50%	1,456	1.32%	24	7%	2	214	15%	1	—
27	2,50 to < 10,00	766	20	50%	712	5.28%	17	8%	2	171	24%	3	—
28	10,00 to < 100,00	29	73	50%	66	17.50%	1	32%	2	101	153%	4	—
29	100,00 (Default)	-	-	-	-	-	-	-	-	-	-	-	—
30	Subtotal	3,003	120	50%	2,840	2.48%	59	8%	2	544	19%	8	4

All figures in € million, unless otherwise stated

	Exposure classes according to PD ranges IRB approach	Original on-balance-sheet gross exposures [1]	Off-balance-sheet exposures pre-CCF [2]	Average CCF [3] in %	Exposure at default (EAD) post CRM and post CCF [4]	Average PD [5] in %	Number of obligors	Average LGD [6] in %	Average maturity in years	Risk-weighted assets (RWA)	RWA density [7] in %	Expected loss (EL)	Value adjustments (allowances) and provisions
		a	b	c	d	e	f	g	h	i	j	k	l
31	Of which: Specialised lending												
32	0,00 to < 0,15	-	-	-	-	-	-	-	-	-	-	-	—
33	0,15 to < 0,25	58	-	-	58	0.20%	3	7%	3	4	6%	0.01	—
34	0,25 to < 0,50	544	9	50%	548	0.35%	12	7%	3	55	10%	0.14	—
35	0,50 to < 0,75	-	-	-	-	-	-	-	-	-	-	-	—
36	0,75 to < 2,50	1,447	19	50%	1,456	1.32%	23	7%	2	214	15%	1	—
37	2,50 to < 10,00	702	20	50%	712	5.28%	12	8%	2	171	24%	3	—
38	10,00 to < 100,00	29	73	50%	66	17.50%	1	32%	2	101	153%	4	—
39	100,00 (Default)	-	-	-	-	-	-	-	-	-	-	-	—
40	Subtotal	2,780	120	50%	2,840	2.48%	51	8%	2	544	19%	8	4
41	Of which: SMEs												
42	0,00 to < 0,15	-	-	-	-	-	-	-	-	-	-	-	—
43	0,15 to < 0,25	-	-	-	-	-	-	-	-	-	-	-	—
44	0,25 to < 0,50	-	-	-	-	-	-	-	-	-	-	-	—
45	0,50 to < 0,75	-	-	-	-	-	-	-	-	-	-	-	—
46	0,75 to < 2,50	-	-	-	-	-	-	-	-	-	-	-	—
47	2,50 to < 10,00	-	-	-	-	-	-	-	-	-	-	-	—
48	10,00 to < 100,00	-	-	-	-	-	-	-	-	-	-	-	—
49	100,00 (Default)	-	-	-	-	-	-	-	-	-	-	-	—
50	Subtotal	-	-	-	-	-	-	-	-	-	-	-	-
51	Retail	-	-	-	-	-	-	-	-	-	-	-	-
52	Equity	-	-	-	-	-	-	-	-	-	-	-	—
53	Of which: Internal model approach (IMA)	-	-	-	-	-	-	-	-	-	-	-	—
54	Of which: PD-/LGD approach	-	-	-	-	-	-	-	-	-	-	-	—
55	Of which: Simple risk-weighting approach	-	-	-	-	-	-	-	-	-	-	-	—
56	**Total IRB approach**	**3,024**	**132**	**58%**	**3,096**	**2.27%**	**62**	**8%**	**2**	**549**	**18%**	**8**	**4**

1) Gross carrying value before deduction of allowances (but after write-offs) as well as before considering any credit risk mitigation (CRM) techniques.
2) Nominal value before deduction of provisions as well as before considering any credit risk mitigation (CRM) techniques and Credit Conversion Factors (CCF).
3) Relationship between column (d) and column (b) for off-balance-sheet exposures.
4) IRBA regulatory exposure value (Exposure at Default, EAD), i.e. after considering any credit risk mitigation (CRM) techniques and Credit Conversion Factors (CCF), but before credit risk adjustment (allowances and provisions).
5) Average probability of default (PD) weighted by the EAD.
6) Average loss given default (LGD) weighted by the EAD.
7) Relationship between column (i) and column (d).

Table 36e: IRBA exposures and PD ranges (EU CR6) – Sweden

All figures in € million, unless otherwise stated

	Exposure classes according to PD ranges IRB approach	**Original on-balance-sheet gross exposures** [1]	**Off-balance-sheet exposures pre-CCF** [2]	**Average CCF** [3] in %	**Exposure at default (EAD) post CRM and post CCF** [4]	**Average PD** [5] in %	**Number of obligors**	**Average LGD** [6] in %	**Average maturity** in years	**Risk-weighted assets (RWA)**	**RWA density** [7] in %	**Expected loss (EL)**	**Value adjustments (allowances) and provisions**
		a	b	c	d	e	f	g	h	i	j	k	l
1	Central governments and central banks												
2	0,00 to < 0,15	55	-	-	55	0.00%	1	31%	5	0	0%	0	—
3	0,15 to < 0,25	-	-	-	-	-	-	-	-	-	-	-	—
4	0,25 to < 0,50	-	-	-	-	-	-	-	-	-	-	-	—
5	0,50 to < 0,75	-	-	-	-	-	-	-	-	-	-	-	—
6	0,75 to < 2,50	-	-	-	-	-	-	-	-	-	-	-	—
7	2,50 to < 10,00	-	-	-	-	-	-	-	-	-	-	-	—
8	10,00 to < 100,00	-	-	-	-	-	-	-	-	-	-	-	—
9	100,00 (Default)	-	-	-	-	-	-	-	-	-	-	-	—
10	Subtotal	55	-	-	55	0.00%	1	31%	5	0	0%	0	0
11	Institutions												
12	0,00 to < 0,15	0.1	-	-	0.1	0.10%	1	14%	1	0.005	8%	0	—
13	0,15 to < 0,25	-	-	-	-	-	-	-	-	-	-	-	—
14	0,25 to < 0,50	-	-	-	-	-	-	-	-	-	-	-	—
15	0,50 to < 0,75	-	-	-	-	-	-	-	-	-	-	-	—
16	0,75 to < 2,50	-	-	-	-	-	-	-	-	-	-	-	—
17	2,50 to < 10,00	-	-	-	-	-	-	-	-	-	-	-	—
18	10,00 to < 100,00	-	-	-	-	-	-	-	-	-	-	-	—
19	100,00 (Default)	-	-	-	-	-	-	-	-	-	-	-	—
20	Subtotal	0.1	-	-	0.1	0.10%	1	14%	1	0.005	8%	0	0
21	Corporates												
22	0,00 to < 0,15	-	-	-	-	-	-	-	-	-	-	-	—
23	0,15 to < 0,25	-	-	-	-	-	-	-	-	-	-	-	—
24	0,25 to < 0,50	206	-	-	206	0.34%	4	8%	3	25	12%	0.1	—
25	0,50 to < 0,75	-	-	-	-	-	-	-	-	-	-	-	—
26	0,75 to < 2,50	728	7	50%	731	1.11%	7	12%	3	224	31%	1	—
27	2,50 to < 10,00	131	13	50%	138	2.50%	1	10%	1	35	25%	0.4	—
28	10,00 to < 100,00	-	-	-	-	-	-	-	-	-	-	-	—
29	100,00 (Default)	-	-	-	-	-	-	-	-	-	-	-	—
30	Subtotal	1,065	20	50%	1,075	1.14%	12	11%	3	283	26%	1	1

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All figures in € million, unless otherwise stated

	Exposure classes according to PD ranges IRB approach	Original on-balance-sheet gross exposures [1]	Off-balance-sheet exposures pre-CCF [2]	Average CCF [3] in %	Exposure at default (EAD) post CRM and post CCF [4]	Average PD [5] in %	Number of obligors	Average LGD [6] in %	Average maturity in years	Risk-weighted assets (RWA)	RWA density [7] in %	Expected loss (EL)	Value adjustments (allowances) and provisions
		a	b	c	d	e	f	g	h	i	j	k	l
31	Of which: Specialised lending												
32	0,00 to < 0,15	-	-	-	-	-	-	-	-	-	-	-	—
33	0,15 to < 0,25	-	-	-	-	-	-	-	-	-	-	-	—
34	0,25 to < 0,50	206	-	-	206	0.34%	4	8%	3	25	12%	0.1	—
35	0,50 to < 0,75	-	-	-	-	-	-	-	-	-	-	-	—
36	0,75 to < 2,50	728	7	50%	731	1.11%	7	12%	3	224	31%	1	—
37	2,50 to < 10,00	131	13	50%	138	2.50%	1	10%	1	35	25%	0.4	—
38	10,00 to < 100,00	-	-	-	-	-	-	-	-	-	-	-	—
39	100,00 (Default)	-	-	-	-	-	-	-	-	-	-	-	—
40	Subtotal	1,065	20	50%	1,075	1.14%	12	11%	3	283	26%	1	1
41	Of which: SMEs												
42	0,00 to < 0,15	-	-	-	-	-	-	-	-	-	-	-	—
43	0,15 to < 0,25	-	-	-	-	-	-	-	-	-	-	-	—
44	0,25 to < 0,50	-	-	-	-	-	-	-	-	-	-	-	—
45	0,50 to < 0,75	-	-	-	-	-	-	-	-	-	-	-	—
46	0,75 to < 2,50	-	-	-	-	-	-	-	-	-	-	-	—
47	2,50 to < 10,00	-	-	-	-	-	-	-	-	-	-	-	—
48	10,00 to < 100,00	-	-	-	-	-	-	-	-	-	-	-	—
49	100,00 (Default)	-	-	-	-	-	-	-	-	-	-	-	—
50	Subtotal	-	-	-	-	-	-	-	-	-	-	-	-
51	Retail	-	-	-	-	-	-	-	-	-	-	-	-
52	Equity	-	-	-	-	-	-	-	-	-	-	-	—
53	Of which: Internal model approach (IMA)	-	-	-	-	-	-	-	-	-	-	-	—
54	Of which: PD-/LGD approach	-	-	-	-	-	-	-	-	-	-	-	—
55	Of which: Simple risk-weighting approach	-	-	-	-	-	-	-	-	-	-	-	—
56	**Total IRB approach**	**1,120**	**20**	**50%**	**1,130**	**1.08%**	**14**	**12%**	**3**	**283**	**25%**	**1**	**1**

1) Gross carrying value before deduction of allowances (but after write-offs) as well as before considering any credit risk mitigation (CRM) techniques.
2) Nominal value before deduction of provisions as well as before considering any credit risk mitigation (CRM) techniques and Credit Conversion Factors (CCF).
3) Relationship between column (d) and column (b) for off-balance-sheet exposures.
4) IRBA regulatory exposure value (Exposure at Default, EAD), i.e. after considering any credit risk mitigation (CRM) techniques and Credit Conversion Factors (CCF), but before credit risk adjustment (allowances and provisions).
5) Average probability of default (PD) weighted by the EAD.
6) Average loss given default (LGD) weighted by the EAD.
7) Relationship between column (i) and column (d).

Table 36f: IRBA exposures and PD ranges (EU CR6) – Spain

All figures in € million, unless otherwise stated

	Exposure classes according to PD ranges IRB approach	**Original on-balance-sheet gross exposures** [1]	**Off-balance-sheet exposures pre-CCF** [2]	**Average CCF** [3] in %	**Exposure at default (EAD) post CRM and post CCF** [4]	**Average PD** [5] in %	**Number of obligors**	**Average LGD** [6] in %	**Average maturity** in years	**Risk-weighted assets (RWA)**	**RWA density** [7] in %	**Expected loss (EL)**	**Value adjustments (allowances) and provisions**
		a	b	c	d	e	f	g	h	i	j	k	l
1	Central governments and central banks												
2	0,00 to < 0,15	439	-	-	439	0.06%	10	42%	4	122	28%	0.1	—
3	0,15 to < 0,25	-	-	-	-	-	-	-	-	-	-	-	—
4	0,25 to < 0,50	-	-	-	-	-	-	-	-	-	-	-	—
5	0,50 to < 0,75	-	-	-	-	-	-	-	-	-	-	-	—
6	0,75 to < 2,50	-	-	-	-	-	-	-	-	-	-	-	—
7	2,50 to < 10,00	-	-	-	-	-	-	-	-	-	-	-	—
8	10,00 to < 100,00	-	-	-	-	-	-	-	-	-	-	-	—
9	100,00 (Default)	-	-	-	-	-	-	-	-	-	-	-	—
10	Subtotal	439	-	-	439	0.06%	10	42%	4	122	28%	0.1	0.2
11	Institutions												
12	0,00 to < 0,15	-	-	-	-	-	-	-	-	-	-	-	—
13	0,15 to < 0,25	-	-	-	-	-	-	-	-	-	-	-	—
14	0,25 to < 0,50	0.1	-	-	0.1	0.45%	1	22%	1	0.02	34%	0	—
15	0,50 to < 0,75	-	-	-	-	-	-	-	-	-	-	-	—
16	0,75 to < 2,50	-	-	-	-	-	-	-	-	-	-	-	—
17	2,50 to < 10,00	-	-	-	-	-	-	-	-	-	-	-	—
18	10,00 to < 100,00	-	-	-	-	-	-	-	-	-	-	-	—
19	100,00 (Default)	-	-	-	-	-	-	-	-	-	-	-	—
20	Subtotal	0.1	-	-	0.1	0.45%	1	22%	1	0.02	34%	0	0
21	Corporates												
22	0,00 to < 0,15	-	-	-	-	-	-	-	-	-	-	-	—
23	0,15 to < 0,25	-	-	-	-	-	-	-	-	-	-	-	—
24	0,25 to < 0,50	119	-	-	119	0.30%	2	7%	2	10	8%	0.03	—
25	0,50 to < 0,75	-	-	-	-	-	-	-	-	-	-	-	—
26	0,75 to < 2,50	-	-	-	-	-	-	-	-	-	-	-	—
27	2,50 to < 10,00	-	-	-	-	-	-	-	-	-	-	-	—
28	10,00 to < 100,00	-	-	-	-	-	-	-	-	-	-	-	—
29	100,00 (Default)	-	0.4	100%	0.4	100%	1	71%	5	-	-	0.3	—
30	Subtotal	119	0.4	100%	120	0.64%	3	7%	2	10	8%	0.3	0.1

All figures in € million, unless otherwise stated

	Exposure classes according to PD ranges IRB approach	Original on-balance-sheet gross exposures [1]	Off-balance-sheet exposures pre-CCF [2]	Average CCF [3] in %	Exposure at default (EAD) post CRM and post CCF [4]	Average PD [5] in %	Number of obligors	Average LGD [6] in %	Average maturity in years	Risk-weighted assets (RWA)	RWA density [7] in %	Expected loss (EL)	Value adjustments (allowances) and provisions
		a	b	c	d	e	f	g	h	i	j	k	l
31	Of which: Specialised lending												
32	0,00 to < 0,15	-	-	-	-	-	-	-	-	-	-	-	—
33	0,15 to < 0,25	-	-	-	-	-	-	-	-	-	-	-	—
34	0,25 to < 0,50	119	-	-	119	0.30%	2	7%	2	10	8%	0.03	—
35	0,50 to < 0,75	-	-	-	-	-	-	-	-	-	-	-	—
36	0,75 to < 2,50	-	-	-	-	-	-	-	-	-	-	-	—
37	2,50 to < 10,00	-	-	-	-	-	-	-	-	-	-	-	—
38	10,00 to < 100,00	-	-	-	-	-	-	-	-	-	-	-	—
39	100,00 (Default)	-	-	-	-	-	-	-	-	-	-	-	—
40	Subtotal	119	-	-	119	0.30%	2	7%	2	10	8%	0.03	0
41	Of which: SMEs												
42	0,00 to < 0,15	-	-	-	-	-	-	-	-	-	-	-	—
43	0,15 to < 0,25	-	-	-	-	-	-	-	-	-	-	-	—
44	0,25 to < 0,50	-	-	-	-	-	-	-	-	-	-	-	—
45	0,50 to < 0,75	-	-	-	-	-	-	-	-	-	-	-	—
46	0,75 to < 2,50	-	-	-	-	-	-	-	-	-	-	-	—
47	2,50 to < 10,00	-	-	-	-	-	-	-	-	-	-	-	—
48	10,00 to < 100,00	-	-	-	-	-	-	-	-	-	-	-	—
49	100,00 (Default)	-	-	-	-	-	-	-	-	-	-	-	—
50	Subtotal	-	-	-	-	-	-	-	-	-	-	-	-
51	Retail	-	-	-	-	-	-	-	-	-	-	-	-
52	Equity	-	-	-	-	-	-	-	-	-	-	-	—
53	Of which: Internal model approach (IMA)	-	-	-	-	-	-	-	-	-	-	-	—
54	Of which: PD-/LGD approach	-	-	-	-	-	-	-	-	-	-	-	—
55	Of which: Simple risk-weighting approach	-	-	-	-	-	-	-	-	-	-	-	—
56	**Total IRB approach**	**558**	**0.4**	**100%**	**558**	**0.18%**	**14**	**34%**	**3**	**132**	**24%**	**0.4**	**0.2**

1) Gross carrying value before deduction of allowances (but after write-offs) as well as before considering any credit risk mitigation (CRM) techniques.
2) Nominal value before deduction of provisions as well as before considering any credit risk mitigation (CRM) techniques and Credit Conversion Factors (CCF).
3) Relationship between column (d) and column (b) for off-balance-sheet exposures.
4) IRBA regulatory exposure value (Exposure at Default, EAD), i.e. after considering any credit risk mitigation (CRM) techniques and Credit Conversion Factors (CCF), but before credit risk adjustment (allowances and provisions).
5) Average probability of default (PD) weighted by the EAD.
6) Average loss given default (LGD) weighted by the EAD.
7) Relationship between column (i) and column (d).

The loss given default (LGD) indicates the expected loss suffered by the pbb Group if a customer fails to pay. In the IRB approach, this is 18 % on average for the receivables.

The probability of default (PD) indicates the probability that a borrower/counterparty will be unable over a period of one year to service their contractual loan obligations (irrespective of the amount of the exposure and the collateral provided). The PD on average is 1.17 %.

The unutilised IRBA loan commitments amount to a total of € 4,683 million. The average CCF – which indicates how much of a free credit line is expected to be utilised within one year before a possible default – is 83 %.

Model estimates for PD, LGD and CCF contain conservative adjustments which cover estimation uncertainties associated with the models. Estimates for LGD and CCF are also designed as so-called downturn estimates, i.e. the aim is to achieve a forecast of figures which are also appropriate in periods affected by an economic downturn.

The average RWA density for the IRBA receivables is 23 % across all IRBA exposure classes. Risk weights are important factors when determining risk-weighted assets (RWA) which must be backed with own funds in a risk-oriented manner; the RWAs are calculated by multiplying the risk weight with the IRBA exposure at default (EAD).

Retail business (e.g. small-volume loans where the private customer rating is determined based on a retail scoring but which are phased out in the pbb Group as set out in Article 150 letter c CRR in conjunction with Section 14 SolvV), customer groups with only very small unit volumes (e.g. project financing, multilateral financial institutions) as well as shareholdings which were held prior to 1 January 2008 in accordance with Article 495 (1) CRR are exempt from the IRB approach.

The following table in accordance with Article 438 letter d CRR in conjunction with EU CR8 of the EBA/GL/2016/11 shows the changes in the risk-weighted position amounts (RWA) shown in table EU CR6 (as in EU CR6 without derivatives and without other assets which are not loan obligations) during the reporting period as well as the major reasons for such changes. The RWA in the IRB approach amounted to € 12,283 million as of the reporting date (31 December 2016: € 10,744 million), and have increased by approx. € 1.5 billion compared with the end of the previous year.

Table 37: RWA flow statements of credit risk exposures under the IRB approach (EU CR8)

All figures in € million

	IRB approach [1]	Risk-weighted assets (RWA)	Minimum capital requirement
		a	b
1	**RWA 31.12.2016**	**10,744**	**860**
2	Asset size	1,403	112
3	Asset quality	-1,246	-100
4	Model updates	1,830	146
5	Methodology and policy	-245	-20
6	Acquisitions and disposals	-	-
7	Foreign exchange movements	-5	-0.4
8	Other	-198	-16
9	**RWA am 31.12.2017**	**12,283**	**983**

1) Without counterparty credit risk (derivative transactions) in accordance with Part Three, Title II, Chapter 6 of the CRR.

The increase of approx. € 1.5 billion in the risk-weighted assets is attributable to the volume of new business carried out in the financial year 2017 (incl. prolongations with maturities of more than one year) in the two strategic segments of Real Estate Finance (REF) and Public Investment Finance (PIF) which is reflected in line 2 of the table.

A further reason for the increase are changes in the IRBA parameters PD and LGD for determining the risk weights for specialised lending arrangements (see line 4). As a result of a new interpretation decision of the bank regulator, the pbb Group reclassified its real estate financing arrangements with borrowers which are managed in the form of a special-purpose vehicle (SPV) to the regulatory category “Specialised lending” for the first time as of 30 September 2017. With regard to the final classification criteria for specialised lending arrangements, the pbb Group continues to maintain a constant dialogue with the relevant bank regulatory authority.

The main opposite effects were repayments and redemptions (line 2), incl. the further decline in the non-strategic portfolio in line with overall strategy, other LGD changes for determining the risk weights (line 3) and changes in the calculation method for small and mid-size enterprises (SME) (line 5).

Disclosure of the table EU CR7 in accordance with Article 453 letter g CRR in conjunction with EU CR7 of the guidelines EBA/GL/2016/11, regarding the impact on the RWA of credit derivatives used for credit risk mitigation purposes, is not relevant for the pbb Group. As was the case in the previous year, the pbb Group does not have any credit derivatives in its portfolio.

Backtesting IRBA parameters

The following tables in accordance with Article 452 letter i CRR in conjunction with EU CR9 as well as points 110 and 111 of the EBA/GL/2016/11 contain information regarding backtesting of the model parameters Probability of default (PD), Loss given default (LGD), Credit conversion factor (CCF) and Expected loss (EL) for the advanced IRB approach based on internal rating methods of the bank. This is based on all IRBA models used in the pbb Group. Details in text form are used for the credit conversion factor (CCF).

Table 38: Backtesting of probability of default per exposure class (EU CR9)

	Exposure classes according to PD ranges [1] IRB approach	External rating equivalent [2] S&P	Average PD [3] in % 31.12.2016	Arithmetic average PD by obligors [4] in % 31.12.2016	Number of obligors: End of previous year [5] 31.12.2016	Number of obligors: End of reporting year [6] 31.12.2017	Defaulted obligors in the reporting year [7]	Of which new obligors [8]	Average historical annual default rate [9] in %
		a	b	c	d	e	f	g	h
1	Central governments and central banks								
2	0,00 to < 0,15	AAA bis BBB+	0.01%	0.02%	85	90	0	0	0.00%
3	0,15 to < 0,25	BBB bis BBB	-	-	-	-	-	-	0.00%
4	0,25 to < 0,50	BBB- bis BB+	0.44%	0.43%	6	5	0	0	0.00%
5	0,50 to < 0,75	-	-	-	-	-	-	-	-
6	0,75 to < 2,50	BB bis B+	1.00%	1.00%	1	1	0	0	0.00%
7	2,50 to < 10,00	B bis B-	-	-	-	1	-	-	0.00%
8	10,00 to < 100,00	CCC+ bis CCC-	-	-	-	1	-	-	0.00%
9	Subtotal (without default)		0.04%	0.05%	92	98	0	0	0.00%
10	100,00 (Default)		-	-	-	-	-	-	-
11	Institutions								
12	0,00 to < 0,15	AAA bis BBB+	0.05%	0.05%	119	123	0	0	0.07%
13	0,15 to < 0,25	BBB bis BBB	0.20%	0.20%	14	17	0	0	0.00%
14	0,25 to < 0,50	BBB- bis BB+	0.40%	0.39%	24	19	0	0	1.18%
15	0,50 to < 0,75	-	-	-	-	-	-	-	-
16	0,75 to < 2,50	BB bis B+	1.08%	1.13%	4	1	0	0	0.00%
17	2,50 to < 10,00	B bis B-	-	-	-	-	-	-	0.00%
18	10,00 to < 100,00	CCC+ bis CCC-	21.50%	21.50%	1	3	0	0	0.00%
19	Subtotal (without default)		0.97%	0.27%	162	163	0	0	0.15%
20	100,00 (Default)		-	-	-	-	-	-	-
21	Corporates								
22	0,00 to < 0,15	AAA bis BBB+	0.08%	0.08%	76	71	0	0	0.00%
23	0,15 to < 0,25	BBB bis BBB	0.20%	0.20%	132	106	0	0	0.00%
24	0,25 to < 0,50	BBB- bis BB+	0.39%	0.38%	336	282	0	0	0.07%
25	0,50 to < 0,75	-	-	-	-	-	-	-	
26	0,75 to < 2,50	BB bis B+	1.26%	1.28%	368	338	0	0	0.35%
27	2,50 to < 10,00	B bis B-	3.12%	3.36%	103	159	1	0	1.95%
28	10,00 to < 100,00	CCC+ bis CCC-	11.41%	12.92%	6	8	0	0	4.89%
29	Subtotal (without default)		1.02%	1.04%	1,021	964	1	0	0.53%
30	100,00 (Default)		100%	100%	25	16	-	-	-
31	Of which: Specialised lending								
32	0,00 to < 0,15	AAA bis BBB+	0.10%	0.09%	29	16	-	0	0.00%
33	0,15 to < 0,25	BBB bis BBB	0.20%	0.20%	51	38	0	0	0.00%
34	0,25 to < 0,50	BBB- bis BB+	0.39%	0.39%	146	134	0	0	0.10%
35	0,50 to < 0,75	-	-	-	-	-	-	-	-
36	0,75 to < 2,50	BB bis B+	1.27%	1.28%	153	174	0	0	0.67%
37	2,50 to < 10,00	B bis B-	3.12%	3.35%	57	113	1	0	4.29%
38	10,00 to < 100,00	CCC+ bis CCC-	11.31%	11.25%	2	4	0	0	0.00%
39	Subtotal (without default)		1.12%	1.09%	438	479	1	0	0.86%
40	100,00 (Default)		100%	100%	12	7	-	-	-
41	davon: SMEs								
42	0,00 to < 0,15	AAA bis BBB+	0.09%	0.09%	23	24	0	0	0.00%
43	0,15 to < 0,25	BBB bis BBB	0.20%	0.20%	66	53	0	0	0.00%
44	0,25 to < 0,50	BBB- bis BB+	0.40%	0.38%	132	89	0	0	0.00%
45	0,50 to < 0,75	-	-	-	-	-	-	-	-
46	0,75 to < 2,50	BB bis B+	1.19%	1.24%	121	83	0	0	0.11%
47	2,50 to < 10,00	B bis B-	3.08%	3.32%	25	18	0	0	2.19%
48	10,00 to < 100,00	CCC+ bis CCC-	10.00%	10.00%	1		0	0	7.78%
49	Subtotal (without default)		0.76%	0.84%	368	267	0	0	0.34%
50	100,00 (Default)		100%	100%	8	4	-	-	-
51	Retail	-	-	-	-	-	-	-	-
52	Equity	-	-	-	-	-	-	-	-
53	Of which: Internal model approach (IMA)	-	-	-	-	-	-	-	-
54	Of which: PD-/LGD approach	-	-	-	-	-	-	-	-
55	Of which: Simple risk-weighting approach	-	-	-	-	-	-	-	-
56	**Total IRB approach**								
57	**Of which: Default**		**100%**	**100%**	**25**	**16**	—	—	—
58	**Of which: Non-default**		**0.61%**	**0.87%**	**1,275**	**1,225**	**1**	**0**	**0.42%**

1) PD range at the beginning of the reporting period. Counterparty credit risk exposures (derivatives) in accordance with Part Three, Title II, Chapter 6 of the CRR are included in the table.
2) External rating of Standard & Poor's corresponding to the PD ranges.
3) Average probability of default (PD) weighted by the EAD, at the beginning of the reporting period.
4) Average probability of default (PD) weighted by obligors, at the beginning of the reporting period.
5) Number of obligors at the beginning of the reporting period.
6) Number of obligors at the end of the reporting period.
7) Number of obligors defaulted during the reporting year.
8) Number of the new obligors having defaulted during the reporting period and that were not funded at the end of the previous financial year.
9) The 5-year average of the annual default rate, i.e. the relationship between the obligors at the beginning of each year that have defaulted during that year and the total obligor holdings at the beginning of the year.

Table 39: Backtesting of loss given default per exposure class (EU CR9)

	Exposure classes IRB approach	**Actual LGD**	**Number of obligors**		**Estimation of LGD**	
		Defaulted obligors [1] All defaults completed in the reporting year	**Non-defaulted obligors** [2] Not in Default	**Defaulted obligors** [3] In Default	**Non-defaulted obligors** [4] Not in Default	**Defaulted obligors** [5] In Default
		31.12.2017	31.12.2016	31.12.2016	31.12.2016	31.12.2016
		a	b	c	d	e
1	Central governments and central banks	-	92	-	33.62%	-
2	Institutions	-	162	-	35.77%	-
3	Corporates	41.72%	1,021	25	10.65%	46.33%
4	Of which: Specialised lending	41.34%	438	12	11.22%	52.38%
5	Of which: SMEs	36.31%	368	8	9.36%	33.40%
6	Retail	-	-	-	-	-
7	Equity	-	-	-	-	-
8	Of which: Internal model approach (IMA)	-	-	-	-	-
9	Of which: PD-/LGD approach	-	-	-	-	-
10	Of which: Simple risk-weighting approach	-	-	-	-	-
11	**Total IRB approach**	**41.72%**	**1,275**	**25**	**15.50%**	**46.33%**

1) Realized loss given default (LGD) of all completed defaults in the reporting year.
2) Number of obligors who were not in default at the beginning of the reporting period.
3) Number of obligors who were in default at the beginning of the reporting period.
4) Average loss given default (LGD) of obligors who were not in default at the beginning of the reporting period.
5) Average loss given default (LGD) of obligors who were in default at the beginning of the reporting period.

There is only one default in the reporting period. In view of the unit figures which are low in certain cases (particularly regarding defaults in recent years) as well as the calibration of the rating models to long-term average default rates, the average historical default rate may differ from the forecast average PD. No observations are allocated to the PD range 0.50 to 0.75 as a result of the uniform PD master scale of the pbb Group which is used. The IRBA exposure category Retail business does not exist in the pbb Group.

The forecast credit conversion factor (CCF) for mortgage loans is 50 %. No customer with an unutilised line defaulted in the reporting period. For this reason, it is not possible to provide any details regarding backtesting of the credit conversion factor in relation to the reporting period.

The expected loss (EL) for a period of one year is determined for all exposures except for non-performing loans for which an individual adjustment has already been recognised. The EL is calculated based on the parameters defined by the CRR, i.e. the one-year probability of default (PD), multiplied by the loss given default (LGD) and the exposure at default (EAD):

EL = EAD x PD x LGD.

The following table in accordance with Article 452 letter i CRR in conjunction with EU CR9 as well as points 110 and 111 of the EBA/GL/2016/11 (in addition to the above backtesting tables for PD and LGD) shows the expected losses (EL) for the commercial real estate financing loans in the IRB approach (excluding non-performing loans for which an individual allowance has already been recognised) as well as the losses which actually occurred in the financial year.

Incurred losses are defined as the sum of additions and reversals of individual allowances in lending business, additions and reversals of provisions in lending business, direct write-downs and recoveries relating to loans which had previously been written off.

Table 40: Expected and incurred losses in the lending business per exposure class (EU CR9)

All figures in € million

	Exposure classes IRB approach	2017 Expected loss [1)]	 Incurred loss (IFRS) [2)]
		a	b
1	Central governments and central banks	-	-
2	Institutions	-	-
3	Corporates	59	1
4	Of which: Specialised lending	53	1
5	Of which: Small and medium-sized enterprises (SME)	4	-
6	Retail	-	-
7	Equity	-	-
8	**Total**	**59**	**1**

1) Expected loss for real estate financing loans (mortgage loans and current account loans), except problem loans for which an allowance exists.
2) Additions less reversals of specific allowances and provisions in the real estate financing business, direct write-offs and recoveries (payments received) on written-down loans.

The loss incurred on real estate financing loans in the IRB approach amounted to approx. € 1 million. There were net additions of approx. € 2 million to the individual allowances in lending business. These additions were opposed by recoveries of € 1 million received in relation to loans which had previously been written down.

As of 31 December 2017, the expected loss for real estate financing loans (excluding non-performing loans for which a value adjustment had already been created) amounted to € 59 million.

It has to be noted that future changes (for instance in the economy or developments relating to individual risks) may lead to changes in the above-mentioned EL figures. Over a period of time, the default and loss history of the pbb Group may also lead to adjustments of estimated risk parameters within the framework of annual checks to identify the need for re-calibration. The actually incurred losses may also differ from the expected losses.

The loss given default (LGD) for non-defaulted real estate loans was 11 % on average. For the entire real estate finance portfolio, the LGD average was also 11 %.

For the real estate financing loans which have not defaulted, the probability of default (PD) is 1.6 % on average.

5.6 Counterparty credit risk

This chapter shows information in accordance with the Articles 439, 444 and 452 CRR for exposures for which the value of the receivable is calculated in accordance with part 3, title II, chapter 6 “Counterparty credit risk” of the CRR. These regulations for calculating the exposure value for the counterparty credit risk are applied by the pbb Group for derivative transactions, using the mark-to-market method in accordance with Article 274 CRR.

The pbb Group does not use a method based on an internal model (IMM). Disclosure of the table EU CCR7 in accordance with EBA/GL/2016/11 is accordingly not relevant for the pbb Group. As was the case in the previous year, the pbb Group had again not carried out any hedging transactions with credit derivatives as of 31 December 2017 (neither as a protection taker nor as a protection giver), and also does not operate in the field of prime brokerage. The tables in accordance with Article 439 letters g and h CRR and the table EU CCR6 in accordance with EBA/GL/2016/11 are therefore not applicable.

For security financing transactions (security lending/repo transactions), the pbb Group uses the regulations for mitigating credit risk (for financial securities) in accordance with chapter 4 of the CRR (comprehensive method in accordance with Art. 223 et seq. CRR); this is the reason why these transactions are not shown in the counterparty credit risk tables (the table EU CCR1 is an exception in this respect).

Purpose

The pbb Group uses derivatives mainly to hedge market risks resulting for instance from changes in interest rates or exchange rates. These hedging transactions are opposed by underlyings of asset or liability positions. The hedging of interest and exchange rate risks is intended to reduce and/or avoid market risks.

The counterparties in derivatives business are mainly OECD credit institutions. The pbb Group also provides derivatives for real estate customers and public law entities, for instance to enable them to hedge market risks of commercial real estate financing.

Netting and collateral agreements

Netting agreements

The business with derivatives is usually based on standard mutual netting agreements which aim to minimise legal risks as well as economic and regulatory credit risks, and which enable mutual risks to be netted. This means that positive and negative market values of derivative contracts included under a netting agreement can be offset against each other and future regulatory risk premiums for these products can be reduced. Within the framework of the netting process, the credit risk is reduced to a single net receivable due from the contracting party.

These risk-mitigating techniques are used for the purpose of regulatory reporting and the internal measurement and monitoring of credit commitments only if they are considered to be enforceable in the relevant jurisdiction in the event of the insolvency of the business partner. Legal appraisals are used for assessing such enforceability.

The national and international agreements used for this purpose are the German Master Agreement for Financial Futures (DRV) based on German law as well as the ISDA Master Agreement of the International Swaps and Derivatives Association (ISDA).

pbb is a direct clearing member of Eurex Clearing. Eurex Clearing is the central clearing house used by pbb or the qualified central counterparty (qualified CCP) in accordance with Article 4 point 88 CRR. The pbb Group uses the possibility of using a central counterparty for clearing purposes for certain contract types and of thus reducing bilateral default risk.

Collateral management

By way of analogy with the netting agreements, the pbb Group also concludes collateral agreements with certain business partners in addition to the netting agreements (German hedging appendix to the DRV or ISDA Collateral Support Annex) in order to hedge any net receivables/liabilities which may be due after netting (receipt or provision of collateral). These collateral service agreements limit the credit risk by means of a timely assessment and adjustment of the customer exposure (limit relief), thereby creating scope for new business transactions within the granted counterparty lines.

Collateral is received mainly in the form of cash collateral and, in certain cases, securities. Collateral which is received is systematically documented.

The current hedging requirement is determined on a daily basis within the framework of mark-to-market evaluations and agreed with the counterparties. If threshold amounts have been agreed, collateral is only requested once the threshold for the particular contracting party has been attained. The same is applicable for any minimum transfer amounts which have been agreed. A call will be made only when the respective minimum transfer amount has been attained or exceeded. If there is a change in the mark-to-market valuation to a level below this threshold, no call is made in order to limit processing costs. Incoming payments are monitored and the counterparty is sent a reminder when needed.

A collateral service agreement is also in place with the central Eurex Clearing counterparty. Collateral is mainly provided in the form of securities using a specific securities portfolio set up for this purpose for Eurex Clearing. Cash collateral can however also be provided.

Derivative credit risk exposures

Within the framework of its over-the-counter (OTC) business, the pbb Group is exposed to credit risks relating to business with derivatives.

Potential replacement cost

The two following tables in accordance with Article 439 letter e CRR in conjunction with EU CCR5-A and EU CCR5-B of the EBA/GL/2016/11 show the extent to which the pbb Group has exposures in various contract types and also the extent to which it uses legally enforceable derivative netting agreements and collateral netting. The collateral which is received and provided for the purpose of reducing the counterparty credit risk is broken down according to types of collateral (cash collateral and securities). Netting agreements and eligible collateral relate to all types of contract within a framework agreement; this is the reason why these positions are not broken down according to contract type. The pbb Group does not use netting covering all products (derivatives versus security financing transactions).

Table 41: Impact of netting and collateral held on exposure values (EU CCR5-A)

All figures in € million

	Counterparty credit risk exposures by contract types	Gross positive fair value or net carrying amount [1]	Netting benefits	Netted current credit exposure	Eligible collateral held [2]	Net credit exposure [3]
		a	b	c	d	e
1	Derivatives	3,548	2,150	1,398	1,122	276
1a	Interest risk rate	3,510				
1b	Foreign exchange rate risk	38				
1c	Exchange/ index-related risk	-				
1d	Credit derivatives	-				
1e	Commodity-based risk	-				
1f	Others	-				
2	Securities financing transactions (SFT) [4]	-	-	-	-	-
3	Cross-product netting [5]	-	-	-	-	-
4	**Total**	**3,548**	**2,150**	**1,398**	**1,122**	**276**

1) Current positive market value before netting and eligible received collateral.
2) Eligible received collateral after deduction of a safety margin (Haircut).
3) Current positive market value after taking into account the positive effects of legally enforceable netting and collateral agreements.
4) Pbb Group does not calculate the exposure value for securities lending / repo transactions in accordance with Part Three, Title II, Chapter 6, but in accordance with Chapter 4 "Credit risk mitigation" of the CRR.
5) Pbb Group does not apply cross-product netting (e.g. derivatives and securities financing transactions).

Table 42: Collateral for exposures to counterparty credit risk (EU CCR5-B)

All figures in € million

	Types of collateral	Collateral used in derivative transactions [1]				Collateral used in SFTs [4]	
		Fair value of collateral received		Fair value of collateral posted		Fair value of collateral received	Fair value of collateral posted
		Segregated [2]	Unsegregated [3]	Segregated [2]	Unsegregated [3]		
		a	b	c	d	e	f
1	Cash	-	1,234	-	1,739	-	-
2	Of which: EUR	-	1,234	-	1,726	-	-
3	Of which: USD	-	-	-	4	-	-
4	Of which: GBP	-	-	-	9	-	-
5	Of which: CHF	-	-	-	0.3	-	-
6	Secutities	-	-	23	-	-	-
7	**Total**	**0**	**1,234**	**23**	**1,739**	**0**	**0**

1) Total collateral received / posted as of 31 December 2017.
2) Refers to collateral that is held in a bankruptcy-remote manner in the meaning of Article 300 in the CRR.
3) Refers to collateral that is not held in a bankruptcy-remote manner.
4) Pbb Group does not calculate the exposure value for securities lending / repo transactions in accordance with Part Three, Title II, Chapter 6, but in accordance with Chapter 4 "Credit risk mitigation" of the CRR.

Derivative positions result not only in market risks but also credit risks if a claim against a counterparty arises in the form of positive market values. From the perspective of the pbb Group, these positive replacement values (positive gross fair values) are relevant for assessing the risk, as they correspond to the additional expense or reduced income which would result from the replacement of an equivalent position following a default of the counterparty. Accordingly, the positive market values are considered to be replacement cost for regulatory purposes.

The positive replacement values (before netting and collateral) from derivative transactions declined to € 3,548 million as of 31 December 2017 (31 December 2016: € 4,581 million), representing a decline of approximately € 1 billion compared with the previous year.

The increase in the interest rate curves and the associated factor of higher discounting have resulted in a decline in the derivative market values. The decline has also resulted from the balance sheet netting of derivatives concluded with Eurex Clearing, if these derivatives met the criteria for on-balance-sheet netting (IFRS). In the financial year 2017, new derivative contracts which were concluded were settled via Eurex Clearing and derivatives with bilateral counterparties from the portfolio were converted to Eurex Clearing.

The amount of € 3,548 million (before netting and collateral which is received) corresponds to the expenses which the pbb Group would incur for replacing originally concluded contracts by means of transactions of equal commercial significance. Accordingly, from the point of view of the pbb Group, this amount indicates the maximum potential counterparty-related credit risk. From the regulatory point of view, these expenses are considered to be replacement costs. Most of these costs relate to interest rate swaps.

By concluding mutual netting agreements allowing for negative and market values across all contracts to be netted within a single framework agreement, the counterparty-related credit risk is reduced to one single net receivable due from the contracting party. The pbb Group has used derivative netting with an amount of € 2,150 million.

The pbb Group has concluded collateral agreements with its business partners to hedge the net receivable remaining after netting. Most of the eligible collateral received of € 1,122 billion is in the form of cash collateral. Overall, the pbb Group has received collateral in the amount of € 1,234 million. As a result of hedging, the credit risk or the net credit exposure has declined to € 276 million (31 December 2016: € 443 million).

Exposure values

The calculation of the regulatory receivables (risk-weighted assets) for the credit risk resulting from derivative positions is based on so-called credit equivalent amounts and not on the positive replacement values described above. The credit equivalent amounts correspond to the exposures at default (EAD) of the default exposures shown in the balance sheet. The credit equivalent amounts are determined on the basis of the current potential replacement cost and an expected future increase in the current potential replacement cost, the potential future replacement cost (regulatory add-on).

The counterparty credit risk of derivative transactions is shown in the following two tables in accordance with Article 439 letters e, f and i CRR in conjunction with EU CCR1 and EU CCR8 of the EBA/GL/2016/11. Table EU CCR1 (excl. receivables due to the central counterparty Eurex Clearing) provides an overview of the calculation of the regulatory requirements for the methods used for the counterparty credit risk as well as the main parameters of the respective methods. For calculating the credit equivalent amounts, the pbb Group uses the mark-to-market method according to Article 274 CRR. Table EU CCR8 shows the exposure at default (EAD) and the risk-weighted assets (RWA) for receivables due from central counterparties, including the exposures of pre-financed contributions to the default fund with regard to a central counterparty. The central clearing house used by pbb or the qualified central counterpart in accordance with Article 4 point 88 CRR is Eurex Clearing; pbb is a direct clearing member.

Table 43: Counterparty credit risk by approach (EU CCR1)

All figures in € million

	Methods for calculating the regulatory exposure value	Notional	Replacement cost / current market value [1]	Potential future credit exposure	EEPE [2]	Multiplier [3]	EAD post CRM [4]	Risk-weighted assets (RWA)
		a	b	c	d	e	g	g
1	Mark-to-market method		276	325			601	365
2	Original exposure method	-					-	-
3	Standardised approach		-			-	-	-
4	IMM (for derivatives and SFTs)				-	-	-	-
5	Of which: Securities financing transactions (SFT)				-	-	-	-
6	Of which: Derivatives and long settlement transactions				-	-	-	-
7	Of which: from contractual cross-product netting				-	-	-	-
8	Financial collateral simple method (for SFTs)						-	-
9	Financial collateral comprehensive method (for SFTs) [5]						472	83
10	VaR for SFTs						-	-
11	**Total**							**448**

1) Current positive market value after netting and after eligible received collateral, without exposures to central counterparties (CCP).
2) Effective expected positive exposure according to Article 284 CRR (Internal model method (IMM) based).
3) Multiplier according to Article 276 CRR (standardised approach) and Article 284 CRR (Internal model method).
4) Regulatory exposure value (Exposure at Default, EAD) or credit equivalent amount after considering any credit risk mitigation (CRM) techniques.
5) Pbb Group does not calculate the exposure value for securities lending / repo transactions in accordance with Part Three, Title II, Chapter 6, but in accordance with Chapter 4 "Credit risk mitigation" of the CRR.

Table 44: Exposures to central counterparties (EU CCR8)

All figures in € million

	Exposures to central counterparties (CCP)	EAD post CRM [1]	Risk-weighted assets (RWA)
		a	b
1	**Exposures to qualified Central Counterparties (QCCP) total**		**3**
2	Exposures for trades at QCCPs (excluding initial margin and default fund contributions), of which:	83	2
3	i) OTC derivatives	83	2
4	ii) Exchange-traded derivatives	-	-
5	iii) Securities financing transactions (SFTs)	-	-
6	iv) Netting sets where cross-product netting has been approved	-	-
7	Segregated[2] initial margin	-	
8	Non-segregated[3] initial margin	-	-
9	Prefunded default fund contributions	8	1
10	Alternative calculation of own funds requirements for exposures		-
11	**Exposures to non-qualified Central Counterparties (Non-QCCP) total**		**0**
12	Exposures for trades at non-QCCPs (excluding initial margin and default fund contributions), of which:	-	-
13	i) OTC derivatives	-	-
14	ii) Exchange-traded derivatives	-	-
15	iii) Securities financing transactions (SFT)	-	-
16	iv) Netting sets where cross-product netting has been approved	-	-
17	Segregated[2] initial margin	-	
18	Non-segregated[3] initial margin	-	-
19	Prefunded default fund contributions	-	-
20	Unfunded default fund contributions	-	-

1) Regulatory exposure value (Exposure at Default, EAD) or credit equivalent amount after considering any credit risk mitigation (CRM) techniques, without exposures to non-CCPs.
2) Refers to collateral that is held in a bankruptcy-remote manner in the meaning of Article 300 in the CRR.
3) Refers to collateral that is not held in a bankruptcy-remote manner.

The credit equivalent amount (exposure at default, EAD) for the counterparty credit risk of derivative transactions calculated using the mark-to-market method amounted to € 684 million at the end of 2017 (31 December 2016: € 899 million); of this figure, € 83 million (31 December 2016: € 77 million) is attributable to receivables due from the central counterparty Eurex Clearing. The exposures for pre-financed contributions to the default fund due to a central counterparty amounted to approx. € 8 million (unchanged compared with the previous year). The pbb Group uses the risk-sensitive method in accordance with Article 308

CRR for calculating the own funds requirements for pre-financed contributions to the default fund of a qualified central counter-party.

Exposures at default according to the credit risk approach

The following tables show the derivative counterparty credit exposures broken down according to the credit risk approach used for calculating the risk-weighted assets (RWA), the standard approach (CRSA) or the advanced IRB approach (IRBA).

The table in accordance with Article 444 letter e CRR in conjunction with EU CCR3 of the EBA/GL/2016/11 contains a break-down of the counterparty credit risk exposures in the standard approach according to the type of counterparty and according to the risk weight allocated in the standard approach. pbb also discloses all receivables due from Eurex Clearing in the CRSA, in the exposure category Institutions.

The table in accordance with Article 452 letter e CRR in conjunction with EU CCR4 of the EBA/GL/2016/11 shows a break-down of the counterparty credit risk exposures in the IRB approach according to the type of counterparty and various PD areas de-fined by the EBA and also according to additional important risk parameters. Additional disclosure of this table in accordance with Article 452 letter j (i) CRR for every regional nature of the exposures is not relevant for the pbb Group. The derivative trans-actions are carried out exclusively by pbb, which is headquartered in Germany.

The IRB models used at the level of the pbb Group for calculating the own funds requirements for the counterparty credit risk, the related scope as well as the attribution of an obligor to an IRBA credit risk exposure to the rating systems are explained in the chapter 5.5 “IRB approach”.

Table 45: Counterparty credit risk exposures under the standardised approach (EU CCR3)

All figures in € million, unless otherwise stated

	Exposure classes Standardised approach (CRSA)	**Risk weight**											**Total** [1]	**Of which unrated** [2]
		0%	**2%**	**4%**	**10%**	**20%**	**50%**	**70%**	**75%**	**100%**	**150%**	**Others**		
		a	b	c	d	e	f	g	h	i	j	k	l	m
1	Central governments or central banks	-	-	-	-	-	-	-	-	-	-	-	-	-
2	Regional governments or local authorities	4	-	-	-	-	-	-	-	-	-	-	4	4
3	Public sector entities	-	-	-	-	-	-	-	-	-	-	-	-	-
4	Multilateral development banks	-	-	-	-	-	-	-	-	-	-	-	-	-
5	International organisations	-	-	-	-	-	-	-	-	-	-	-	-	-
6	Institutions	-	83	-	-	-	-	-	-	-	-	-	83	83
7	Corporates	-	-	-	-	-	-	-	-	-	-	-	-	-
8	Retail	-	-	-	-	-	-	-	-	-	-	-	-	-
9	Exposures to institutions and corporates with short-term credit assessment	-	-	-	-	-	-	-	-	-	-	-	-	-
10	Other itmes	-	-	-	-	-	-	-	-	-	-	-	-	-
11	**Total**	**4**	**83**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**87**	**87**

1) CRSA-Regulatory exposure value (Exposure at Default, EAD) or credit equivalent amount after considering any credit risk mitigation (CRM) techniques.
2) A credit assessment by a nominated ECAI (External Credit Assessment Institutions) is not available.

Table 46: Counterparty credit risk exposures under the IRBA approach (EU CCR4)

All figures in € million, unless otherwise stated

	Exposure classes according to PD ranges IRB approach	Exposure at default (EAD) post CRM [1]	Average PD [2] in %	Number of obligors	Average LGD [3] in %	Average maturity in years	Risk-weighted assets (RWA)	RWA density [4] in %
		a	b	c	d	e	f	g
1	Central governments and central banks							
2	0,00 to < 0,15	4	0.05%	2	100%	5	3	77%
3	0,15 to < 0,25	-	-	-	-	-	-	-
4	0,25 to < 0,50	-	-	-	-	-	-	-
5	0,50 to < 0,75	-	-	-	-	-	-	-
6	0,75 to < 2,50	-	-	-	-	-	-	-
7	2,50 to < 10,00	-	-	-	-	-	-	-
8	10,00 to < 100,00	-	-	-	-	-	-	-
9	100,00 (Default)	-	-	-	-	-	-	-
10	Subtotal	4	0.05%	2	100%	5	3	77%
11	Institutions							
12	0,00 to < 0,15	104	0.10%	6	14%	4	20	19%
13	0,15 to < 0,25	163	0.20%	13	17%	4	52	32%
14	0,25 to < 0,50	100	0.35%	13	15%	5	39	39%
15	0,50 to < 0,75	-	-	-	-	-	-	-
16	0,75 to < 2,50	-	-	-	-	-	-	-
17	2,50 to < 10,00	-	-	-	-	-	-	-
18	10,00 to < 100,00	-	-	-	-	-	-	-
19	100,00 (Default)	-	-	-	-	-	-	-
20	Subtotal	367	0.21%	32	15%	5	112	30%
21	Corporates							
22	0,00 to < 0,15	31	0.01%	4	19%	5	2	8%
23	0,15 to < 0,25	15	0.20%	13	56%	5	12	81%
24	0,25 to < 0,50	54	0.37%	65	56%	3	47	87%
25	0,50 to < 0,75	-	-	-	-	-	-	-
26	0,75 to < 2,50	92	1.21%	71	56%	4	129	141%
27	2,50 to < 10,00	19	3.90%	21	56%	4	32	170%
28	10,00 to < 100,00	12	10.00%	1	56%	5	28	222%
29	100,00 (Default)	3	100%	1	57%	3	-	-
30	Subtotal	226	2.76%	176	51%	4	250	111%
31	Of which: Specialised lending							
32	0,00 to < 0,15	1	0.10%	2	56%	3	1	38%
33	0,15 to < 0,25	7	0.20%	10	56%	5	5	72%
34	0,25 to < 0,50	42	0.35%	59	56%	3	37	87%
35	0,50 to < 0,75	-	-	-	-	-	-	-
36	0,75 to < 2,50	84	1.23%	65	56%	4	120	143%
37	2,50 to < 10,00	19	3.90%	21	56%	4	32	170%
38	10,00 to < 100,00	12	10.00%	1	56%	5	28	222%
39	100,00 (Default)	-	-	-	-	-	-	-
40	Subtotal	166	1.91%	158	56%	4	222	134%
41	Of which: SMEs							
42	0,00 to < 0,15	-	-	-	-	-	-	-
43	0,15 to < 0,25	0.1	0.20%	1	56%	1	0.02	33%
44	0,25 to < 0,50	3	0.45%	3	56%	2	2	74%
45	0,50 to < 0,75	-	-	-	-	-	-	-
46	0,75 to < 2,50	6	1.00%	3	56%	4	7	113%
47	2,50 to < 10,00	-	-	-	-	-	-	-
48	10,00 to < 100,00	-	-	-	-	-	-	-
49	100,00 (Default)	-	-	-	-	-	-	-
50	Subtotal	9	0.82%	7	56%	3	9	100%
51	Retail	-	-	-	-	-	-	-
52	Equity	-	-	-	-	-	-	-
53	Of which: Internal model approach (IMA)	-	-	-	-	-	-	-
54	Of which: PD-/LGD approach	-	-	-	-	-	-	-
55	Of which: Simple risk-weighting approach	-	-	-	-	-	-	-
56	**Total**	**597**	**1.18%**	**210**	**29%**	**4**	**365**	**61%**

1) IRBA-Regulatory exposure value (Exposure at Default, EAD) or credit equivalent amount after considering any credit risk mitigation (CRM) techniques.
2) Average probability of default (PD) weighted by the EAD.
3) Average loss given default (LGD) weighted by the EAD.
4) Relationship between column (f) and column (a).

CVA risk

The following table in accordance with Article 439 letters e and f CRR in conjunction with EU CCR2 of the EBA/GL/2016/11 shows the exposure at default (EAD) and the risk-weighted assets (RWA) for the CVA charge.

The CVA charge is the additional own funds requirement for the risk of adjusting the credit valuation (CVA risk) in the case of OTC derivatives, i.e. for potential (unexpected) losses of market value in connection with a decline in the credit standing of a counterparty. pbb calculates the own funds requirement for the risk of an adjustment to the credit valuation in accordance with the standard method pursuant to Article 384 CRR, based on the mark-to-market method in accordance with Article 274 CRR. In accordance with Article 382 CRR, no CVA charge is calculated for receivables due from the central counterparty Eurex Clearing.

Table 47: CVA capital charge (EU CCR2)

All figures in € million

	Methods used for determining the exposure value for the CVA risk	Exposure value [1]	Risk-weighted assets (RWA)
		a	b
1	Total portfolios subject to the advanced method	-	-
2	i) VaR component (including the triple-multiplier)		-
3	ii) SVaR component (including the triple-multiplier)		-
4	All portfolios subject to the standardised method	367	294
EU4	Based on the original exposure method	-	-
5	**Total subject to the CVA capital charge**	**367**	**294**

1) Exposure value used to calculate the capital requirement for the risk of a adjustment of credit valuation (CVA risk) for OTC derivatives.
This means the regulatory exposure value (Exposure at Default, EAD) after considering any credit risk mitigation (CRM) techniques.

Rating-based collateral service agreements

With some counterparties, the pbb Group has concluded rating-based collateral service agreements (CSA) which provide for an adjustment of the threshold amount or a reduction of the minimum transfer amount in the event of a rating downgrade. The extent of the adjustment is explicitly agreed with the contracting party in the collateral service agreement.

In the event of an adjustment to the threshold amount, the related cash flow would become immediately due as pbb would have to provide a higher collateral contribution in this case. In the event of an amendment to the minimum transfer amount, there would only be a postponement in the cash flows, and there would not be any additional payments. This is related to the fact that the minimum transfer amount, unlike the threshold amount, does not involve the provision of additional collateral and instead specifies the amount from which payments must be made. If the minimum transfer amount is reduced, and if therefore payments have to be made from a lower threshold, this would not have any impact on the amount of collateral itself, and instead would only have an impact on the amount from which changes in value in the CSA portfolio would have to be settled. For smaller minimum transfer amounts, changes in value are thus settled at an earlier date.

Table 48: Threshold amounts and minimum transfer amounts in the derivatives business

All figures in € million

	Threshold Amounts	Minimum Transfer Amounts
Deutsche Pfandbriefbank AG	-	42
Total	**0**	**42**

The figures in the above table show the threshold amounts and minimum transfer amounts which are agreed in the collateral service agreements and which are still relevant for current ratings. Most collateral service agreements no longer provide for threshold amounts, there are only minimum transfer amounts. In a small number of cases, these amounts depend on the rating. As can be seen, the downgrading of a rating does not have any material impact on the liquidity of the pbb Group. This is due to the fact that most long-term ratings for the collateral service agreements (CSA) of pbb are already in the lowest category. The following table shows the senior unsecured ratings commissioned by pbb as of the reporting date.

Table 49: Senior unsecured ratings

		Standard & Poor's	DBRS
Deutsche Pfandbriefbank AG	Long-term issuer rating / outlook	A- / Negativ	BBB / Stabil
	Short-term issuer rating	A-2	R-2 (high)
	Long-term "preferred" senior unsecured debt rating [1]	A-	BBB [3]
	Long-term "non-preferred" senior unsecured debt rating [2]	BBB-	BBB [3]

1) S&P: „Senior Unsecured Debt"; DBRS: „Senior Unsecured Debt".
2) S&P: „Senior Subordinated Debt"; DBRS: „Senior Unsecured Debt".
3) As of 31.12.2016, the intended split of S&P's rating class for "senior unsecured debt" was not implemented; at present, DBRS does formally not differentiate in this respect.

Rating agencies may alter or withdraw their ratings at any time. Ratings of individual securities issued by pbb may deviate from the ratings indicated above, or an individual security may not be rated at all. For the evaluation and usage of ratings, please refer to the rating agencies' pertinent criteria and explanations and the relevant terms of use, which are to be considered. Ratings should not serve as a substitute for individual analysis. They do not constitute a recommendation to purchase, sell or hold securities issued by pbb.

Internal capital allocation and upper limits for the counterparty credit risk

Capital allocation and the limitation of default risks for counterparties with derivative positions is embedded in the generally applicable allocation and limitation process for credit risks in the pbb Group. Limits are allocated primarily on the basis of the counterparties' credit rating for which the rating methods used play an important role. For details of the allocation of capital to the risk types, please refer to the chapter addressing ICAAP and monitoring of the risk-bearing capacity (see chapter 4.3 "Economic capital and risk-bearing capacity"). In all other respects, the methods of regulatory large credit management are applicable. Risk Management & Control is responsible for ongoing monitoring of counterparty limit usage on a daily basis.

Correlations of market and counterparty risks

The requirements of Article 439 letter c CRR concerning a description of regulations relating to correlation risks are not relevant for the pbb Group. The pbb Group does not trade any products whose underlying is directly correlated with the probability of default of the counterparty.

Accounting and valuation methods for derivatives

Derivatives are measured at fair value. Changes in fair value are recognised in profit or loss if the derivatives are not part of cash flow hedge accounting. The valuation results of stand-alone derivatives are shown in net trading income, and the valuation results of fair-value hedge derivatives are shown in the net income from hedge relationships. In the balance sheet, the stand-alone derivatives are disclosed as trading assets and trading liabilities, and hedging derivatives are disclosed as other assets and other liabilities.

Outside the categories Held for Trading (HfT) and Designated at Fair Value Through Profit or Loss (dFVTPL), embedded derivative financial instruments within a structured product and which are required to be separated are separated from the host contract and recognised as stand-alone derivative financial instruments. The underlying contract is then recognised depending on the applicable category. The change in value of the separated derivatives measured at fair value is recognised in the income statement.

In order to account for counterparty credit risks in the case of OTC derivatives, the pbb Group determines credit value adjustments (CVA), i.e. valuation adjustments of OTC derivatives within the framework of accounting. CVAs indicate the loss which would occur in the event of a counterparty default. The CVA losses are recognised in the income statement.

5.7 Shareholdings in the banking book

Objective

The pbb Group takes on investments for achieving its corporate objectives exclusively for strategic considerations. The shareholdings of the pbb Group are therefore an essential element of the business model of the pbb Group described in chapter 2.1 “Organisational and legal structure”. The companies under pbb are legally and operationally separate entities, but pursue objectives which are coordinated at the Group level.

Accounting and valuation methods

The shareholdings of pbb are detailed in the notes to the annual report 2017 of the pbb Group (note 84 “Holdings of pbb”). In that note, the subsidiaries are categorised on the basis of their consolidation within the framework of the IFRS consolidated financial statements. Other shareholdings are also shown. Compared with the previous year, there have been no major changes to the applied assumptions and valuation techniques.

Consolidated subsidiaries

All fully consolidated companies have the calendar year as their financial year. The separate financial statements of the consolidated German and foreign companies are included in the IFRS consolidated financial statements of pbb based on uniform accounting and valuation principles.

At the time of acquisition, the costs of purchase of the business combination are distributed by way of recognising the identifiable assets, liabilities and contingent liabilities of the acquired company which meet the recognition criteria set out in IFRS 3.10 at their fair values applicable at that time. In accordance with IFRS 3.32-36, any difference between the costs of purchase of the business combination and the percentage interest of the purchaser in the net fair value of the identifiable assets, liabilities and contingent liabilities recognised in this way is shown as goodwill or as the excess of the purchaser's interest in the net fair value of the identifiable assets, liabilities and contingent liabilities of the acquired company over the costs of purchase. If the percentage interest in the sum of the fair values exceeds the costs of purchase of the business combination, the identifiable assets, liabilities and contingent liabilities as well as the extent of the costs of purchase of the business combination are re-assessed, and any excess remaining after the re-assessment is recognised immediately in the income statement.

Business relations within the consolidation group are netted with respect to each other, and inter-company results attributable to internal transactions are eliminated.

Non-consolidated subsidiaries

The effects of the contractual relations between the group companies and the subsidiaries which are not consolidated are also set out in the IFRS consolidated financial statements. The pbb Group was unable to reliably determine a fair value for one interest in subsidiaries (31 December 2016: one) that is not included in view of its minor importance for the Group. Shares in this company in the legal form of a limited company (GmbH) are not traded in an active market and are therefore measured at cost and shown under the AfS (available-for-sale) financial investments.

Net gains and net losses generated by the disposal of AfS financial instruments as well as by changes in value of AfS financial instruments to be recognised in the income statement as a result of impairments or write-ups are shown in net income from financial investments.

Associated companies

As of 31 December 2017 (as was the case in the previous year), there were no material interests in associated companies or joint ventures. Shares in these companies in the legal form of a business partnership are measured at cost in view of their minor significance and are recognised in AfS financial assets.

Values of shareholdings

In the following table, the shareholdings of the pbb Group are shown in accordance with their accounting classification in line with Article 447 letters b and c CRR. The table shows only those shareholdings which are part of the regulatory consolidation scope. Items which are subject to the deduction method or which are subject to regulatory risk weighting are not included.

Table 50: Values of shareholdings based on their accounting classification

All figures in € million

Equity instruments by groups	Comparison		
	Carrying amount	Fair value	Market value (stock-market price)
Subsidiaries	**14**	**14**	**-**
Consolidated subsidiaries under accounting law			
Thereof exchange-trade equity instruments	-	-	-
Thereof unlisted, but part of a sufficiently diversified portfolio	-	-	-
Thereof other investments	14	14	-
Non-consolidated subsidiaries under accounting law			
Thereof exchange-trade equity instruments	-	-	-
Thereof unlisted, but part of a sufficiently diversified portfolio	-	-	-
Thereof other investments	-	-	-
Associated companies	**-**	**-**	**-**
Associated companies of minor significance			
Thereof exchange-trade equity instruments	-	-	-
Thereof unlisted, but part of a sufficiently diversified portfolio	-	-	-
Thereof other investments	-	-	-

In addition to pbb as the parent company, the regulatory consolidation scope of the pbb Group comprises three companies which are also all consolidated in accordance with the German Commercial Code (IFRS). Accordingly, it is not necessary for a fair value to be additionally determined for these three companies. Their fair value is equal to their carrying amount.

Altogether, the carrying amounts of the companies in the regulatory consolidation scope (excl. pbb itself) are stated as € 14 million (31 December 2016: € 55 million). None of the companies is listed.

Realised and unrealised gains and losses from shareholdings

In accordance with Article 447 letters d and e CCR, the realised and unrealised gains and losses from shareholdings are stated in accordance with the regulations of IFRS 12.

Realised gains and losses

The pbb Group is not able to reliably determine a fair value for one interest in subsidiaries (31 December 2016: one) that is not included in view of its minor significance for the Group. The total amount of the carrying amounts of the Company's interests in subsidiaries which, individually and in total, are of minor significance, was stated as € 0 million (unchanged compared with the previous year). In the financial year 2017, the Company did not derecognise any shareholding whose fair value cannot be reliably determined (2016: one shareholding with a carrying amount of € 0 million).

As was the case in the previous year, the pbb Group holds three shareholdings in associated companies. In view of their minor significance, there are currently no shareholdings in associated companies in the pbb Group which would have to be included in accordance with the at-equity method. The sum of the carrying amounts of the shareholdings in these companies (which are insignificant when viewed individually) was € 0 million (unchanged compared with the previous year).

Unrealised gains and losses from revaluation

As was the case in the previous year, the pbb Group did not hold any shareholdings in companies as of 31 December 2017 for which the fair value could be reliably determined but which were not fully consolidated or recognised in accordance with the at-equity method. Accordingly, in the financial year 2017, the pbb Group did not have any unrealised gains or losses from revaluations resulting from changes in the fair value based on a subsequent fair value measurement (31 December 2016: € 0 million).

Effects from deconsolidation

As described in the chapter 2.4 “Regulatory and commercial consolidation”, five companies were deconsolidated in the financial year 2017. This has overall had only a minor impact on the consolidated income statement and the consolidated balance sheet.

5.8 Securitisations

Objectives, acquired functions and activities in the securitisation process

In the reporting year 2017, the pbb Group did not place any of its own securitisations and did not invest in securitisation positions of third-party receivables (unchanged compared with the previous year). From securitisation business carried out in the past, the pbb Group still has a synthetic securitisation transaction in its regulatory role as originator. This originator securitisation is the only securitisation transaction of the Group; the pbb Group does not operate on the market in the regulatory roles of investors or sponsors. pbb and its affiliated companies (the pbb Group) also do not have a trading book.

In accordance with Article 449 CRR, the following table provides an initial overview of the extent of existing activities in the respective functions; they are then subsequently described in greater detail.

Table 51: Overall securitisation activities

All figures in € million

	Securitisation activities							
	Originator				Investor		Sponsor	
	With significant credit risk transfer [1]		Without significant credit risk transfer [2]		Securitisation positions purchased			
	31.12.2017	31.12.2016	31.12.2017	31.12.2016	31.12.2017	31.12.2016	31.12.2017	31.12.2016
Banking book	178	189	-	-	-	-	-	-
Trading book	-	-	-	-	-	-	-	-
Total	**178**	**189**	**0**	**0**	**0**	**0**	**0**	**0**

1) Sum total of securitisation positions created with recognition of capital considerations according to Basel III due to essential and significant risk transfers according to Article 244 section 2 CRR.
2) Exposure at Default (CRSA-/ IRBA-regulatory exposure amount) of the underlying receivables for securitisation positions without recognition of capital considerations according to Basel III due to essential and significant risk transfers according to Article 244 section 2 CRR.

Originator

As was the case in the previous year, the pbb Group had only one own securitisation transaction from 2007 in its portfolio as of the reporting date; namely the synthetic securitisation transaction Estate UK-3. In February 2007, a predecessor institution of pbb (Hypo Real Estate Bank International AG, which was merged with pbb) securitised a credit portfolio in Great Britain within the framework of the synthetic securitisation transaction Estate UK-3, and thus hedged credit risks. The UK credit portfolio is hedged by means of a financial guarantee of a major credit institution for the super senior tranche and by issued credit-linked notes (CLN) for the remaining tranches. The portfolio consisted of thirteen loans, which financed 110 commercial properties. The transaction was concluded with a maturity of 15 years (maturity 2022), the originally securitised total volume amounted to € 813 million. The secured party of the transaction is pbb.

The primary motivation behind the bank’s own securitisation programmes in the past was to achieve risk and capital relief (reduction of credit risks) and to manage the credit portfolio by limiting or removing risk concentrations. In this sense, pbb has securitised its own sub-portfolios in its role as originator. This was the complete or partial transfer of the credit risks of selected pre-defined credit portfolios to the capital market.

Securitisations are divided into securitisation transactions with transfer of receivables (so-called traditional securitisations or true-sale securitisations) and securitisation transactions without transfer of receivables (so-called synthetic securitisations). In the case of synthetic securitisations, the risks are transferred by means of collateral in the form of guarantees or credit derivatives; in the case of traditional securitisations, this is achieved by the sale (true sale) of balance sheet assets.

In accordance with Article 449 letters n(i) and p CRR, the two following tables show own receivables securitised by the pbb Group in its role as originator for which risk-weighted securitisation positions are determined in accordance with Articles 245 to 266 CRR.

Table 52: Total amount of ssecuritised receivables

All figures in € million

Underlying portfolio	Originator				Sponsor	
	Banking book		Trading book			
	True sale securitisations	Synthetic securitisations [1)]	True sale securitisations	Synthetic securitisations [1)]	Banking book	Trading book
Real Estate loans	-	178	-	-	-	-
Of which commercial real estate loans	-	178	-	-	-	-
Of which residential real estate loans	-	-	-	-	-	-
Of which commercial and residential real estate loans	-	-	-	-	-	-
Public sector investment finance	-	-	-	-	-	-
Resuritisation	-	-	-	-	-	-
Total	**0**	**178**	**0**	**0**	**0**	**0**

1) Total amount of generated securitisation positions.

The total amount of securitisation positions as of 31 December 2017 amounted to € 178 million (31 December 2016: € 189 million), broken down over six classes with sequential loss allocation. In addition to scheduled repayments, the reduction in volume is due to changes in the exchange rate between the issue currency (Sterling - GBP) and the Euro.

The securitisation transactions usually provide for the retention of a small portion of risks in the form of a junior tranche (first loss piece) of the collateral provider. The synthetic securitisation transaction Estate UK-3 contains junior tranches of € 17 million (31 December 2016: € 17 million). The pbb Group does not hold any of the issued credit-linked notes. All credit-linked notes (including the junior tranches) have been sold to investors.

Based on the previous table “Total amount of securitised receivables”, the following table shows the non-performing and past due receivables of the loans securitised by the pbb Group as originator as well as the related actual losses which were incurred in the financial year 2017.

Table 53: Non-performing/past due receivables and losses from securitised receivables

All figures in € million

Underlying portfolio	Securitised receivables as Originator			
	Banking book		Trading book	
	Non-performing/ past due	Losses	Non-performing/ past due	Losses
Real Estate loans	128	-	-	-
Of which commercial real estate loans	128	-	-	-
Of which residential real estate loans	-	-	-	-
Of which commercial and residential real estate loans	-	-	-	-
Public sector investment finance	-	-	-	-
Resuritisation	-	-	-	-
Total	**128**	**0**	**0**	**0**

The classification “non-performing/past due” applies to underlying past-due receivables where the obligor failed to meet his contractually agreed payment of interest or principal or where another default event as defined by CRR occurred or an individual value adjustment was created in relation to the receivable as of the reporting date. As distinct to the non-performing and past due receivables, “losses” show the use of individual value adjustments for underlying receivables, i.e. the write-downs on capital, interest or cost recognised in relation to these receivables in the financial year.

The largest single loan in the UK credit portfolio, a real estate loan underlying the securitisation transaction Estate UK-3 with an exposure at default (EAD) of € 128 million, is non-performing or shows a default event. The collateral underlying the loan (commercial real estate properties) was sold in 2016. The realised proceeds were considerably lower than the original value of the collateral. The default-related loss is approximately GBP 114 million (approx. € 128 million as of 31 December 2017). At the end of November 2016, pbb notified the auditing company Deloitte, the trustee of Estate UK-3, that the loss should be attributed to the investors (CLNs). Deloitte then notified pbb that, in the opinion of Deloitte, there are doubts as to whether the loss allocation intended by pbb is allowable and that Deloitte will appoint an expert in accordance with the conditions of the Estate UK-3 to determine the allowability of the loss allocation. If the loss allocation is wholly or partly inadmissible, the loss would thus have to be borne by pbb. The expert was mandated by Deloitte in mid-2017, and the expert process is currently still ongoing. pbb is still of the opinion that the criteria for complete allocation of the loss are satisfied.

The pbb Group did not provide any support beyond the contractual obligations in accordance with Article 248 (1) CRR.

Securitisation positions from revolving default exposures

The pbb Group was not involved in securitisation positions featuring a securitised portfolio of revolving default exposures (early amortisation approach) in accordance with Article 265 CRR. This information is therefore not disclosed in accordance with Article 449 letter n (iv) CRR.

Securitisation transactions without effective risk transfer

As was the case in the previous year, the pbb Group did not have any of its own securitisation transactions without effective risk transfer in its portfolio in accordance with Article 243 f CRR at the end of 2017.

Securitisation special-purpose entities

As was the case in the previous year, the pbb Group did not use any SSPEs as of 31 December 2017 as defined in Article 449 letter i CRR which invested in securitisation positions of those securitisation transactions for which the pbb Group is considered to be the originator. The pbb Group also does not work with securitisation special-purpose vehicles (SPVs) serving as sponsors in order to securitise third-party positions.

Risk-weighted securitisation position values and own funds requirements

As was the case in the previous year, the risk-weighted receivables and own funds requirements for retained or acquired securitisation positions amounted to € 0 as of 31 December 2017. With the synthetic securitisation transaction, the pbb Group did not achieve any relief from the risk-weighted assets in accordance with CRR (RWA of the real estate loans less RWA of the securitisation positions). The expected loss reduction amounted to € 154 million (31 December 2016: € 161 million).

Risk management for securitisation positions

Credit and market risk

As was the case in the previous year, the ongoing monitoring of investments in securitisations in accordance with Article 449 letter f CRR, i.e. the changes in the credit and market risk of securitisation and re-securitisation positions, is not relevant for the pbb Group as of the reporting date.

Liquidity risk

The liquidity risk in connection with securitisations comprises the investor activities as well as the originator activities of so-called special-purpose vehicles (SPVs). As was the case in the previous year, the pbb Group was not subject to such a liquidity risk as of 31 December 2017. The business strategy of the pbb Group does not allow for new investments in SSPVs, so that it is not possible for liquidity risks to arise from these types of transaction. Such information is therefore not disclosed in accordance with Article 449 letter b CRR.

Accounting and valuation methods for securitisations (according to IFRS)

Originator

The pbb Group makes a distinction between securitisation transactions with a transfer of receivables (so-called traditional securitisations or true-sale securitisations) and securitisation transactions without a transfer of receivables (so-called synthetic securitisations).

In the case of traditional securitisations (true-sale transactions), the risk transfer and capital relief are achieved by selling balance sheet assets ("true sale"). The assets are derecognised in accordance with the disposal concept of IAS 39 once essentially all opportunities and risks have been transferred to a third party. Any differences between the carrying amount and the sale price, i.e. gains or losses resulting from a disposal, are recognised immediately in the income statement.

On the other hand, in the case of synthetic securitisations, the pbb Group retains ownership of the balance sheet assets, and the securitised portfolio is not derecognised in accordance with IFRS. The transferred assets must not be derecognised as the disposal criteria in accordance with IAS 39 are not met. The underlying receivables continue to be recognised in the relevant IFRS category and are thus stated in the balance sheet of the pbb Group. These receivables continue to be recognised and valued in accordance with the rules of the relevant IFRS category.

Investor

As was the case in the previous year, the pbb Group did not have any investor securitisation positions in its portfolio as of 31 December 2017.

Securitisation transactions using special-purpose vehicles

As was the case in the previous year, the pbb Group did not use any securitisation special-purpose vehicles as of 31 December 2017.

Derivatives in connection with securitisations

The pbb Group analyses securitisation transactions in order to identify any embedded derivatives which have to be separated. This is for instance the case where the credit risk of the receivables underlying a securitisation is transferred to a special-purpose vehicle using a derivative, and this special-purpose vehicle does not become the owner of the assets.

In accordance with IAS 39.11, an embedded derivative has to be separated from the underlying contract and must be valued separately if, in addition to other criteria, the economic features and risks of the embedded derivative are not closely linked to the economic features and risks of the underlying contract. The economic risks of the underlying transaction and the embedded derivative are assessed in order to verify whether a separation obligation exists.

Embedded derivative financial instruments within a securitisation product which have to be separated are separated from the basis contract, and are recognised and valued as separate derivative financial instruments in accordance with the regulations of IAS 39. The underlying contract is then recognised in accordance with the applicable category. The changes in value of the separated derivatives measured at fair value are recognised in the income statement.

Securitisation activities in the reporting period

As was the case in the previous year, the pbb Group did not carry out any new securitisation transactions with an effective risk transfer in 2017 in accordance with Article 244 (2) CRR; accordingly, no such information is disclosed in accordance with Article 449 letter n (vi) CRR.

Assets earmarked for securitisation

At present, the business strategy of the pbb Group does not define new securitisations as a company objective. Accordingly, the pbb Group has not planned any new securitisations of its own receivables for the financial year 2018; no such information is therefore disclosed in accordance with Article 449 letters n (iii) and j (v) CRR.

6 Market risk

6.1 Management of market risk

Definition

Market risk is defined as the risk of a loss of value resulting from the fluctuation of the market values of financial instruments. Transactions entered into by pbb Group are mainly exposed to the following types of market risk:

- Credit spread risk (risk from changes in credit spreads)
- General interest rate risk (risk from changes in market interest rates)
- Volatility risk (risk from changes in implied volatility)
- Foreign currency risk (risk from changes in foreign exchange rates)
- Basis risk (risk from changes in OIS spreads, tenor spreads, and cross-currency basis spreads)
- Concentration risk (risk of additional losses due to a non-diversified portfolio mix).

Risk strategy

pbb Group adheres to the following fundamental principles in relation to market risks:

- Transactions may be conducted exclusively in financial instruments which have successfully passed the new product process, and for which market values are either observable or determinable via a model.
- All positions entered into are subject to daily monitoring, in terms of value-at-risk (VaR) and performance, by Risk Management & Control (RMC).
- The measurement and monitoring of interest rate risk, with regard to period net interest income, was added in 2017.

Organisation

Positions are monitored by the RMC unit, which is separated from trading in the structural organi- sation, right through to senior management.

Risk reporting

RMC prepares detailed market risk reports for various recipients, on a daily basis:

- The daily Market Risk Report is addressed to the Management Board of pbb Group in particular. It outlines value-at-risk (VaR) attributable to market risk, limit utilisations and economic perfor- mance figures across all relevant levels of the portfolio structure.
- Daily sensitivity reports comprise analyses for the main risk factors, at various levels of detail. They are also made available to the Management Board.

Risk quantification – Market risk measurement and market risk limitation

Market risk – Value-at-Risk

RMC determines VaR attributable to market risk, at an overall as well as partial portfolio level, on a daily basis, using a simulated model based on historical data. All positions are taken into account for determining VaR, whereby the credit spread VaR from items classified under IFRS category Loans & Receivables is not taken into consideration within market risk, but in credit risk.

- The simulation model is based on historical market data of the past seven years, which is incor- porated in the simulation with an equal weighting.
- Individual types of market risk are aggregated to form a total VaR, which forms the basis of limit monitoring.
- For the purposes of daily operational risk management, VaR is determined using a holding period of ten days and a one-sided 99 % confidence interval.

Market risk VaR as at end of 2017 amounted to € 66 million, taking diversification effects between the individual market risk types into consideration (end of 2016: € 74 million). There were no breaches of market risk VaR limits at pbb Group level during the period under review. As part of regular adjustments the market risk limit was left unchanged at €100 million.

The VaR assessment is complemented by additional tools, such as sensitivity analysis, stress tests and back-testing.

Sensitivity analyses

Overnight yield curves are used for the purposes of measurement relevant to sensitivity analyses. Sensitivity analyses quantify the impact of changes in individual market parameters upon the value of positions. For instance, the credit spread sensitivity provides an indication of the change in economic present value which results from a one basis point increase in the credit spreads which are relevant for measurement purposes.

Stress testing

Whilst VaR measures market risk in «normal» market conditions and does not provide a measure for potential maximum losses, stress scenarios are used to show market risk in extreme conditions. pbb Group employs hypothetical stress scenarios for key risk drivers, on a monthly basis, to determine the impact of extreme changes in yield curves, foreign exchange rates, credit spreads and volatility on the economic present value of pbb Group's overall portfolio. Historical stress scenarios are simulated additionally. A 200 basis point parallel upwards or downwards shift in the yield curve would have resulted in a maximum market value loss of € 239 million across all of pbb Group's positions (31 Dec 2016: maximum market value loss of € 60 million). The change was largely attributable to an extension of the average maturity applied to the notional investment of reported equity in high-quality fixed-income assets, whereby the size of such equity investment was adapted to the amount of reported equity. An extreme widening in the relevant credit spreads – given the scenarios applied by pbb internally – would have resulted in market value losses of € 231 million as at end of 2017. The Management Board and the executive bodies are informed about the results of stress test scenarios on a regular basis.

Back testing

The quality of the risk measurement methods in use is checked on an ongoing basis by comparing one-day VaR figures to the actual changes occurring in the portfolio's present value on a daily basis. pbb Group has adopted the Basel Capital Accord's "traffic light" system for the qualitative analysis of its risk model. For this purpose, the num-ber of outliers detected in backtesting within a period of 250 trading days are counted. As at end of 2017, based on a data history of 250 trading days, no outliers were observed. The risk model employed by pbb Group therefore has "green" status, as defined in the "traffic light" system of the Basel Capital Accord.

Economic capital for market risk

The chapter 4.3 „Economic capital and risk-bearing capacity“ (ICAAP) provides details concerning the calculation as well as the quantification of economic capital for market risk.

Mapping and recognition of economic hedges as on-balance-sheet hedges

The concept of hedge accounting refers to specific accounting rules applicable to hedge relation- ships in accordance with IAS 39, entered into for the purpose of neutralising the change in value of the hedged underlying transaction against the change in value of the hedging instrument to a large extent. The criteria set out in IAS 39 must be satisfied for a hedge to be recognised accordingly. To a certain extent, these criteria – such as the requirements relating to hedge effectiveness – are inconsistent with the methods applied to bank management. As a result, there may be differences between economic hedges and hedge relationships recognised on the balance sheet.

Risk management, monitoring and mitigation

pbb Group uses a three-pillar approach for managing and monitoring market risk:

- Management of positions maintained by the Treasury
- Risk measurement and monitoring compliance with limits by RMC and
- Escalation processes across all decision-making bodies, right through to the Management Board.

For all positions, market risk is monitored through a combination of value-at-risk (VaR) limits and monitoring of sensitivities by Risk Management & Control (RMC), which is independent from trading units.

General interest rate risk

General interest rate risk was at € 38 million as at end of 2017 compared to € 33 million as at end of 2016.

Volatility risk

VaR used for the measurement of volatility risk amounted to € 4 million as at year-end 2017 (end of 2016: € 9 million). The decline was largely due to rising interest rates, and with the associated reduction in the risk of changes in the value of legal or contractual interest rate floors in connection with financial instruments bearing variable rates of interest.

Credit spread risk

Credit spread risk reflects potential changes in the present value of exposures as a result of changes in the corresponding credit spread. The majority of credit spread risk is attributable to assets eligible as cover for Pfandbriefe. The Bank has risk measurement systems in place for calculating credit spread risk for all relevant exposures. Only credit spread risks of holdings classified as available for sale (AfS) are subject to market risk VaR limitation. Positions classified as Loans and Receivables (LaR), however, are not subject thus.

The credit spread VaR amounted to € 88 million at the end of December 2017 (as at end of 2016: € 100 million).

Other market risks

The present value of foreign currency risk was € 11 million as at end of 2017 (end of 2016: € 12 million).

Basis risks include OIS, cross-currency spread and tenor spread basis risks (including Libor/Euribor basis risks); these are quantified and recognised within the framework of the VaR model. All basis risks are included in aggregate VaR and are therefore subject to market risk limitation. The bank reported overnight index risks of € 5 million, tenor spread risks of € 0.4 million, and cross-currency spread risks of € 2 million on the reporting date. The bank is not exposed to share price or commodity risks. Financial derivatives are mainly used for hedging purposes.

Opportunities

As detailed above, the sensitivities result in value at risk: a possible future (economic) loss in the event of an unfa-vourable market development. The very same sensitivities may also result in eco- nomic gains, in the event of a positive market development. For instance, as described above, high negative credit spread sensitivities represent a risk. In the event of a narrowing of the relevant credit spreads, however, these credit spread sensitivities will yield economic profits, constituting an opportunity.

Outlook

Communications by BaFin, the EBA and the Basel Committee on Banking Supervision – whether already published or still planned – regarding regulatory requirements concerning interest rate risk in the banking book, as well as planned revisions of the CRD IV and the CRR, will lead to changed requirements for risk management. To the extent that action is required in order to fulfil such new requirements, suitable measures were taken to ensure implementation in good time.

6.2 Own funds requirement for the market risk

In accordance with part 3, title IV of the CRR, market risks must be backed with own funds. The pbb Group still does not maintain a trading book for portfolios with the aim of achieving short-term profits. Accordingly, the transactions of the pbb Group are exclusively subject to the own funds requirements for the foreign currency risk of the banking book, as detailed in the following table in accordance with Article 445 CRR in conjunction with EU MR1 of the EBA/GL/2016/11. The pbb Group uses the standard approach in accordance with Article 325 et seq. CRR for calculating the own funds requirement for market risks.

The own funds requirement for market risks amounted to € 30 million as of the reporting date (31 December 2016: € 28 million).

Table 54: Market risk under the standardised approach (EU MR1)

All figures in € million

	Market risk Standardised approach	**Risk-weighted assets (RWA)**	**Minimum capital requirement**
		a	b
	Outright products		
1	Interest rate risk (general and specific)	-	-
2	Equity risk (general and specific)	-	-
3	Foreign exchange risk	370	30
4	Commodity risk	-	-
	Options		
5	Simplified approach	-	-
6	Delta-plus method	-	-
7	Scenario approach	-	-
8	Securitisation (specific risk)	-	-
9	**Total**	**370**	**30**

1) pbb does not maintain a trading book for securities or derivatives portfolios held to realise short-term gains.

The pbb Group currently does not use its own internal models. Accordingly, disclosure in accordance with Article 455 CRR in conjunction with EU MRB, EU MR2-A and EU MR2-B, EU MR3 and EU MR4 of the guidleines EBA/GL/2016/11 is not relevant for the pbb Group.

6.3 Interest rate risk in the banking book

Unlike the situation with credit risks, other market risks (foreign currency risks) or operational risks, there is no provision in the CRR for regulatory own funds backing for the interest rate risk in the banking book. pbb is subject to direct supervision by the European Central Bank (ECB), and is therefore also not required to comply with the additional own funds requirements for interest rate risks in the banking book in accordance with the general ordinance of the BaFin of 23 December 2016 (reference: BA 55-FR 2232-2016/0001). On the other hand, pbb fulfils the additional own funds requirements and capital requirements in accordance with the Supervisory Review and Evaluation Process (SREP) of the ECB.

Notwithstanding the fact that there is no provision for own funds backing, the methods and processes used by the pbb Group for the interest rate risk in the banking book are the same as those used for measuring market risk, as described in detail in the prior chapter 6.1 “Market risk management”.

At the pbb Group, the interest rate risk in the banking book is determined by Risk Management & Control on a daily basis, independently of trading. All rate-sensitive positions of the banking book are considered for this purpose. Compliance with Value at Risk (VaR) limits is monitored and reported to the Management Board of pbb. In accordance with the regulatory requirements, the equity components which are not interest-bearing (liabilities side) are not considered (see circular 11/2011 of the BaFin “Zinsänderungsrisiken im Anlagebuch; Ermittlung der Auswirkungen einer plötzlichen und unerwarteten Zinsänderung”). However, the assets of these resources are included. In addition, assumptions regarding the retention period of value adjustments which have been created as well as their period of interest rate fixation are also made. No specific assumptions are made with regard to premature repayment of loans.

In accordance with Article 448 letter b CRR, the following table shows the interest rate risk in the banking book, i.e. the increase or decrease in the present values in the event of an interest rate shock. The changes in present values are broken down according to currencies. Foreign currencies with changes in present values which are immaterial in stress cases are pooled under the heading “Other”.

Table 55: Interest rate risks in the banking book

All figures in € million

	Interest rate risk in the banking book by currencies	Present value change 31.12.2017		Present value change 31.12.2016	
		Decline in interest - 200 Bp	Increase in interest + 200 Bp	Decline in interest - 200 Bp	Increase in interest + 200 Bp
		a	b	c	d
1	EUR	-80	-227	-63	101
2	USD	10	-9	-1	2
3	SEK	1	-4	-	-3
4	CHF	-	-2	-	-1
5	GBP	-1	2	3	-15
6	JPY	-	1	-	-
7	Other	-	-	-	-
8	**Total**	**-70**	**-239**	**-60**	**84**

Overall, for interest stress scenarios of + 200 basis points/- 200 basis points, the pbb Group shows a negative present-value change potential in the banking book of € 239 million under the above assumptions as of 31 December 2017. This present-value change occurs in the event of an interest-rate change of + 200 basis points and represents a significant change compared with the previous year (31 December 2016: € -60 million; calculated for an interest-rate change of - 200 basis points).

The changes compared with the previous-year figures are essentially attributable to the fact that the average duration of the theoretical investment of shareholders’ equity in fixed-income assets of high quality was extended and that the volume of the capital investment was brought into line with the amount of shareholders’ equity shown in the balance sheet. This has increased the present-value loss potential of an increase in interest rates. The asymmetry between profit and loss potential is mainly due to the fact that the described 200 basis point downward shift in accordance with the regulatory requirements takes place up to a maximum rate of 0 % and negative interest rates are not shifted. However, the upward shift of the curves is always 200 basis points.

7 Liquidity risk

7.1 Management of liquidity risk

Definition

Liquidity risk is defined as the risk of not being able to meet the amount and/or due dates of existing or future payment obligations, in full or on time.

Internal liquidity adequacy assessment process

In accordance with the Supervisory Review and Evaluation Process (SREP), Deutsche Pfandbriefbank AG has conducted an Internal Liquidity Adequacy Assessment Process (ILAAP), which was examined and approved by the Management Board. The ILAAP ascertains that all material liquidity and funding risks can be identified, measured and monitored, and that measures to prevent a liquidity shortage are taken in good time if required.

Risk strategy

The Management Board determines both the risk strategy as well as the risk appetite of pbb Group. The liquidity risk strategy is a key component of pbb Group's risk strategy. It is broken down into various modules (comprising various liquidity scenarios, given certain market conditions and stress parameters). This ensures that the Group's short- and medium-term funding is monitored and managed by means of a limit system. The limits are defined as part of the annual business planning process, approved by the Management Board.

Organisation

Risk Management & Control (RMC) identifies, measures, reports and monitors liquidity risk. The Treasury department, which is independent from RMC, is responsible for managing liquidity risk. The processes and methods employed are reviewed on a regular basis by the Risk Committee and the Asset Liability Committee. Liquidity Risk cannot be calculated and reported at a business segment level.

Risk reporting

Liquidity management reports are prepared daily and submitted to the entire Management Board, as well as to the Joint Supervisory Teams (JSTs) of ECB and national competent authorities. The reports contain up-to-date information on the day's liquidity situation as well as forecasts made using contractual cash flows and in recognition of future events that could potentially influence liquidity developments.

Risk quantification – Liquidity risk measurement and limitation

To manage liquidity risks, pbb has established a system for measuring and limiting short-term and medium-term variances within cash flows. This incorporates both contractual as well as optional cash flows. The data is subject to regular back-testing.

The liquidity position resulting from the liquidity reserve as well as contractual and optional cash flows is measured in different scenarios, with three liquidity positions being projected on a daily basis. The projections assume:

- unchanged market and funding conditions (base scenario),
- a risk scenario (modified [historical] stress scenario) and
- liquidity stress ([historical] stress scenario).

For instance, the risk and the (historical) stress scenario simulate possible client behaviour in "stress situations". Historical time series are used to calculate 95 % and 99 % quantiles.

Liquidity risk triggers (early warning indicators) have been defined for a 24-month horizon in the base scenario. Limits in the risk and the (historical) stress scenario are applicabel for a six- respectively three-month horizon.

The limit system consists of:

- Limits relating to the liquidity stress profile (risk scenario and (historical) stress scenario) and
- Triggers for the base scenario as well as the six-month bucket of [historical] stress-szenario.

In addition to reporting, pbb Group uses stress tests, conducted at regular intervals, for investigating the impact of additional stress events on the liquidity position.

Scenario analyses are performed to simulate the potential impact of crises attributable to macro- economic, monetary policy or political crises on the liquidity situation.

The scenarios are reported to the Management Board, as well as to external bodies such as the Joint Supervisory Teams (JSTs) of ECB and national competent authorities.

Risk monitoring and risk management

Monitoring of liquidity risks is ascertained through daily reporting of the liquidity situation and a defined escalation process. A liquidity emergency plan has also been adopted in this context; this plan forms the functional and organisational framework for the handling of any liquidity shortages. The liquidity emergency plan is part of the pbb Recovery Plan and updated at least annually.

Liquidity risk management is based on various interconnected components (daily and monthly liquidity reports), which are based on a “liquidity risk tolerance” defined by the Management Board. This ensures that pbb Group has adequate liquidity reserves at its disposal.

Risk hedging and risk mitigation

A risk tolerance system is in place, to limit liquidity risk. Risk tolerance is integrated in the liquidity management process by means of triggers (limit system), in order to safeguard a “survival period” for pbb Group in stressed conditions.

The limits applicable for risk tolerance are determined in line with stress scenarios, and adjusted at regular intervals.

Opportunities

pbb Group’s cumulative liquidity position of € 7.0 billion in the base scenario over a 12-month horizon, which is detailed in the chapter 7.2 “Liquidity risk development”, section “Development of pbb Group’s risk position”, as at 31 December 2017 provides the Group with scope for a flexible response, particularly with regard to possible new business.

If the external factors specified in the chapter 7.2 “Liquidity risk development”, section “Forecast liquidity requirement”, were to develop favourably for pbb Group, this would result in a lower future liquidity requirement.

7.2 Liquidity risk development

Development of pbb Group's risk position

The cumulative liquidity position (liquid assets plus projected net cash flows) determined as part of the liquidity risk measurement process as at 31 December 2017 amounted to € 7.0 billion for a 12-month horizon in the base scenario – a € 0.2 billion increase compared to the previous year (based on the same projection horizon). As at 31 December 2017, the cumulative liquidity position for a six-month horizon amounted to € 2.5 billion in the risk scenario (31 December 2016: € 3.5 billion).

pbb's liquidity indicator pursuant to the German Liquidity Regulation (Liquiditätsverordnung – "LiqV"),on a stand-alone level, was 2.0 as at 31 December 2017, thus exceeding the legally required minimum of 1.0.

Regulatory liquidity coverage requirements (Liquidity Coverage Ratio, LCR)

pbb monitors the regulatory liquidity coverage requirement in addition to its internal liquidity risk metrics. With an (internal) ratio that exceeds minimum regulatory requirements, this forms part of pbb's risk tolerance system.

A minimum Liquidity Coverage Ratio (LCR) of 80 % has applied to regulatory liquidity reports since 1 January 2017; this minimum value will rise to 100 % by 1 January 2018. The figures determined for pbb Group were clearly above 100 % throughout 2017. The Liquidity Coverage Ratio as of 31 December 2017 was at 187 %.

Further detailed information can be found in the chapter 7.3 „ Liquidity coverage ratio ".

Funding markets

Please refer to the "Report on the economic position" in the Annual Report 2017 of the pbb Group for details concerning developments on funding markets, and changes in pbb's funding volumes during the year under review.

Forecast liquidity requirement

In addition to the forecast liquidity requirement for new business activities, the extent of future liquidity requirements also depends on numerous external factors:

- Further developments in the context of the European financial crisis and negotiations on Brexit and possible effects on the real economy
- Future developments of haircuts applied to securities for repo funding on the market, and with central banks
- Possible additional collateral requirements as a result of changing market parameters (such as interest rates and foreign exchange rates)
- Developments in requirements for hedges
- Changed requirements from rating agencies regarding the necessary over-collateralisation in the cover pools
- Refinancing requirements of real estate investors.

Funding risk

Please refer to the description of business risk in the chapter 4.3 "Economic capital and risk-bearing capacity" (ICAAP) for details concerning funding risk.

Market liquidity risk

For financial instruments, quantitative details for a better assessment of market liquidity risk can be obtained from the presentation of the three levels of the fair value hierarchy in the notes. Generally, there is no intention to sell LaR holdings for liquidity management purposes, as liquidity for these holdings can mainly be generated by way of including them in the cover pool, using the funding opportunities provided by the central bank, or using them in repo transactions. Market liquidity risk is included in the internal risk management process as part of market risk.

7.3 Liquidity coverage ratio

The liquidity coverage ratio (LCR) is defined as the liquidity buffer of an institution (i.e. holdings of high-quality liquid assets) divided by its net liquidity outflows during a stress phase of 30 calendar days, and is expressed as a percentage. The ratio is calculated on the basis of the requirements of the Delegated Regulation (EU) 2015/61 of the Commission of 10 October 2014 for complementing the (EU) Directive No. 575/2013 of the European Parliament and Council regarding the liquidity coverage requirement of credit institutions.

In accordance with Article 412 CRR, the aim of the LCR is to oblige institutions to maintain a liquidity buffer in the form of highly liquid assets in order to be able to compensate for net outflows of cash over a period of 30 days in a stress scenario. The defined stress scenario comprises market-wide as well as institution-specific effects. In stress periods, institutions are permitted to use their liquid assets to cover their net liquidity outflows, even if such use of liquid assets would mean that the liquidity coverage ratio in such phases would fall below the minimum threshold of 100 % which has been applicable since 2018.

In accordance with the transitional regulation for the introduction of the liquidity coverage ratio, a minimum threshold of 80 % has been specified for the LCR since 1 January 2017; this figure has increased to 100 % since 1 January 2018. The figures determined (internally) for the pbb Group were considerably higher than 100 % in 2017. The liquidity coverage ratio was 187 % as of 31 December 2017.

In accordance with Article 435 (1) CRR in conjunction with the guidelines EBA/GL/2017/01 of the European Banking Authority (EBA), the following table shows the information concerning the LCR for the pbb Group. In accordance with point 20 of the EBA/GL/2017/01, the information comprises the figures and the relevant numbers for each of the four calendar quarters before 31 December 2017. These figures and numbers have to be calculated as simple average figures of the month-end details collated over the twelve months before the end of each quarter.

Table 56: Liquidity coverage ratio (EU LIQ1)

All figures in € million

Liquidity Coverage Ratio (LCR) pbb Group		Total unweighted value (12-month-average) 1)				Total weighted value (12-month-average) 1)			
	Quarter ending on:	31.12.2017	30.09.2017	30.06.2017	31.03.2017	31.12.2017	30.09.2017	30.06.2017	31.03.2017
	Number of data points used in the calculation:	12	12	10	7	12	12	10	7
		a	b	c	d	e	f	g	h
High-quality liquid assets									
1	Total high-quality liquid assets (HQLA)					6,793	6,713	6,641	6,584
Cash-outflows									
2	Retail deposits and deposits from small business customers	881	924	957	957	132	124	124	125
3	Stable deposits								
4	Less stable deposits	881	924	957	957	132	124	124	125
5	Unsecured wholesale funding	856	950	1,053	1,195	703	783	879	1,012
6	Operational deposits (all counterparties) and deposits in networks of cooperative banks	-	-	-	-	-	-	-	-
7	Non-operational deposits (all counterparties)	508	564	604	644	355	397	430	461
8	Unsecured debt	348	386	449	551	348	386	449	551
9	Secured wholesale funding					179	251	301	430
10	Additional requirements	544	535	532	511	497	500	509	503
11	Outflows related to derivative exposures and other collateral requirements	492	496	506	502	492	496	506	502
12	Outflows related to loss of funding on debt products	-	-	-	-	-	-	-	-
13	Credit and liquidity facilities	52	39	26	9	5	4	3	1
14	Other contractual funding obligations	81	87	81	75	64	70	64	58
15	Other contingent funding obligations	4,096	3,892	3,881	3,925	1,515	1,425	1,387	1,470
16	**Total cash outflows**					**3,090**	**3,153**	**3,264**	**3,598**
Cash-inflows									
17	Secured lending (e.g. reverse repos)	-	-	-	-	-	-	-	-
18	Inflows from fully performing exposures	147	207	225	261	121	162	176	202
19	Other cash inflows	174	209	225	165	174	209	225	165
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 specialised credit institution)					-	-	-	-
20	**Total cash inflows**	**321**	**416**	**450**	**426**	**295**	**371**	**401**	**367**
EU-20a	Fully exempt inflows	-	-			-	-	-	-
EU-20b	Inflows subject to 90% cap	-	-			-	-	-	-
EU-20c	Inflows subject to 75% cap	321	416	450	426	295	371	401	367
21	**Liquidity buffer**					**6,793**	**6,713**	**6,641**	**6,584**
22	**Total net cash outflows**					**2,795**	**2,782**	**2,863**	**3,231**
23	**Liquidity Coverage Ratio (in %)**					**243%**	**241%**	**232%**	**204%**

1) The values and figures shall be calculated in accordance with EBA/GL/2017/01 as simple averages of the end-of-month surveys over the 12 months preceding the end of each quarter.
For the first-time disclosure of the template EU LIQ1 as at 31 December 2017, the number of calculated data points for the individual quarters is not yet uniform, as there are not enough data points available yet.

The pbb Group uses a wide range of refinancing sources, including deposits of private and institutional customers, issues on the capital markets as well as the raising of secured and unsecured funds via wholesale refinancing arrangements, whereby the main emphasis is on issues of Pfandbriefe.

As of 31 December 2017, the liquidity reserves of € 6,877 million consisted of highly liquid level 1 assets; for the year 2017, this figure was on average € 6,793 million. Level 1 contains eligible deposits at the Deutsche Bundesbank, bonds of central governments, regional or local authorities, public-sector bodies, multilateral development banks and international organisations as well as credit institutions with government guarantees.

In 2017, cash flows of derivative positions on average accounted for only a minor percentage of the overall net cash flows. The pbb Group uses a historic look-back approach as the method for calculating the potential backing requirements for derivatives, i.e. backing requirements observed in the past are analysed and used for deriving a conservative assumption for potential future backing requirements. On average of last year, this assumption was € 420 million. Possible rating changes are not expected to have any significant impact on the provision of collateral.

The sensitivity of the currency cash flows does not have any major impact on the liquidity position of the pbb Group. In line with the definition of the Basel Committee on Banking Supervision (BCBS), the currency positions of the pbb Group are not considered to be significant.

The table EU LIQ1 for the liquidity coverage ratio (LCR) contains all positions relevant for the LCR calculation. pbb is the only credit institution of the pbb Group. Liquidity management is carried out exclusively by pbb.

8 Operational risk

8.1 Management of operational risk (including legal risk)

Definition

According to Regulation 575/2013/EU (CRR) pbb defines the operational risk as follows: “the risk of loss resulting from inadequate or failed internal processes, people and systems or from external events, including legal risk”. Furthermore, pbb recognises the following risks within the operational risk category: behavioural risk, reputational risk, outsourcing risk, model risk, risks associated with information and communication technologies (ICT Systems risk), as well as data quality risk.

Risk strategy

The top priority of pbb Group’s operational risk management is to prevent operational risk events and to meet the defined risk appetite. Key cornerstones of this strategy are the early recognition, systematic recording and assessment of operational risk, taking measures for risk mitigation as well as implementing early management reporting. The operational risk management strategy is adopted by the Management Board on an annual basis as part of the overall risk strategy, after the Risk Committee voting. The risk strategy describes the risk management framework as well as pbb Group’s measures regarding operational risk.

Organisation

pbb Group actively manages operational risk by way of a consistent Group-wide framework based on the principle of three lines of defence. In this context, the risk owners – meaning heads of divisions – are responsible for managing operational risk, and for implementing risk-mitigating measures within the various business units (first line of defence). Specifically, Legal is responsible for managing legal risks, whilst the IT and Corporate Office/Compliance divisions are responsible for managing ICT systems risk and outsourcing risk.

Compliance and RMC form the second line of defence. Within RMC, the Operational Risk unit is responsible for uniform procedures, instruments and methods for identifying, assessing, monitoring, quantifying and reporting on operational risk throughout the Group. Internal Audit constitutes the third line of defence.

Risk reporting, risk monitoring and risk management, risk mitigation

Risk management is applied to all business processes in an overall approach. In particular, operational risk is analysed and assessed explicitly as part of major decision-making processes (such as new product processes and outsourcing agreements).

Operational risk is managed using a variety of procedures, instruments and methods deployed throughout the Group: this includes recording and analysing internal and external loss data, operational risk self-assessments (ORSA) and scenario-based analyses.

A structured and central reporting system is used to inform the Management Board and the division heads, the Risk Committee and other supervisory bodies concerning risk events on a regular, timely and comprehensive basis. Reports are prepared both ad-hoc (where material risk events are escalated) as well as on a monthly basis (Group Risk Report), on a quarterly (Key Risk Indicator Report) or annual (Annual Risk Report) basis, and are part of risk reporting to the entire Management Board, and the division heads. Operational risk reporting encompasses material loss events and near-losses, analyses of causes, top risk issues, development of risk indicators and of capital requirements, as well as the results from ORSA and scenario analyses.

Management of legal risk, as performed by the Legal department, is aimed at a prevention of losses which could be incurred if business activities of pbb Group are not documented with legal certainty. In order to achieve this goal, the Legal department provides business units with a forward-looking, comprehensive and business-driven consultancy service.

The Legal department assists business divisions by monitoring developments in the relevant legislation and case law, and reviews the effects of such developments on new and existing business. The results are discussed with the responsible divisions and/or in the Legal and Regulatory Risk Committee. The Legal Policy describes the roles and responsibilities of the Legal department within pbb Group and serves as a guideline for employees in the Legal department.

Furthermore, the Legal department gives an assessment towards the respective business divisions whether provisions for pending legal cases have to be recognised. Provisions for legal risks are recognised in accordance with IAS 37 and section 249 HGB if (a) an obligation of pbb Group is probable, and (b) a reliable estimate can be made of the amount of the obligation. According to IAS 37.15, it is not clear whether there is a present obligation in rare cases. In such cases, pbb takes into account all available evidence, including the opinion of experts, to assess whether provisions have to be recognised at the reporting date.

Moreover, the OpRisk loss database captures losses from – and provisions for – legal risks which need to be seen in conjunction with operational risk events. Overall, legal risks are taken into consideration in the existing operational risk management framework, and are an integral part of, inter alia, the Key Risk Indicator Report, the Operational Risk Self-Assessment (ORSA), the analysis and reporting of risk events, as well as for determining economic capital.

Risk quantification

Please refer to the chapter 4.3 “Economic capital and risk-bearing capacity” (ICAAP) for further details on the quantification of operational risk including legal risks as well as the calculation results of the economic capital for operational risk.

The own funds requirement for operational risk, which is calculated at the end of each year, is explained in the chapter 8.3 „Own funds requirement for operational risk “.

Opportunities

pbb Group aims to reduce potential operational risk to the extent possible, through continuous development of its operational risk framework and the ongoing optimisation of processes.

8.2 Operational risk profile

pbb Group suffered financial losses of € 4.1 million from operational risks (excluding legal risk) during 2017 (2016: € 0.3 million). Furthermore, pbb disclosed financial losses of €15.9 million from legal risks resulting mainly from net additions to provisions (31 December 2016: € 3.0 million). Furthermore, income of € 7.8 million was recognised upon release of provisions for legal risks. Overall, pbb assesses its operational risk profile (including legal risk) as stable.

8.3 Own funds requirement for operational risk

In order to ensure compliance with the own funds requirements in accordance with the CRR, the operational risk has to be backed with own funds. The pbb Group uses the standard approach in accordance with Article 317 et seq. CRR for calculating the own funds requirement for operational risk.

The relevant indicator for each business unit is determined for the last three financial years in accordance with Article 316 CRR. The corresponding beta factors for each business unit correspond to the values defined in Article 317 CRR. The business units of the pbb Group are limited to corporate client business and retail business, whereby corporate client business makes the relevant contribution to the relevant indicator. The own funds requirement for operational risk is defined as the sum of the respective three-year averages of the relevant indicator per business unit, weighted with the corresponding beta factor.

The regulatory own funds requirement, which is calculated once a year at the end of the year, amounted to € 72 million as of 31 December 2017 (31 December 2016: € 69 million).

9 Outlook

With the Disclosure Report as of 31 December 2017, pbb implemented the disclosure regulations in accordance with the currently applicable regulatory requirements of the CRD IV reform package for the implementation of Basel III in Europe, consisting of the EU Regulation No. 575/2013 (CRR) and the EU Directive 2013/36 (CRD IV). These regulations which came into force in 2014 continue to be subject to comprehensive revision by the Basel Committee on Banking Supervision (BCBS) and the European Union (EU). The objective of the BCBS and the EU is to create a single framework for Pillar 3. The new proposals are intended in particular to further enhance the comparability and consistency of disclosure information and to enable market participants to gain a better assessment of the capital and risk situation of institutions. The revision process which has been implemented by the Basel Committee is broken down into three phases, whereby the first phase has essentially been completed.

Basel disclosure regulations, phase 1

At the end of January 2015, the Basel Committee on Banking Supervision published the final standard "Revised Pillar 3 disclosure requirements" (BCBS 309) of the first phase of revising the disclosure regulations (Pillar 3). On 14 December 2016, the European Banking Authority (EBA) presented its final guidelines on the implementation of these phase 1 regulations in the EU, the "Final Report - Guidelines on disclosure requirements under Part Eight of Regulation (EU) No 575/2013" (EBA/GL/2016/11). The EBA guidelines set out in detail the disclosure obligations in accordance with part 8 of the CRR, and establish the bridge to the CRR for implementation in Europe until this has been revised and until it has been formally implemented in European law.

pbb has already implemented the phase 1 guidelines in this Disclosure Report; it applies these guidelines EBA/GL/2016/11 which are only applicable for global system-relevant institutions (G-SII) and other system-relevant institutions (A-SRI) on a voluntary basis.

pbb has also implemented the other phase 1 regulations, namely the guidelines EBA/GL/2017/01 and the Delegated Regulation (EU) 2017/2295 in this Disclosure Report. pbb applies the guidelines EBA/GL/2017/01 regarding disclosure of the liquidity coverage ratio for complementing the disclosure of liquidity risk management in accordance with Article 435 CRR on a voluntary basis. The Delegated Regulation (EU) 2017/2295 regarding the Regulatory Technical Standard EBA/RTS/ 2017/03 for disclosure of encumbered and unencumbered assets in accordance with Article 443 CRR is obligatory for all institutions; it was published on 13 December 2017 in the Official Journal of the European Union and came into force on 2 January 2018 (additional regulations concerning quality indicators of assets will only come into force one year later, on 2 January 2019). pbb has already disclosed the information (without the additional regulations) in this report.

Basel disclosure regulations, phase 2

In March 2017, the Basel Committee published further proposals for revising the disclosure regulations, the final standard "Pillar 3 disclosure requirements - consolidated and enhanced framework" (BCBS 400). In addition to further new disclosure requirements, this second phase also includes additions to the existing Pillar III framework in order to take account of the disclosure requirements which already exist or which were adopted in phase 1. In consequence, these proposals will lead to an extension of the existing disclosures and tables. The Basel standard has so far not yet been translated into European law.

Basel disclosure regulations, phase 3

Following the first and second phases of revising the disclosure obligations of Pillar 3, the Basel Committee published initial proposals for phase 3 in February 2018. The document "Pillar 3 disclosure requirements – updated framework" (BCBS 432) was submitted to the banks for consultation until 25 May 2018.

Revision of CRR and CRD IV

On 23 November 2016, the EU Commission published proposals for revising EU Regulation No. 575/2013 (CRR), the EU Directive 2013/36 (CRD IV) and the EU Directive 2014/59/EU (BRRD) (so-called CRR II/CRD V/BRRD II package). Accordingly, disclosure of Pillar 3 in the EU should be proportionate to the size and capital market orientation of the institutions. For large institutions, this would result in significantly enhanced disclosures, which would also partly have to be published in the course of the year. At present, the proposals are in the EU trialogue procedure. Whether, when and to what extent these proposals are ultimately implemented cannot be reliably estimated at present.

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10 Appendix

Main features of capital instruments

According to Article 437 (1) letter b CRR, the following tables show the main features of the instruments of common equity tier1 (CET1) capital and tier2 capital (T2) issued by the pbb Group. As of the reference date 31 December 2017, the pbb Group did not have any additional tier1 (AT1) capital.

	Capital instruments main features template	Hartes Kernkapital 01	Tier 2 capital 02	Tier 2 capital 03	Tier 2 capital 04	Tier 2 capital 05
1	Issuer	Deutsche Pfandbriefbank AG	Deutsche Pfandbriefbank AG	Deutsche Pfandbriefbank AG	Deutsche Pfandbriefbank AG	Deutsche Pfandbriefbank AG
2	Unique identifier (eg CUSIP, ISIN or internal identifier)	DE0008019001	HI_SSD_0000089004000	HG_SSD_00770144840_1	HG_SSD_00770144840_1	HG_SSD_00770144840_1
3	Governing law(s) of the instrument	German	German	German	German	German
	Regulatory treatment					
4	Transitional CRR rules	CET1	Tier 2	Tier 2	Tier 2	Tier 2
5	Post-transitional CRR rules	CET1	Tier 2	Tier 2	Tier 2	Tier 2
6	Chargeable on level	pbb group	pbb group	pbb group	pbb group	pbb group
7	Instrument type (types to be specified by each jurisdiction)	Shares	Registered bond	Registered bond	Registered bond	Registered bond
8	Amount recognised in regulatory capital (in Euro million)	380	0.1	1	1	0.1
9	Nominal amount of instrument	380	10	10	15	1
9a	Issue price	n/a	100%	100%	100%	100%
9b	Redemption price	n/a	100%	100%	100%	100%
10	Accounting classification	Capital stock	Liabilities carried forward at cost	Liabilities carried forward at cost	Liabilities carried forward at cost	Liabilities carried forward at cost
11	Original date of issuance	varying	12.01.2006	06.05.2008	06.05.2008	06.05.2008
12	Perpetual of dated	indefinite	with expiry date	with expiry date	with expiry date	with expiry date
13	Original maturity date	no maturity	12.01.2018	07.05.2018	07.05.2018	07.05.2018
14	Issuer call subject to prior supervisory approval	no	no	no	no	no
15	Option call date, contingent call dates an redemption amount	n/a	n/a	n/a	n/a	n/a
16	Subsequent call dates, if applicable	n/a	n/a	n/a	n/a	n/a
	Coupons / dividends					
17	Fixes or floating dividend/coupon	n/a	fix	variable	variable	variable
18	Coupon rate and any related index	n/a	4.050%	30J.-€-CMS, Floor 7,615%	30J.-€-CMS, Floor 7,615%	30J.-€-CMS, Floor 7,615%
19	Existence of a dividend stopper	No	No	No	No	No
20a	Fully discretionary, partially discretionary or mandatory (in terms of timing)	fully discretionary	obligatory	obligatory	obligatory	obligatory
20b	Fully discretionary, partially discretionary or mandatory (in terms of amount)	fully discretionary	obligatory	obligatory	obligatory	obligatory
21	Existence of step up or other incentive to redeem	n/a	no	no	no	no
22	Noncumulative or cumulative	n/a	n/a	n/a	n/a	n/a
23	Convertible or non-convertible	not convertible	convertible	convertible	convertible	convertible
24	If convertible, conversion trigger(s)	n/a	Threat to continued existence FMSA / SRB legal approach	Threat to continued existence FMSA / SRB legal approach	Threat to continued existence FMSA / SRB legal approach	Threat to continued existence FMSA / SRB legal approach
25	If convertible, fully or partially	n/a	whole or partial	whole or partial	whole or partial	whole or partial
26	If convertible, conversion rate	n/a	n/a	n/a	n/a	n/a
27	If convertible,mandatory or optional conversion	n/a	compulsory	compulsory	compulsory	compulsory
28	If convertible, specify instrument type converible into	n/a	CET1	CET1	CET1	CET1
29	If convertible, specify issuer of instrument it converts into	n/a	Deutsche Pfandbriefbank AG	Deutsche Pfandbriefbank AG	Deutsche Pfandbriefbank AG	Deutsche Pfandbriefbank AG
30	Write-down features	n/a	no	no	no	no
31	If write-down, write-down trigger(s)	n/a	Threat to continued existence FMSA / SRB legal approach	Threat to continued existence FMSA / SRB legal approach	Threat to continued existence FMSA / SRB legal approach	Threat to continued existence FMSA / SRB legal approach
32	If write-down, full or partial	n/a	n/a	n/a	n/a	n/a
33	If write-down, permanent or temporary	n/a	n/a	n/a	n/a	n/a
34	If temporaty write-down, description of write-up mechanism	n/a	n/a	n/a	n/a	n/a
35	Position in subordination hierarchy in liquidation (specify instrument type immediately senior to ins	-	Preferred Securities	Preferred Securities	Preferred Securities	Preferred Securities
36	Non-compliant transitioned features	no	no	no	no	no
37	If yes, specify non-compliant features	n/a	n/a	n/a	n/a	n/a

1) FMSA: Finacial Market Stabilisation Authority, national resolution authority in Germany / SRB: Single Resolution Board, European resolution authority

Tier 2 capital 06	Tier 2 (T2) capital 07	Tier 2 capital 08	Tier 2 capital 09	Tier 2 capital 10	Tier 2 capital 11	Tier 2 capital 12
Deutsche Pfandbriefbank AG	Deutsche Pfandbriefbank AG	Deutsche Pfandbriefbank AG	Deutsche Pfandbriefbank AG	Deutsche Pfandbriefbank AG	Deutsche Pfandbriefbank AG	Deutsche Pfandbriefbank AG
HG_SSD_00770144840_1	HG_SSD_00770144840_1	HG_SSD_0088376244000	HG_SSD_00770144840_1	XS0362627969	HG_SSD_0088383764000	DE000A0PND49
German	German	German	German	German	German	German
Tier 2	Tier 2	Tier 2	Tier 2	Tier 2	Tier 2	Tier 2
Tier 2	Tier 2	Tier 2	Tier 2	Tier 2	Tier 2	Tier 2
pbb group	pbb group	pbb group	pbb group	pbb group	pbb group	pbb group
Registered bond	Registered bond	Registered bond	Registered bond	Bearer bond	Borrower' s note	Bearer bond
0.4	1	0.1	1	1	1	2
6	8	1	20	10	10	25
100%	100%	100%	100%	100%	100%	100%
100%	100%	100%	100%	100%	100%	100%
Liabilities carried forward at cost	Liabilities carried forward at cost	Liabilities carried forward at cost	Liabilities carried forward at cost	Liabilities carried forward at cost	Liabilities carried forward at cost	Liabilities carried forward at cost
06.05.2008	06.05.2008	07.05.2008	06.05.2008	08.05.2008	02.06.2008	06.06.2008
with expiry date	with expiry date	with expiry date	with expiry date	with expiry date	with expiry date	with expiry date
07.05.2018	07.05.2018	07.05.2018	07.05.2018	08.05.2018	01.06.2018	06.06.2018
no	no	no	no	no	no	no
n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a
variable	variable	variable	variable	fix	fix	fix
30J.-€-CMS, Floor 7,615%	30J.-€-CMS, Floor 7,615%	125% 10J.-€-CMS, Floor 5%	30J.-€-CMS, Floor 7,615%	7.496%	7.515%	8.000%
No	No	No	No	No	No	No
obligatory	obligatory	obligatory	obligatory	obligatory	obligatory	obligatory
obligatory	obligatory	obligatory	obligatory	obligatory	obligatory	obligatory
no	no	no	no	no	no	no
n/a	n/a	n/a	n/a	n/a	n/a	n/a
convertible	convertible	convertible	convertible	convertible	convertible	convertible
Threat to continued existence FMSA / SRB legal approach	Threat to continued existence FMSA / SRB legal approach	Threat to continued existence FMSA / SRB legal approach	Threat to continued existence FMSA / SRB legal approach	Threat to continued existence FMSA / SRB legal approach	Threat to continued existence FMSA / SRB legal approach	Threat to continued existence FMSA / SRB legal approach
whole or partial	whole or partial	whole or partial	whole or partial	whole or partial	whole or partial	whole or partial
n/a	n/a	n/a	n/a	n/a	n/a	n/a
compulsory	compulsory	compulsory	compulsory	compulsory	compulsory	compulsory
CET1	CET1	CET1	CET1	CET1	CET1	CET1
Deutsche Pfandbriefbank AG	Deutsche Pfandbriefbank AG	Deutsche Pfandbriefbank AG	Deutsche Pfandbriefbank AG	Deutsche Pfandbriefbank AG	Deutsche Pfandbriefbank AG	Deutsche Pfandbriefbank AG
no	no	no	no	no	no	no
Threat to continued existence FMSA / SRB legal approach	Threat to continued existence FMSA / SRB legal approach	Threat to continued existence FMSA / SRB legal approach	Threat to continued existence FMSA / SRB legal approach	Threat to continued existence FMSA / SRB legal approach	Threat to continued existence FMSA / SRB legal approach	Threat to continued existence FMSA / SRB legal approach
n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a
Preferred Securities	Preferred Securities	Preferred Securities	Preferred Securities	Preferred Securities	Preferred Securities	Preferred Securities
no	no	no	no	no	no	no
n/a	n/a	n/a	n/a	n/a	n/a	n/a

Tier 2 capital 13	Tier 2 capital 14	Tier 2 capital 15	Tier 2 capital 16	Tier 2 capital 17	Tier 2 capital 18	Tier 2 capital 19
Deutsche Pfandbriefbank AG	Deutsche Pfandbriefbank AG	Deutsche Pfandbriefbank AG	Deutsche Pfandbriefbank AG	Deutsche Pfandbriefbank AG	Deutsche Pfandbriefbank AG	Deutsche Pfandbriefbank AG
HG_SSD_0088384004000	HG_SSD_0088384004000	HG_SSD_0088384004000	HG_SSD_0088384004000	HG_SSD_0088384004000	HG_SSD_0088384004000	HG_SSD_0088384004000
German	German	German	German	German	German	German
Tier 2	Tier 2	Tier 2	Tier 2	Tier 2	Tier 2	Tier 2
Tier 2	Tier 2	Tier 2	Tier 2	Tier 2	Tier 2	Tier 2
pbb group	pbb group	pbb group	pbb group	pbb group	pbb group	pbb group
Registered bond	Registered bond	Registered bond	Registered bond	Registered bond	Registered bond	Registered bond
0.4	1	3	1	0.4	1	0.4
5	10	30	10	5	10	5
100%	100%	100%	100%	100%	100%	100%
100%	100%	100%	100%	100%	100%	100%
Liabilities carried forward at cost	Liabilities carried forward at cost	Liabilities carried forward at cost	Liabilities carried forward at cost	Liabilities carried forward at cost	Liabilities carried forward at cost	Liabilities carried forward at cost
06.06.2008	06.06.2008	06.06.2008	06.06.2008	06.06.2008	06.06.2008	06.06.2008
with expiry date	with expiry date	with expiry date	with expiry date	with expiry date	with expiry date	with expiry date
06.06.2018	06.06.2018	06.06.2018	06.06.2018	06.06.2018	06.06.2018	06.06.2018
no	no	no	no	no	no	no
n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a
fix	fix	fix	fix	fix	fix	fix
8.000%	8.000%	8.000%	8.000%	8.000%	8.000%	8.000%
No	No	No	No	No	No	No
obligatory	obligatory	obligatory	obligatory	obligatory	obligatory	obligatory
obligatory	obligatory	obligatory	obligatory	obligatory	obligatory	obligatory
no	no	no	no	no	no	no
n/a	n/a	n/a	n/a	n/a	n/a	n/a
convertible	convertible	convertible	convertible	convertible	convertible	convertible
Threat to continued existence FMSA / SRB legal approach	Threat to continued existence FMSA / SRB legal approach	Threat to continued existence FMSA / SRB legal approach	Threat to continued existence FMSA / SRB legal approach	Threat to continued existence FMSA / SRB legal approach	Threat to continued existence FMSA / SRB legal approach	Threat to continued existence FMSA / SRB legal approach
whole or partial	whole or partial	whole or partial	whole or partial	whole or partial	whole or partial	whole or partial
n/a	n/a	n/a	n/a	n/a	n/a	n/a
compulsory	compulsory	compulsory	compulsory	compulsory	compulsory	compulsory
CET1	CET1	CET1	CET1	CET1	CET1	CET1
Deutsche Pfandbriefbank AG	Deutsche Pfandbriefbank AG	Deutsche Pfandbriefbank AG	Deutsche Pfandbriefbank AG	Deutsche Pfandbriefbank AG	Deutsche Pfandbriefbank AG	Deutsche Pfandbriefbank AG
no	no	no	no	no	no	no
Threat to continued existence FMSA / SRB legal approach	Threat to continued existence FMSA / SRB legal approach	Threat to continued existence FMSA / SRB legal approach	Threat to continued existence FMSA / SRB legal approach	Threat to continued existence FMSA / SRB legal approach	Threat to continued existence FMSA / SRB legal approach	Threat to continued existence FMSA / SRB legal approach
n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a
Preferred Securities	Preferred Securities	Preferred Securities	Preferred Securities	Preferred Securities	Preferred Securities	Preferred Securities
no	no	no	no	no	no	no
n/a	n/a	n/a	n/a	n/a	n/a	n/a

Disclosure Report as of 31 December 2017

Tier 2 capital 20	**Tier 2 capital 21**	**Tier 2 capital 22**	**Tier 2 capital 23**	**Tier 2 capital 24**	**Tier 2 capital 25**	**Tier 2 capital 26**
Deutsche Pfandbriefbank AG	Deutsche Pfandbriefbank AG	Deutsche Pfandbriefbank AG	Deutsche Pfandbriefbank AG	Deutsche Pfandbriefbank AG	Deutsche Pfandbriefbank AG	Deutsche Pfandbriefbank AG
HI_SSD_00000890340_1	HI_SSD_00000890540_1	XS0118953529	HI_SSD_0000079684000	HI_SSD00000890240_1	DE000A0JBST9	HI_SSD_0000079814000
German	German	German	German	German	German	German
Tier 2	Tier 2	Tier 2	Tier 2	Tier 2	Tier 2	Tier 2
Tier 2	Tier 2	Tier 2	Tier 2	Tier 2	Tier 2	Tier 2
pbb group	pbb group	pbb group	pbb group	pbb group	pbb group	pbb group
Registered bond	Registered bond	Bearer bond	Borrower' s note	Registered bond	Bearer bond	Borrower' s note
1	1	8	6	6	5	1
5	1	15	10	10	7	1
100%	100%	99.50%	100%	100%	100%	100%
100%	100%	100%	100%	100%	100%	100%
Liabilities carried forward at cost	Liabilities carried forward at cost	Liabilities carried forward at cost	Liabilities carried forward at cost	Liabilities carried forward at cost	Liabilities carried forward at cost	Liabilities carried forward at cost
17.03.2006	08.08.2006	27.10.2000	27.01.2006	14.03.2006	20.03.2006	04.05.2006
with expiry date	with expiry date	with expiry date	with expiry date	with expiry date	with expiry date	with expiry date
18.03.2019	07.08.2020	27.10.2020	27.01.2021	15.03.2021	28.03.2021	04.05.2021
no	no	no	yes	no	no	no
n/a	n/a	n/a	27.01.2016	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a
fix	fix	variable	fix	fix	fix	fix
4.520%	4.900%	10J.-€-CMS, mit diversen Cap- und Floorbedingungen	4.350%	4.570%	4.560%	4.910%
No	No	No	No	No	No	No
obligatory	obligatory	obligatory	obligatory	obligatory	obligatory	obligatory
obligatory	obligatory	obligatory	obligatory	obligatory	obligatory	obligatory
no	no	no	no	no	no	no
n/a	n/a	n/a	n/a	n/a	n/a	n/a
convertible	convertible	convertible	convertible	convertible	convertible	convertible
Threat to continued existence FMSA / SRB legal approach	Threat to continued existence FMSA / SRB legal approach	Threat to continued existence FMSA / SRB legal approach	Threat to continued existence FMSA / SRB legal approach	Threat to continued existence FMSA / SRB legal approach	Threat to continued existence FMSA / SRB legal approach	Threat to continued existence FMSA / SRB legal approach
whole or partial	whole or partial	whole or partial	whole or partial	whole or partial	whole or partial	whole or partial
n/a	n/a	n/a	n/a	n/a	n/a	n/a
compulsory	compulsory	compulsory	compulsory	compulsory	compulsory	compulsory
CET1	CET1	CET1	CET1	CET1	CET1	CET1
Deutsche Pfandbriefbank AG	Deutsche Pfandbriefbank AG	Deutsche Pfandbriefbank AG	Deutsche Pfandbriefbank AG	Deutsche Pfandbriefbank AG	Deutsche Pfandbriefbank AG	Deutsche Pfandbriefbank AG
no	no	no	no	no	no	no
Threat to continued existence FMSA / SRB legal approach	Threat to continued existence FMSA / SRB legal approach	Threat to continued existence FMSA / SRB legal approach	Threat to continued existence FMSA / SRB legal approach	Threat to continued existence FMSA / SRB legal approach	Threat to continued existence FMSA / SRB legal approach	Threat to continued existence FMSA / SRB legal approach
n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a
Preferred Securities	Preferred Securities	Preferred Securities	Preferred Securities	Preferred Securities	Preferred Securities	Preferred Securities
no	no	no	no	no	no	no
n/a	n/a	n/a	n/a	n/a	n/a	n/a

Tier 2 capital 27	Tier 2 capital 28	Tier 2 capital 29	Tier 2 capital 30	Tier 2 capital 31	Tier 2 capital 32	Tier 2 capital 33
Deutsche Pfandbriefbank AG	Deutsche Pfandbriefbank AG	Deutsche Pfandbriefbank AG	Deutsche Pfandbriefbank AG	Deutsche Pfandbriefbank AG	Deutsche Pfandbriefbank AG	Deutsche Pfandbriefbank AG
HG_SSD_0100087994000	HG_SSD_0100088004000	DE0008053976	DE0008053331	DE000A0SM1B5	HG_SSD_0100214754000	HG_SSD_0100215214000
German	German	German	German	German	German	German
Tier 2	Tier 2	Tier 2	Tier 2	Tier 2	Tier 2	Tier 2
Tier 2	Tier 2	Tier 2	Tier 2	Tier 2	Tier 2	Tier 2
pbb group	pbb group	pbb group	pbb group	pbb group	pbb group	pbb group
Borrower' s note	Borrower' s note	Bearer bond	Bearer bond	Bearer bond	Borrower' s note	Borrower' s note
3	5	8	10	10	5	5
4	6	10	10	10	5	5
100%	100%	100%	100%	100%	100%	100%
100%	100%	100%	100%	100%	100%	100%
Liabilities carried forward at cost	Liabilities carried forward at cost	Liabilities carried forward at cost	Liabilities carried forward at cost	Liabilities carried forward at cost	Liabilities carried forward at cost	Liabilities carried forward at cost
07.03.2002	07.03.2002	06.03.2002	19.03.2003	25.04.2008	05.09.2003	10.12.2003
with expiry date	with expiry date	with expiry date	with expiry date	with expiry date	with expiry date	with expiry date
07.03.2022	07.03.2022	18.03.2022	24.03.2023	02.05.2023	05.09.2023	05.09.2023
yes	yes	yes	yes	no	no	no
29.02.2012	29.02.2012	18.03.2013	24.03.2013	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a
fix	fix	fix	now fix, later variable	fix	fix	fix
6.550%	6.550%	6.570%	6.750%	8.060%	6.330%	6.330%
No	No	No	No	No	No	No
obligatory	obligatory	obligatory	obligatory	obligatory	obligatory	obligatory
obligatory	obligatory	obligatory	obligatory	obligatory	obligatory	obligatory
no	no	no	no	no	no	no
n/a	n/a	n/a	n/a	n/a	n/a	n/a
convertible	convertible	convertible	convertible	convertible	convertible	convertible
Threat to continued existence FMSA / SRB legal approach	Threat to continued existence FMSA / SRB legal approach	Threat to continued existence FMSA / SRB legal approach	Threat to continued existence FMSA / SRB legal approach	Threat to continued existence FMSA / SRB legal approach	Threat to continued existence FMSA / SRB legal approach	Threat to continued existence FMSA / SRB legal approach
whole or partial	whole or partial	whole or partial	whole or partial	whole or partial	whole or partial	whole or partial
n/a	n/a	n/a	n/a	n/a	n/a	n/a
compulsory	compulsory	compulsory	compulsory	compulsory	compulsory	compulsory
CET1	CET1	CET1	CET1	CET1	CET1	CET1
Deutsche Pfandbriefbank AG	Deutsche Pfandbriefbank AG	Deutsche Pfandbriefbank AG	Deutsche Pfandbriefbank AG	Deutsche Pfandbriefbank AG	Deutsche Pfandbriefbank AG	Deutsche Pfandbriefbank AG
no	no	no	no	no	no	no
Threat to continued existence FMSA / SRB legal approach	Threat to continued existence FMSA / SRB legal approach	Threat to continued existence FMSA / SRB legal approach	Threat to continued existence FMSA / SRB legal approach	Threat to continued existence FMSA / SRB legal approach	Threat to continued existence FMSA / SRB legal approach	Threat to continued existence FMSA / SRB legal approach
n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a
Preferred Securities	Preferred Securities	Preferred Securities	Preferred Securities	Preferred Securities	Preferred Securities	Preferred Securities
no	no	no	no	no	no	no
n/a	n/a	n/a	n/a	n/a	n/a	n/a

Tier 2 capital 34	Tier 2 capital 35	Tier 2 capital 36	Tier 2 capital 37	Tier 2 capital 38	Tier 2 capital 39	Tier 2 capital 40
Deutsche Pfandbriefbank AG	Deutsche Pfandbriefbank AG	Deutsche Pfandbriefbank AG	Deutsche Pfandbriefbank AG	Deutsche Pfandbriefbank AG	Deutsche Pfandbriefbank AG	Deutsche Pfandbriefbank AG
HG_SSD_0088286364000	NP000940	HI_SSD_0000079734000	DE0007025140	HI_SSD_0000089044000	NP000982	HI_SSD_0000079854000
German	German	German	German	German	German	German
Tier 2	Tier 2	Tier 2	Tier 2	Tier 2	Tier 2	Tier 2
Tier 2	Tier 2	Tier 2	Tier 2	Tier 2	Tier 2	Tier 2
pbb group	pbb group	pbb group	pbb group	pbb group	pbb group	pbb group
Borrower' s note	Borrower' s note	Borrower' s note	Bearer bond	Registered bond	Borrower' s note	Borrower' s note
10	2	3	6	5	5	5
10	2	2.5	9	5	5	5
100%	97.99%	100%	100%	100%	99.764%	100%
100%	100%	100%	100%	100%	100%	100%
Liabilities carried forward at cost	Liabilities carried forward at cost	Liabilities carried forward at cost	Liabilities carried forward at cost	Liabilities carried forward at cost	Liabilities carried forward at cost	Liabilities carried forward at cost
18.11.2005	29.01.2016	09.03.2006	13.03.2001	04.05.2006	18.05.2016	28.08.2006
with expiry date	with expiry date	with expiry date	with expiry date	with expiry date	with expiry date	with expiry date
18.11.2025	29.01.2026	09.03.2026	13.03.2026	04.05.2026	18.05.2026	28.08.2026
yes	yes	no	no	yes	yes	yes
18.11.2015	n/a	n/a	n/a	04.05.2016	n/a	28.08.2016
k.A.	n/a	n/a	n/a	n/a	n/a	n/a
fix	fix	fix	fix	fix	fix	fix
4.650%	3.950%	4.530%	6.550%	5.125%	3.880%	5.040%
No	No	No	No	No	No	No
obligatory	obligatory	obligatory	obligatory	obligatory	obligatory	obligatory
obligatory	obligatory	obligatory	obligatory	obligatory	obligatory	obligatory
no	no	no	no	no	no	no
n/a	n/a	n/a	n/a	n/a	n/a	n/a
convertible	convertible	convertible	convertible	convertible	convertible	convertible
Threat to continued existence FMSA / SRB legal approach	Threat to continued existence FMSA / SRB legal approach	Threat to continued existence FMSA / SRB legal approach	Threat to continued existence FMSA / SRB legal approach	Threat to continued existence FMSA / SRB legal approach	Threat to continued existence FMSA / SRB legal approach	Threat to continued existence FMSA / SRB legal approach
whole or partial	whole or partial	whole or partial	whole or partial	whole or partial	whole or partial	whole or partial
n/a	n/a	n/a	n/a	n/a	n/a	n/a
compulsory	compulsory	compulsory	compulsory	compulsory	compulsory	compulsory
CET1	CET1	CET1	CET1	CET1	CET1	CET1
Deutsche Pfandbriefbank AG	Deutsche Pfandbriefbank AG	Deutsche Pfandbriefbank AG	Deutsche Pfandbriefbank AG	Deutsche Pfandbriefbank AG	Deutsche Pfandbriefbank AG	Deutsche Pfandbriefbank AG
no	no	no	no	no	no	no
Threat to continued existence FMSA / SRB legal approach	Threat to continued existence FMSA / SRB legal approach	Threat to continued existence FMSA / SRB legal approach	Threat to continued existence FMSA / SRB legal approach	Threat to continued existence FMSA / SRB legal approach	Threat to continued existence FMSA / SRB legal approach	Threat to continued existence FMSA / SRB legal approach
n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a
Preferred Securities	Preferred Securities	Preferred Securities	Preferred Securities	Preferred Securities	Preferred Securities	Preferred Securities
no	no	no	no	no	no	no
n/a	n/a	n/a	n/a	n/a	n/a	n/a

Tier 2 capital **41**	**Tier 2 capital** **42**	**Tier 2 capital** **43**	**Tier 2 capital** **44**	**Tier 2 capital** **45**	**Tier 2 capital** **46**
Deutsche Pfandbriefbank AG	Deutsche Pfandbriefbank AG	Deutsche Pfandbriefbank AG	Deutsche Pfandbriefbank AG	Deutsche Pfandbriefbank AG	Deutsche Pfandbriefbank AG
DE000A13SWL1	DE000A2DASM5	DE000A2DAST0	XS1637926137	DE000A2AAV39	NP001107
German	German	German	German	German	German
Tier 2	Tier 2	Tier 2	Tier 2	Tier 2	Tier 2
Tier 2	Tier 2	Tier 2	Tier 2	Tier 2	Tier 2
pbb group	pbb group	pbb group	pbb group	pbb group	pbb group
Bearer bond	Bearer bond	Bearer bond	Bearer bond	Bearer bond	Registered bond
34	148	58	299	5	7
35	150	60	300	5	7.5
96%	98.82%	96.00%	99.45%	99.22%	99.45%
100%	100%	100%	100%	100%	100%
Liabilities carried forward at cost	Liabilities carried forward at cost	Liabilities carried forward at cost	Liabilities carried forward at cost	Liabilities carried forward at cost	Liabilities carried forward at cost
31.08.2016	22.02.2017	24.05.2017	21.06.2017	02.11.2016	12.04.2017
with expiry date	with expiry date	with expiry date	with expiry date	with expiry date	with expiry date
31.08.2026	22.02.2027	24.05.2027	28.06.2027	03.11.2031	12.04.2032
yes	yes	yes	yes	yes	yes
n/a	n/a	n/a	28.06.2022	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a
fix	fix	fix	now fix, later variable	fix	fix
3.250%	4.600%	3.375%	2.875%	4.120%	4.550%
No	No	No	No	No	No
obligatory	obligatory	obligatory	obligatory	obligatory	obligatory
obligatory	obligatory	obligatory	obligatory	obligatory	obligatory
no	no	no	no	no	no
n/a	n/a	n/a	n/a	n/a	n/a
convertible	convertible	convertible	convertible	convertible	convertible
Threat to continued existence FMSA / SRB legal approach	Threat to continued existence FMSA / SRB legal approach	Threat to continued existence FMSA / SRB legal approach	Threat to continued existence FMSA / SRB legal approach	Threat to continued existence FMSA / SRB legal approach	Threat to continued existence FMSA / SRB legal approach
whole or partial	whole or partial	whole or partial	whole or partial	whole or partial	whole or partial
n/a	n/a	n/a	n/a	n/a	n/a
compulsory	compulsory	compulsory	compulsory	compulsory	compulsory
CET1	CET1	CET1	CET1	CET1	CET1
Deutsche Pfandbriefbank AG	Deutsche Pfandbriefbank AG	Deutsche Pfandbriefbank AG	Deutsche Pfandbriefbank AG	Deutsche Pfandbriefbank AG	Deutsche Pfandbriefbank AG
no	no	no	no	no	no
Threat to continued existence FMSA / SRB legal approach	Threat to continued existence FMSA / SRB legal approach	Threat to continued existence FMSA / SRB legal approach	Threat to continued existence FMSA / SRB legal approach	Threat to continued existence FMSA / SRB legal approach	Threat to continued existence FMSA / SRB legal approach
n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a
Preferred Securities	Preferred Securities	Preferred Securities	Preferred Securities	Preferred Securities	Preferred Securities
no	no	no	no	no	no
n/a	n/a	n/a	n/a	n/a	n/a

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