

3. Risks

3.1. General Risk Management and Control Model	40
3.1.1. Governance and organisation	40
3.1.2. Risk Appetite Framework	43
3.1.3. Decisions and processes	44
3.1.4. Assessment, monitoring and reporting	45
3.1.5. Infrastructure	46
3.1.6. Risk culture	46
3.2. Credit and counterparty risk	47
3.2.1. Scope and nature of the Credit Risk measurement and reporting systems for capital framework purposes	47
3.2.2. Definitions and accounting methodologies	48
3.2.3. Information on credit risks	50
3.2.4. Information on the standardised approach	61
3.2.5. Information on the IRB approach	66
3.2.6. Information on counterparty risk	85
3.2.7. Information on securitisations	96
3.2.8. Information on credit risk mitigation techniques	105
3.2.9. RWA density by geographical area	108
3.2.10. Risk protection and reduction policies. Supervision strategies and processes	109
3.3. Market risk	110
3.3.1. Scope and nature of the market risk measurement and reporting systems	110
3.3.2. Differences in the trading book for the purposes of applying the solvency regulations and accounting criteria	111
3.3.3. Standardised approach	111
3.3.4. Internal models	112

3.4. Structural risk in the equity portfolio	121
3.4.1. Scope and nature of the structural risk in the equity portfolio measurement and reporting systems	121
3.4.2. Differentiation between portfolios held for sale and those held for strategic purposes	121
3.4.3. Book value and exposure of equity investments and capital instruments contained in above portfolios	122
3.4.4. Risk-weighted assets of equity investments and capital instruments	122
3.4.5. Profit and loss and adjustments for valuation of equity investments and capital instruments	123
3.5. Structural exchange-rate risk	123
3.5.1. Scope and nature of the exchange-rate risk measurement and reporting systems	123
3.6. Interest-Rate Risk	124
3.6.1. Scope and nature of the interest-rate risk measurement and reporting systems	124
3.6.2. Nature of interest rate risk and key hypotheses	125
3.6.3. Variations in interest rates	126
3.7. Liquidity Risk	126
3.7.1. Liquidity and Funding Strategy and Planning	126
3.7.2. Governance and monitoring	127
3.7.3. Liquidity and funding performance in 2017	129
3.7.4. Liquidity prospects	131
3.7.5. LCR disclosure	132
3.7.6. Assets committed in finance transactions	134
3.8. Operational risk	137
3.8.1. Operational Risk definition	137
3.8.2. Operational Risk methodology	137
3.8.3. Model based on 3 lines of defense	138
3.8.4. Principles of BBVA's Operational Risk management model	138
3.8.5. Methods used	141
3.8.6. The Group's Operational Risk profile	142

3.1. General Risk Management and Control Model

As explained in section 2.3 of this Document, BBVA Group has a general risk management and control model adapted to its business model, organisational system and the geographic areas in which it operates, enabling it to carry out its activities within the framework of the risk management and control strategy and policy defined by BBVA S.A.'s governing bodies.

This Model is applied comprehensively in the Group and is made up of the basic elements set out below:

- Governance and organisation
- Risk Appetite Framework
- Decisions and processes
- Evaluation, monitoring and reporting
- Infrastructure

The Group promotes the development of a risk culture that ensures the consistent application of the Risk Management and Control Model within the Group and guarantees that the risk function is understood and permeates throughout all the levels of the organisation.

3.1.1. Governance and organisation

The risk governance model in BBVA is characterised by the special involvement of its corporate bodies, both in establishing the risk strategy and in the continuous monitoring and supervising its implementation.

Thus, as explained below, it is the corporate bodies that approve the risk strategy and the corporate policies for the different types of risks. The risk function is responsible within the scope of its management for implementing and developing the risk strategy, reporting to the corporate bodies.

The responsibility for the day-to-day management of risks lies with the businesses, whose activity is carried out in accordance with the policies, rules, procedures, infrastructures and controls defined by the risk management function, based on the framework set by the corporate bodies.

To carry out this work adequately, the risk function in the BBVA Group has been set up as a single, global function that is independent of the commercial areas.

3.1.1.1. Governing bodies

The Board of Directors (hereinafter "the Board") determines the risk strategy and supervises the internal information and control systems. Specifically, in relation to the risk strategy, the Board approves the Group's Risk Appetite statement, the core metrics and the main metrics by type of risk, as well as the General Risk Management and Control Model.

The Board of Directors is also responsible for approving and monitoring the strategic and business plan, the annual budgets and management goals, as well as the investment and funding policy, in a consistent way and in line with the approved Risk Appetite Framework. For this purpose, the processes for defining the Risk Appetite Framework proposals and strategic and budgetary planning at Group level are coordinated by the executive area for submission to the Board.

To ensure that the Risk Appetite Framework is integrated into management, on the basis established by the Board of Directors, the Executive Committee (EC) approves the metrics by type of risk in relation to profitability and income recurrence and the Group's basic structure of limits (core limits) at geographic area, risk type, asset type and portfolio level. This Committee also approves specific corporate policies for each type of risk.

Lastly, the Board of Directors has set up a committee specializing in risks, the Risk Committee (RC), that assists the Board and the Executive Committee in determining the Group's risk strategy and the risk limits and policies, respectively, analyzing and assessing beforehand the proposals submitted to those bodies. In 2017, the Risk Committee held 20 meetings

The amendment of the Group's risk strategy and of its elements is the exclusive power of the BBVA Board of Directors, while the Executive Committee is responsible for amending the metrics by type of risk within its scope of decision and the Group's basic structure of limits, when applicable. In both cases, the amendments follow the same decision-making process described above, so the proposals for amendment are submitted by the executive area (CRO) and later analysed, first by the Risk Committee, for later submission to the Board of Directors or to the Executive Committee, as appropriate.

Moreover, the Risk Committee, the Executive Committee and the Board itself conduct proper monitoring of the risk strategy implementation and of the Group's risk profile. The

risks function regularly reports on the development of the Group's Risk Appetite Framework metrics to the Board in general every quarter and to the Executive Committee every month, after their analysis by the Risk Committee, whose role in this monitoring and control work is particularly relevant.

In addition to ongoing supervision and control which performs the risk function and reports to the governing bodies, in the event of deviation from the maximum appetite levels (or maximum capacity) set for the core metrics or by type of risk, or in the event of an over-limit in the basic structure, as approved by the governing bodies, the Risk Committee is informed of the situation, following analysis by the executive areas in the relevant top-level committees. Following the Risk Committee report, the situation is reported to the governing bodies that approved the exceeded metric. In any event, the pertinent corrective measures will be reported and must be agreed by the governing bodies or, at the executive level, by the corresponding area, as appropriate.

3.1.1.2. The risk function: Committees organisation and structure

The head of the risk function at executive level, the Group Chief Risk Officer (CRO), carries out his duties with the independence, authority, rank, experience, knowledge and resources required. The CRO is appointed by the Bank's Board of Directors, as a member of its senior management, and has direct access to its corporate bodies (the Board of Directors, the Executive Committee and the Risk Committee), to which he reports regularly on the risk situation in the Group.

To perform his functions better, the CRO is supported by a structure made up of cross-cutting risk units in the corporate area and specific risk units in the Group's geographical and/or business areas.

Each of these units, within their scope of competence, carries out risk management and control functions and ensures the implementation of the corporate policies and rules approved at the Group level in a consistent manner, adapting them if necessary to the local requirements and reporting to the local governing bodies.

The Chief Risk Officers of these geographical and/or business areas report both to the Group Chief Risk Officer and to the head of their geographical and/or business area. This system of co-dependence aims to ensure the independence of the local risk function from the operational functions, and enables its alignment with the Group's corporate policies and objectives with respect to risks.

As mentioned above, the risk function comprises the corporate area risk units, which carry out cross-cutting functions, and the risk units of the geographical and/or business areas.

■ The corporate area risk units develop and submit to the Group Chief Risk Officer (CRO) the proposal for the Group's Risk Appetite Framework, the corporate policies, rules, procedures and global infrastructures within the framework of action approved by the corporate bodies; they ensure their correct application and report directly or through the Group CRO to the Bank's corporate bodies. Their functions include:

- Management of the different types of risks at Group level, in accordance with the strategy defined by the corporate bodies.
 - Planning of risks in line with the Risk Appetite Framework principles defined by the Group.
 - Monitoring and control of the Group's risk profile in relation to the Risk Appetite Framework approved by the Bank's corporate bodies, providing precise and reliable information with the frequency and in the format required.
 - Performance of prospective analyses that can evaluate compliance with the Risk Appetite Framework in stress scenarios and analysis of the mechanisms for mitigating the effect.
 - Management of the technological and methodological developments required for implementing the Model in the Group.
 - Design of the Group's Internal Risk Control model and definition of the methodology, corporate criteria and procedures for identifying and prioritizing the risk inherent in each unit's activities and processes.
 - Validation of the models used and the results obtained by them to verify whether they are appropriate to the different uses to which they are applied.
- The risk units in the geographic areas and/or business units develop and submit to the Chief Risk Officer of the geographical and/or business area the Risk Appetite Framework proposal applicable in each geographical and/or business area, independently and always within the Group's strategy/Risk Appetite Framework.

Moreover, they ensure that the approved corporate policies and rules approved at Group level are applied consistently, adapting them where appropriate to local requirements; providing the adequate infrastructures for the management and control of their risks, within the global risk infrastructure framework defined by the corporate areas, and reporting to the corporate bodies and senior management, as applicable.

Thus the local risk units work with the corporate risk units with the aim of adapting to the risk strategy at Group level and pooling all the information necessary to monitor changes in risks.

The risk function's decision-making process is supported by a structure of committees. The Global Risk Management Committee (GRMC) is the top-level committee in the risk function. It proposes, analyses, and approves, where appropriate, different issues such as the internal risk regulatory framework, the procedures and infrastructures needed to identify, evaluate, measure and manage the risks faced by the Group in carrying out its business and the determination of risk limits by portfolio or counterparty.

The members of this Committee are the Group CRO and the heads of the risk units of the corporate area and the most representative geographical and/or business areas.

The GRMC operates through various support committees, including the following:

- Global Credit Risk Management Committee: Its aim is to analyse and take decisions related to wholesale credit risk admission.
- Wholesale Credit Risk Management Committee: Its aim is to analyse and take decisions related to wholesale credit risk admission from certain customer segments in BBVA Group.
- Work Out Committee: Its aim is to be informed of the decisions taken according to the delegation framework in reference to the risk proposals of the customers classified in groups 1 and 2 of the Watch List and the customers classified as non-performing in certain customer segments in BBVA Group. It also sanctions proposals for additions, cancellations and modifications in the Special Monitoring.
- Information, Monitoring & Reporting Committee: Guarantees the existence and proper development of the aspects relating to information management, risk monitoring and reporting with a comprehensive and cross-cutting approach.
- Asset Allocation Committee: An executive level for analysis and decision-making on all matters which, with respect to credit risk, are related to the processes aimed at obtaining a combination and composition of portfolios that under the restrictions imposed by the Risk Appetite framework can maximise the economic benefit subject to an adequate profitability of risk-adjusted capital.
- Technology & Analytics Committee: Its aim is to guarantee correct decision-making in relation to the design, development, implementation and use of the technological tools and risk models needed for their correct management within BBVA Group.
- Global Market Risk Unit Global Committee (CGGMRU): Its aim is to formalise, supervise and communicate trading risk in all the Global Markets business units, as well as coordinating and approving the decisions essential to GMRU activity, and preparing and proposing the corporate regulation of the unit.
- Corporate Operational Risk Admission and Outsourcing Committee: Its purpose is to identify, evaluate and analyse the operational risks of new businesses, new products and services and outsourcing initiatives.
- Retail Risk Committee: Its aim is to guarantee that the practices and processes governing the retail credit risk cycle are aligned with the approved/target risk tolerance levels and the business growth and development as defined in the Group's corporate strategy.
- AM Global Risk Steering Committee: Its aim is to develop and coordinate the necessary strategies, policies, procedures and infrastructures to identify, assess, measure and manage the material risks facing the institution in developing its business linked to BBVA Asset Management.
- Global Insurance Risk Committee: Its aim is to guarantee alignment and communication between all BBVA Group's Insurance Risk Units, for which it will apply the standardised principles, policies, tools and metrics in the different geographic areas, with the aim of maintaining the correct integration of risk management in the Group's insurance activities.
- Operations Committee (COPOR): Its aim is to analyse and make decisions with respect to the operations of the different geographic areas in which Global Markets is present.

Each geographical and/or business area has its own risk management committee (or committees), with objectives and content similar to those of the corporate area, which develop their functions consistently and in line with the corporate risk policies and regulations.

Under this organisational scheme, the risks function ensures the integration and application throughout the Group of the risk strategy, the regulatory framework, the infrastructures and standardised risk and controls. It also benefits from the knowledge and proximity to customers in each geographical and/or business area, and conveys the corporate risk culture to the Group's different levels. Moreover, this organisation enables the risks function to conduct and report to the corporate bodies the integrated monitoring and control of the entire Group's risks.

3.1.1.3. Internal Risk Control and Internal Validation

The Group has a specific Internal Risk Control unit. Its main function is to ensure there is a sufficient internal regulatory framework, a process and measures defined for each type of risk identified in the Group (and for those other types of risk for which the Group may be potentially affected). It controls their application and operation, as well as ensuring the integration of the risk strategy into the Group's management.

The Internal Risk Control unit verifies the performance of their duties by the units that develop the risk models, manage processes and execute controls. Its scope of action is global both from the geographical point of view and as regards the types of risks.

The Group's Head of Internal Risk Control is responsible for the function and reports on its activities and informs of its work plans to the Group CRO and the Board's Risk Committee, assisting it on any matters where requested. For this purpose, Internal Risk Control department includes a Technical Secretary's Office to provide the necessary technical support for the Committee to better perform its duties.

At hierarchical level, it is independent of the units that manage the processes and implement the controls. It is made up of a team with expertise in the processes of managing the different types of risks, and is divided into two levels: corporate, which gives it a global and standardised vision of the control model; and local, in the business and/or geographic areas, which incorporates the knowledge it gains from proximity to the processes and risk activities carried out within its scope. This two-level structure gives it global and cross-cutting responsibility with respect to all the units making up the corporate risk area, and all the risk types managed in the units.

In addition, the Group has an Internal Validation unit, which reviews the performance of its duties by the units that develop the risk models and of those that use them in management. Its functions include review and independent validation at internal level of the models used for the control and management of risks in the Group.

3.1.2. Risk Appetite Framework

The Group's Risk Appetite Framework is approved by the Board of Directors and determines the risks and their level that the Group is prepared to assume to achieve its business objectives, considering an organic evolution of its business. These are expressed in terms of solvency, liquidity and funding, profitability, and income recurrence or other metrics, which are reviewed periodically as well as in case of material changes in the entity's business or relevant corporate transactions. The determination of the Risk Appetite

Framework has the following objectives:

- Make explicit the maximum levels of risk that the Group is prepared to assume, both at Group level and at geographical and/or business level.
- Establish guidelines for action and a management framework for the medium-long term that prevents actions (both at Group and geographical and/or business level) that may compromise the Group's future viability.
- Establish a framework for relating with the geographical and/or business areas that preserves their decision-making autonomy while ensuring their consistent performance and preventing divergent behavior.
- Establish a common language across the whole organisation and develop a risk culture geared toward compliance with it.
- Alignment with the new regulatory requirements, making communication with regulators, investors and other stakeholders easier, thanks to an integrated and stable risk management framework.

The Risk Appetite Framework is expressed through the following elements:

- Risk Appetite Statement: includes the general principles of the Group's risk strategy and the target risk profile. The Group's Risk Appetite Statement in 2017 is:

BBVA Group's risk policy is designed to achieve a moderate risk profile for the Bank through: prudent management and a responsible universal banking business model targeted to value creation, risk adjusted return and recurrence of results; diversified by geography, asset class, portfolio and clients; with presence in emerging and developed countries, maintaining a medium/low risk profile in every country and focusing on a long-term relationship with the client.
- Core metrics: Based on the Risk Appetite Statement, statements are issued that specify the general principles of risk management in terms of solvency, liquidity, funding, profitability and recurring revenue.

- Solvency: a sound capital position, maintaining resilient capital buffer from regulatory and internal requirements that supports the regular development of banking activity even under stress situations. As a result, BBVA proactively manages its capital position, which is tested under different stress scenarios from a regular basis.
- Liquidity and funding: a sound balance-sheet structure to sustain the business model. Maintenance of an adequate volume of stable resources, a diversified wholesale funding structure, which limits the weight of short-term funding and ensures access to the different

funding markets, optimizing costs and preserving a cushion of liquid assets to overcome a liquidity survival period under stress scenarios.

- Profitability and income recurrence: a sound margin-generation capacity based on the diversification of assets, a stable funding and a customer focus; combined with a moderate risk profile that limits credit losses even under stress situations; all focused on allowing income stability and maximizing the risk-adjusted profitability.

Moreover, the core metrics reflect, in quantitative terms, the principles and the target risk profile set out in the Risk Appetite statement and are aligned with the Group’s strategy. Each core metric has three thresholds (the “traffic-light” approach), ranging from usual management of the businesses to higher levels of deterioration: Management reference, maximum appetite and maximum capacity. BBVA Group’s core metrics in 2017 are those specified in the following chart:

Chart 4: BBVA Group’s Core Metrics

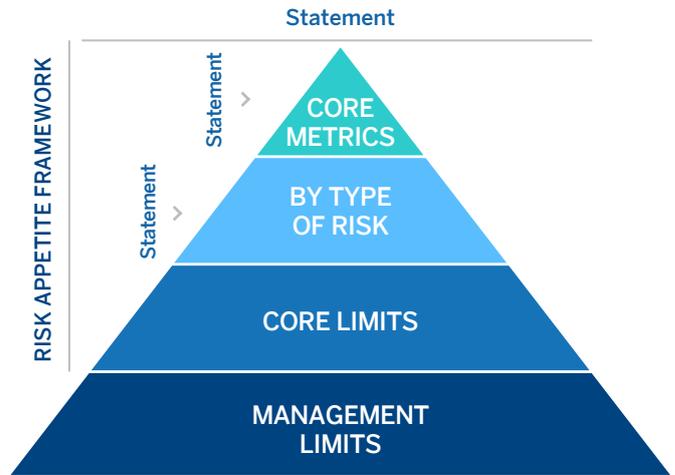
	Metric
Solvency	Economic Solvency
	Regulatory Solvency: CET1 Fully Loaded
Liquidity and Funding	Loan to Stable Customer Deposits (LTSCD)
	Liquidity Coverage Ratio (LCR)
Income recurrence and profitability	Net Margin / Average Total Assets
	Cost of Risk
	Return on Equity (ROE)

- Metrics by type of risk: based on the core metrics for each type of risk, statements are established that set out the general principles of risk management and a number of metrics are calibrated, whose observance enables compliance with the core metrics and the Group’s Risk Appetite statement. Metrics by type of risk have a maximum risk appetite threshold.
- The basic structure of limits (Core limits): they shape the Risk Appetite Framework at geographic area, risk type, asset type and portfolio level, ensuring that management is within the metrics by type of risk.

In addition to this Framework, there is a level of management limits that is defined and managed by the risks function when developing the basic structure of limits, with the aim of ensuring that proactive management of risks by risk subcategory within each type or by sub-portfolio respects that basic structure of limits, and in general with the established Risk Appetite Framework.

The basic scheme of BBVA’s Risk Appetite Framework is outlined in the following chart:

Chart 5: Scheme of BBVA Group Risk Appetite Framework



The corporate risks area works together with the various geographical and/or business areas to define their Risk Appetite Framework, so that it is coordinated with, and integrated into the Group’s Risk Appetite Framework, making sure that its profile is in line with the one defined.

The Risk Appetite Framework expresses the levels and types of risk that the Bank is willing to assume to be able to implement its strategic plan with no relevant deviations, even in situations of stress. The Risk Appetite Framework is integrated within management, and the processes for defining the Risk Appetite Framework proposals is coordinated with the strategic and budgetary planning at Group level.

The core metrics of the BBVA Risk Appetite Framework measure the Group’s performance in terms of solvency, liquidity, funding and profitability, and income recurrence. Most of the core metrics are accounting and/or regulatory metrics, and are therefore regularly disclosed to the market in the BBVA Group’s annual and quarterly financial reporting.

During 2017, Risk Appetite metrics trended consistently with the profile established according to the operating limits set or marked by the different areas in the organisation.

3.1.3. Decisions and processes

The transfer of the Risk Appetite Framework to ordinary management is underpinned by three basic aspects:

- A standardized set of regulations
- Risk planning
- A comprehensive management of risks throughout their life cycle

3.1.3.1. A uniform body of regulations

The corporate risks area is responsible for defining and proposing corporate policies, specific regulations, procedures and schemes for delegation, by which the risk decisions have to be adopted within the Group.

This process aims for the following objectives:

- Hierarchy and structure: well-structured information through a clear and simple hierarchy that clearly relates documents that depend on each other.
- Simplicity: an appropriate and sufficient number of documents.
- Standardisation: a standardised document name and content.
- Accessibility: easy search and access to documentation through the Corporate Risk Management Library.

The approval of corporate policies for all kinds of risks corresponds to the Bank's corporate bodies, while the corporate risk area approves the rest of the regulations.

The risk units of the geographical and/or business areas comply with this body of regulations and, where necessary, adapt it to local requirements, in order to have a decision-making process that is appropriate to the local level and in line with the Group's policies.

If such adaptation is necessary, the local risks area must inform the corporate GRM area, which has to ensure consistency in the body of regulations at Group level. Where appropriate, it must thus give its prior approval to the modifications proposed by the local risk areas.

3.1.3.2. Risk planning

Risk planning ensures integration in the Risk Appetite Framework through a cascade process of establishing limits and return adjusted to the target risk, where the function of the corporate area and of the geographical and/or business area risk units is to guarantee that this process is aligned with the Group's Risk Appetite Framework in terms of solvency, profitability, liquidity and funding, profitability and income recurrence.

This process is equipped with tools for aligning and monitoring the Risk Appetite Framework defined at the aggregated level by business areas, legal entities, risk types, concentrations and any other level considered necessary.

The process of risk planning is aligned and taken into consideration within the rest of the Group's planning framework to ensure consistency.

3.1.3.3. Integrated management

All risks must be managed in an integrated fashion during their life cycle, based on differentiated treatment according to their type.

The risk management cycle is made up of 5 elements:

- Planning: with the aim of ensuring that the Group's activities are consistent with the target risk profile and guaranteeing solvency in the development of the strategy.
- Assessment: a process focused on identifying all the risks inherent to the activities carried out by the Group.
- Formalisation: includes the risk origination, approval and formalisation stages.
- Monitoring and reporting: continuous and structured monitoring of risks and preparation of reports for internal and/or external (market, investors, etc.) consumption.
- Active portfolio management: focused on identifying business opportunities, in both existing portfolios and in new markets, businesses or products.

3.1.4. Evaluation, monitoring and reporting

Evaluation, monitoring and reporting is a cross-cutting element that ensures the Model has a dynamic and anticipatory vision, making possible compliance with the Risk Appetite Framework approved by the corporate bodies, even under unfavorable scenarios. This process is carried out with the following aims:

- Evaluate compliance of the Risk Appetite Framework at the present time, through monitoring of the fundamental metrics, metrics by risk type and the basic limits structure.
- Evaluate compliance of the Risk Appetite Framework in the future through projection of the Risk Appetite variables, both in a baseline scenario determined by the budget, and in a specific risk scenario determined by stress tests.
- Identify and value the risk factors and scenarios that may compromise compliance of the Risk Appetite Framework through the development of a repository of risks and an analysis of their impact.
- Act to mitigate the impact on the Group of the risk factors and scenarios identified, ensuring the risk remains within the target risk profile.
- Supervise the key variables that do not form a direct part of Risk Appetite Framework, but that condition its compliance. These may be both external and internal.

To carry out this process, which is integrated into the activity of the corporate and geographical and/or business risk units, the following phases must be developed:

- Identification of the risk factors, which has the aim of generating a map with the most relevant risk factors that could compromise the Group's performance with respect to the thresholds defined in the Risk Appetite Framework.
- Evaluation of the impact: Consists of evaluating what impact the materialisation of one or more risk factors identified in the previous phase could have on the Risk Appetite Framework metrics, if a given scenario occurs.
- Response to undesirable situations and proposed measures for adjusting the situation: The overruns of the thresholds will be associated with an analysis of the measures for adjustments at the corresponding level that allow a dynamic management of the situation, even before it takes place.
- Monitoring: Aims to avoid ex ante losses through supervision of the Group's current risk profile and the risk factors identified.
- Reporting: Aims to give information on the risk profile assumed, offering precise, complete and reliable data to the corporate bodies and senior management with the frequency and detail required by the nature, importance and complexity of the risks.

3.1.5. Infrastructure

Infrastructure constitutes the element that must ensure that the Group has the human and technological resources required for effective management and supervision of risks, performance of the functions included in the Group's risk model, and achievement of its objectives.

With respect to human resources, the Group's risk function has an adequate workforce in terms of number, skills, knowledge and experience.

With respect to technology, the Group's risk function ensures the integrity of the management information systems and the provision of the infrastructure required to support risk management, including the tools appropriate to the needs derived from the different types of risks in their admission, management, valuation and monitoring.

The principles according to which the Group's risk technology is governed are:

- Uniformity: the criteria are consistent across the whole Group, ensuring the same risk treatment at each geographical and/or business level.

- Integration in the management: the tools incorporate the corporate risk policies and are applied in the Group's day-to-day management.
- Automation of the main processes making up the risk management cycle.
- Appropriateness: adequate supply of information at the appropriate time.

Through the Risk Analytics function, the Group has a corporate framework that develops measurement techniques and models, covering all the types of risk and the different purposes, and involving a uniform language for all the activities and geographical/business areas.

The execution is decentralised, allowing the Group's global scope to be used to the full. The idea is to develop the existing risk models continuously and generate others that cover the new range of businesses that are being deployed, with the aim of strengthening anticipation and proactiveness that characterise the risk function in the Group.

Equally, the risk units of the geographical and/or business areas must ensure they have sufficient means from the point of view of resources, structures and tools to develop risk management in accordance with the corporate model.

3.1.6. Risk culture

The Group promotes the development of a risk culture that ensures the consistent application of the risk management and control model within the Group and guarantees that the risk function is understood and permeates all the levels of the organisation.

The culture transfers to all the levels of the organisation the implications involved in the Group's activities and businesses from the perspective of risk. The risk culture is organised through a number of levers, including the following:

- Communication: Promotes the spread of the Model, and particularly the principles that should govern risk management in the Group consistently and comprehensively across the organisation, through the most appropriate channels.

GRM has a variety of channels for communication that facilitate the transfer of information and knowledge between the different teams in the function and the Group, adapting the frequency, formats and recipients according to the objective, making it easier to establish the basic principles of the risk function. Thus the culture of risks and the prudent management model begin with the corporate bodies and the Group's management and are transmitted across the whole organisation.

- Training: its main aim is to disseminate and establish the model of prudent risk management across the organisation, ensuring standards in the skills and knowledge of the different persons involved in the risk management processes.

Well defined and implemented training ensures continuous improvement of the skills and knowledge of the Group's professionals, and in particular of the GRM area, and is based on four aspects that aim to develop each of the needs of the GRM group by increasing its knowledge and

skills in different fields such as: finance and risks, tools and technology, management and expertise, and languages.

- Motivation: An area where the aim is for the incentives of the teams in the risk function to support the risk management strategy, values and culture of the function at all levels. It includes remuneration and all the other elements associated with motivation, such as the working environment, etc. that contribute to achieving the Model's objectives.

3.2. Credit and counterparty risk

3.2.1. Scope and nature of the Credit Risk measurement and reporting systems for capital framework purposes

Credit risk arises from the probability that one party to a financial instrument will fail to meet its contractual obligations for reasons of insolvency or inability to pay and cause a financial loss for the other party.

It is the most important risk for the Group and includes counterparty risk, issuer risk, settlement risk and country risk management.

BBVA Group has a risk strategy determined by the Board of Directors of the parent company, which establishes the Group's Risk Appetite statement and the core and main metrics by type of risk in which it is materialised, as well as the General Risk Management and Control Model.

On the basis of what is approved by the Board of Directors, BBVA's Executive Committee establishes the Corporate Policies and specific limits for each type of risk, to enable the Group to take up a position within the parameters established by the Board.

The Risk Committee assists the Board of Directors to determine the Group's risk policy and the Executive Committee to determine the limits and risk policy strategy, analyzing and assessing in advance the proposals submitted to these governing bodies.

The Risk Committee, Executive Committee and the Board itself conduct proper monitoring of the risk strategy implementation and of the Group's risk profile.

Based on the risk strategy determined by the Board of Directors, and following the report of the Risk Committee, the Executive Committee values and, where appropriate,

approves as part of the basic limits structure, the proposed Asset Allocation core limit with the determined level of disaggregation. The limits are established annually, at maximum levels of exposure by type of portfolio.

The asset allocation limits to portfolios, businesses and risks will be defined taking into account the established metrics in terms of exposure and composition of portfolios, and must be geared to maximizing the Group's added generation of recurring economic earnings, subject to a framework of restrictions resulting from the definition of the target risk profile.

The Corporate Risk Area will establish risk concentration thresholds: individual, per portfolio and sector. Individual concentration will be limited to its impact on solvency (CET1). The portfolio and sector concentration will be in terms of EAD, under the cuts by retail portfolio/wholesale sector. Herfindahl indices are used for the individual portfolio concentration index, taking the 1,000 first counterparties in terms of EAD, as well as the sum of the exposure of the 20 biggest counterparties in relation to the solvency impact.

The Business Areas must work in line with the global vision and defined metrics, optimizing each of the portfolios for which they are responsible in terms of risk/return, within the Group's limits and policies.

The existing gaps with respect to the target portfolio must be identified at global level and transmitted to the Business Areas, establishing plans at global and local level to adapt the risk to the predefined target profile and taking into account the future expected performance of the portfolios.

For managing risks and capital, BBVA quantifies its credit risk using two main metrics: expected loss ("EL") and economic capital ("EC"). Expected loss reflects the average value of losses and is considered a business cost; Economic capital

is the amount of capital considered necessary to cover unexpected losses if actual losses are greater than expected losses.

These risk metrics are combined with information on profitability in value-based management, thus building the profitability-risk binomial into decision-making, from the definition of business strategy to approval of individual loans, price setting, assessment of non-performing portfolios, incentives to areas in the Group, etc.

There are three essential parameters in the process of calculating the EL and EC measurements: the probability of default ("PD"), loss given default ("LGD") and exposure at default ("EAD"), mainly based on the estimate of credit conversion factors ("CCF"). They are generally estimated using the available historical information and are assigned to operations and customers according to their particular characteristics.

In this context, the credit rating tools (ratings and scorings) assess the risk in each customer/transaction according to their credit quality by assigning them a score, which is used to assign risk metrics together with other additional information: transaction seasoning, loan to value ratio, customer segment, etc.

Section 3.2.5.1 of this Document details the definitions, methods and data used by the Group to determine the capital requirements for estimating and validating the parameters of probability of default (PD), loss given default (LGD) and exposure at default (EAD).

3.2.2. Definitions and accounting methodologies

3.2.2.1. Definitions of non-performing assets and impaired positions

A financial asset is considered impaired for accounting purposes when there is objective evidence that events have occurred which have a negative impact on the future cash flows that were estimated at the time the transaction was arranged.

Objective evidence of impairment of a financial asset or group of financial assets includes observable data about the following aspects:

- Significant financial difficulties on the part of the obligor.
- Continued delays in payment of interest or principal.
- Refinancing or restructuring of debt caused by the financial difficulties of the counterparty.

- Bankruptcy and other types of reorganisation/winding-up is considered likely.
- Disappearance of a financial asset from an active market due to financial difficulties.
- Observable data that indicate a reduction in future flows from initial recognition such as adverse changes in the status of counterparty payments (payment delays, drawing credit on cards up to the limit, etc.).
- Domestic or local economic conditions are correlated with default in financial assets (increase in the unemployment rate, fall in property prices, etc.).

The classification of financial assets impaired for reasons of customer default is done in an objective way and on an individual basis according to the following criterion:

- The total amount of debt instruments, irrespective of the holder and the guarantee involved, with an amount past due for more than ninety days for principal, interest or contractually agreed expenses, unless they should be classified directly as write-offs.
- Contingent liabilities in which the guaranteed party has incurred default.
- Debt instruments classified as impaired through the accumulation of balances in default for an amount exceeding 20% of the overall amounts pending collection will also be included.

Financial assets impaired for reasons other than customer default, which are those for which there is a reasonable doubt about their total reimbursement under the terms and conditions agreed by contract, are classified individually for all risks whose individual amount is significant.

Write-off risks are those debt instruments whose recovery is deemed remote and should be derecognised as assets.

3.2.2.2. Methods for determining value adjustments for impairment of assets and provisions

The impairment on financial assets is calculated by type of instrument and other circumstances that may affect them, taking into account the guarantees received by the holders of the instruments to assure (fully or partially) the performance of the transactions. BBVA Group recognises impairment charges directly against the impaired asset when the likelihood of recovery is deemed remote, and uses an offsetting or allowance account when it records provisions made to cover estimated losses on their full value.

The amount of the deterioration of debt instruments valued at their amortised cost is determined differently according to whether the impairment losses are calculated individually or collectively. First, it is determined whether there is objective evidence of individual impairment of individually significant assets, and as a group for financial assets that are not individually significant. If there is no objective evidence of deterioration in a financial asset evaluated individually, the asset will be included in a group of financial assets with similar credit risk characteristics and its deterioration will be evaluated as a group.

3.2.2.2.1. Impairment losses determined individually

The amount of impairment losses recorded by these instruments coincides with the positive difference between their respective book values and the present values of future cash flows. These cash flows are discounted using the original effective interest rate. If a financial instrument has a variable interest rate, the discount rate for measuring any impairment loss is the current effective rate determined under the contract.

As an exception to the rule described above, the market value of quoted debt instruments is deemed to be a fair estimate of the present value of their future cash flows.

The estimation of future cash flows for debt instruments considers the following:

- All sums expected to be recovered during the remaining life of the instrument, including those that may arise from collateral and credit enhancements, if any (once deduction has been made of the costs required for their foreclosure and subsequent sale). Impairment losses include an estimate for the possibility of collecting accrued, past-due and uncollected interest.
- The various types of risk to which each instrument is subject.
- The circumstances under which the collections will foreseeably take place

3.2.2.2.2. Impairment losses determined collectively

For group analysis of impairment, the financial assets are grouped by similar risk characteristics indicating the debtor's ability to make its payments under the contractual terms. Based on this analysis the impairment of loans not individually significant are estimated, distinguishing between those that present objective evidence of impairment from those that do not present objective evidence of impairment, as well as the impairment of significant loans for which the Group has determined that there is no objective evidence of impairment.

With respect to financial assets that do not show any objective evidence of impairment, the Group applies statistical procedures using its historical experience and other specific information to estimate incurred losses incurred by the Group resulting from events that have occurred as of the date of preparation of the consolidated financial statements, but that are not known and are only identified individually after the presentation of the statements. This calculation is a temporary step until the losses are identified specifically at individual level, when these financial instruments will be separated from the group of financial assets without objective evidence of impairment.

Quantification of losses incurred takes into account three basic factors: exposure at default, probability of default and loss given default.

- Exposure at default (EAD) is the amount of risk exposure at the date of default by the counterparty.
- Probability of default (PD¹) is the probability of the counterparty failing to meet its principal and/or interest payment obligations. This probability reflects the current conditions of the portfolio at each date of preparation of the financial statements and is estimated taking into account the main characteristics of the credit quality of the counterparty/transaction.
- Loss given default (LGD¹) is the estimate of the loss arising in the event of default. It depends mainly on the characteristics of the transaction and the valuation of the related guarantees or collateral.

The calculation of LGD at each date of the balance sheet estimates the current value of the cash flows expected to be obtained during the remaining life of the financial asset. The recoverable amount of effective collateral will be estimated based on the valuation of the property, discounting the adjustments needed to capture adequately the uncertainty the potential fall in value up to the time of foreclosure and sale, plus foreclosure costs, maintenance costs and sale costs.

3.2.2.2.3. Methods used to determine provisions for contingent risks and commitments

Non-performing contingent exposures and commitments, except for letters of credit and other guarantees, are to be provisioned for an amount equal to the estimation of the sums expected to be disbursed that are deemed to be non-recoverable, applying criteria of valuation prudence. When calculating the provisions, criteria similar to those established for non-performing assets for reasons other than customer default are applied.

1: The PD and LGD is calculated for accounting purposes using a Point-in-time ("PIT") approach

In any event, letters of credit and other guarantees provided which are classified as non-performing will be covered by applying similar criteria to those set out in the preceding section on value adjustments for asset impairment.

Likewise, the inherent loss associated with letters of credit and other guarantees provided that are in force and not impaired is covered by applying similar criteria to those set out in the preceding section on impairment losses determined collectively.

3.2.2.3. The Group's own definition of restructured exposures

As set out in the Group's Consolidated Annual Report, a restructured transaction is understood to be one that for economic or legal reasons related to the holder's (or holders') current or foreseeable financial difficulties, the financial conditions are modified to facilitate payment of the debt (principal and interest) because the holder cannot, or is considered will not be able to, comply with these conditions on time and in full, even when such modification is included in the contract.

In any event, restructured transactions are considered to be those where a haircut is applied or assets are received to reduce the debt, or whose conditions are modified to extend its maturity, change the repayment schedule to reduce the amount of payments in the short term or their frequency, or establish or extend the initial grace period of the principal, interest or both; except where it can be proved that the conditions are modified for reasons other than the financial difficulties of the holder and are similar to those applied in the market at the time of modification to transactions granted to customers with a similar risk profile.

In March 2017 the ECB published guidance for dealing with non-performing loans. Section 4 of this guidance is for restructured operations and contains details of the public information to be disclosed in this respect.

3.2.2.4. Standards in interpretations issued but not yet effective as of December 31, 2017. IFRS 9 - Instruments

As specified in Note 2.3 of the Group's Report, on July 24, 2014 the International Accounting Standards Board (IASB) issued IFRS 9, which for the annual periods starting January 1, 2018 replaces IAS 39 and includes requirements for the classification and valuation of the financial assets and liabilities, the deterioration of financial assets and hedge accounting.

The Group has assessed the estimated impact on its consolidated financial statements of the initial application of IFRS 9. The estimated impact of adopting this standard

on the Group's capital as of January 1, 2018 is based on the assessments made to date. The real impacts of adopting the standards as of January 1, 2018 may change because:

- The Group has not concluded the tests or the evaluation of the controls of its new IT systems; and
- The new accounting policies and methodologies may be subject to modifications until the Group presents its financial statements that include the final impact as of the date of initial application.

As of the date when the consolidated Annual Report was drafted, the average estimated impact on the fully loaded CET1 ratio would be a reduction of approximately 31 basis points and the estimated impact on the volume of provisions would be an increase of approximately 10% on the current level of provisions.

However, the European Parliament and Commission have established a transitional mechanism for applying IFRS 9 on capital ratios, which is voluntary for institutions. The Group intends to apply this provision.

3.2.3. Information on credit risks

3.2.3.1. Credit risk exposure

Pursuant to article 5 of the CRR, with respect to the bank capital requirements for credit risk, exposure is understood to be any asset item and all items included in the Group's memorandum accounts involving credit risk and not deducted from the Group's bank capital. Accordingly, mainly customer lending items are included, with their corresponding undrawn balances, letters of credit and guarantees, debt securities and capital instruments, cash and deposits in central banks and credit institutions, assets purchased or sold under a repurchase agreement (asset and liability repos), financial derivatives (nominal) and fixed assets.

The credit risk exposure specified in the following sections of this Document is broken down into the standardised credit risk approach (section 3.2.4), advanced credit risk approach (section 3.2.5) and counterparty risk (section 3.2.6) and securitisation credit risk (section 3.2.7).

In addition to the exposure to risk at the time of default and the risk-weighted assets, the table below shows the original exposure, the exposure net of provisions and the exposure applying the conversion factors under the standardised and advanced measurement approaches as of December 31, 2017 and December 31, 2016 (including counterparty risk):

Table 10. Credit Risk exposure (Million Euros. 12-31-17)

Exposure Class	Original Exposure ⁽¹⁾	Provisions ⁽²⁾	Net exposure of provisions ⁽³⁾	On-balance exposure after credit risk mitigation techniques ^(4a)	Off-balance exposure after credit risk mitigation techniques ^(4b)	Exposure in the adjusted value ⁽⁵⁾	EAD ⁽⁶⁾	RWA's ⁽⁷⁾	RWA density ^{(8)=(7)/(6))*}
Central governments or central banks	122,404	(48)	122,356	135,156	15,397	150,553	135,914	29,759	22%
Regional governments or local authorities	10,140	(8)	10,133	5,978	821	6,799	6,516	1,252	19%
Public sector entities	1,556	(4)	1,552	1,635	854	2,490	1,701	654	38%
Multilateral development banks	93	(1)	93	191	21	212	191	14	7%
International organisations	1	-	1	1	-	1	1	-	0%
Institutions	22,176	(17)	22,159	14,875	3,088	17,963	16,289	5,793	36%
Corporates	132,075	(1,613)	130,461	77,564	42,493	120,057	93,319	91,600	98%
Retail	92,773	(1,246)	91,527	53,441	33,393	86,834	55,645	39,177	70%
Secured by mortgages on immovable property	49,883	(339)	49,545	48,416	511	48,927	48,740	19,609	40%
Exposures in default	9,753	(4,645)	5,108	4,384	536	4,920	4,684	5,248	112%
Exposures associated with particularly high risk	2,557	(68)	2,489	2,463	1	2,464	2,463	3,694	150%
Covered bonds	-	-	-	-	-	-	-	-	0%
Claims on institutions and corporates with a short-term credit assessment	25	-	25	25	-	25	25	5	20%
Collective investments undertakings	34	()	34	9	26	34	24	24	100%
Other exposures	21,200	(34)	21,166	27,897	2,574	30,471	29,274	11,725	40%
Securitisation exposures	4,314	-	4,314	4,314	-	4,314	4,314	924	21%
TOTAL STANDARDISED APPROACH	468,985	(8,023)	460,963	376,350	99,714	476,064	399,100	209,478	52%
Central governments or central banks	6,817	(4)	-	7,801	660	8,461	8,131	1,172	14%
Institutions	97,127	(71)	-	72,271	5,446	77,717	75,314	5,931	8%
Corporates	134,011	(3,447)	-	73,875	58,182	132,057	103,323	56,643	55%
Corporates (SMEs)	18,015	(1,821)	-	14,089	3,555	17,644	15,651	10,056	64%
Corporates: Specialised lending	9,325	(109)	-	8,370	955	9,325	9,111	8,077	89%
Corporates: Others	106,670	(1,518)	-	51,416	53,672	105,088	78,561	38,510	49%
Retail	117,747	(2,339)	-	97,721	19,922	117,643	101,576	19,662	19%
Of which: garantizados con bienes inmuebles	84,366	(1,192)	-	79,848	4,497	84,345	80,073	8,268	10%
Of which: Secured by mortgages on immovable property	20,625	(527)	-	6,023	14,603	20,625	9,154	6,764	74%
Of which: Others	12,756	(620)	-	11,851	823	12,674	12,350	4,629	37%
Retail: Other SMEs	3,857	(198)	-	2,975	805	3,780	3,464	1,612	47%
Retail: Other Non-SMEs	8,899	(421)	-	8,876	18	8,894	8,885	3,017	34%
Securitisation exposures	757	-	-	757	-	757	757	827	109%
TOTAL IRB APPROACH	356,459	(5,861)	-	252,425	84,211	336,636	289,101	84,235	29%
TOTAL CREDIT RISK DILUTION AND DELIVERY	825,445	(13,884)	460,963	628,775	183,925	812,700	688,201	293,713	43%
Equity	7,798	(1,244)	-	7,798	-	7,798	7,798	16,775	215%
Simple Approach	3,881	(90)	-	3,881	-	3,881	3,881	9,562	246%
Not listed instruments in sufficiently diversified portfolios	3,705	(88)	-	3,705	-	3,705	3,705	8,989	243%
Listed in exchange-traded markets	176	(2)	-	176	-	176	176	573	327%
PD/LGD Approach	3,390	(1,123)	-	3,390	-	3,390	3,390	4,953	146%
Intern Models	527	(31)	-	527	-	527	527	2,261	429%
TOTAL CREDIT RISK	833,242	(15,128)	460,963	636,573	183,925	820,498	695,999	310,487	45%

⁽¹⁾ Gross exposure of provisions before credit risk mitigation techniques, excluding contributions to the default of a CCP

⁽²⁾ Includes provisions and adjustments due to impairment of financial assets and contingent risks and commitments

⁽³⁾ Exposures are only adjusted by provisions in those cases that are calculated by Standardised approach

^{(4a)(4b)} Eligible credit mitigation techniques are included, either on-balance or off-balance, according to Chapter 4 of CRR

⁽⁵⁾ It corresponds to the exposure in the adjusted value by eligible credit mitigation techniques

⁽⁶⁾ Exposure to credit risk at default, calculated as (4a)+((4b)*CCF)

Credit Risk exposure (Million Euros. 12-31-16)

Exposure Class	Original Exposure ⁽¹⁾	Provisions ⁽²⁾	Net exposure of provisions ⁽³⁾	On-balance exposure after credit risk mitigation techniques ^(4a)	Off-balance exposure after credit risk mitigation techniques ^(4b)	Exposure in the adjusted value ⁽⁵⁾	EAD ⁽⁶⁾	RWA's ⁽⁷⁾	RWA density ^{(8=(7)/(6))}
Central governments or central banks	112,153	(35)	112,118	132,356	5,853	138,209	133,925	30,106	22%
Regional governments or local authorities	5,290	(4)	5,286	4,804	433	5,237	5,074	989	19%
Public sector entities	5,474	(31)	5,443	2,951	368	3,319	3,097	941	30%
Multilateral development banks	59	-	59	59	-	59	59	33	56%
International organisations	6	-	6	6	-	6	5	-	0%
Institutions	34,785	(48)	34,737	17,397	10,189	27,586	19,136	6,370	33%
Corporates	143,236	(2,873)	140,363	87,084	39,146	126,230	106,126	103,761	98%
Retail	80,221	(654)	79,567	55,313	21,123	76,436	58,042	40,821	70%
Secured by mortgages on immovable property	55,296	(310)	54,986	54,028	47	54,075	54,048	21,276	39%
Exposures in default	10,112	(4,906)	5,206	4,791	265	5,056	4,991	5,807	116%
Items associated with particularly high risk	1,678	(142)	1,536	1,458	17	1,475	1,462	2,193	150%
Covered bonds	-	-	-	-	-	-	-	-	0%
Claims on institutions and corporates with a short-term credit assessment	406	-	406	406	-	406	406	87	21%
Collective investments undertakings	444	(2)	442	16	347	363	140	140	100%
Other exposures	26,124	(124)	26,000	39,591	4,071	43,662	41,609	15,463	37%
Securitisation exposures	5,183	-	5,183	5,183	-	5,183	5,183	1,144	22%
TOTAL STANDARDISED APPROACH	480,467	(9,129)	471,338	405,443	81,859	487,302	433,303	229,131	53%
Central governments or central banks	5,580	(78)	-	6,115	1,008	7,123	6,606	552	8%
Institutions	96,639	(61)	-	71,733	4,109	75,842	74,199	6,114	8%
Corporates	141,295	(5,279)	-	79,020	60,111	139,132	109,708	60,983	56%
Corporates (SMEs)	20,956	(2,745)	-	17,004	3,295	20,299	18,420	12,061	65%
Corporates: Specialised lending	11,186	(166)	-	9,733	1,453	11,186	10,677	9,710	91%
Corporates: Others	109,153	(2,368)	-	52,283	55,363	107,647	80,611	39,212	49%
Retail	119,533	(2,577)	-	99,243	20,259	119,503	103,291	22,092	21%
Of which: garantizados con bienes inmuebles	88,849	(1,595)	-	83,636	5,187	88,823	83,894	10,690	13%
Of which: Secured by mortgages on immovable property	20,322	(512)	-	5,931	14,390	20,322	9,302	7,376	79%
Of which: Others	10,362	(470)	-	9,676	682	10,358	10,095	4,026	40%
Retail: Other SMEs	3,303	(137)	-	2,624	676	3,300	3,040	1,503	49%
Retail: Other Non-SMEs	7,059	(333)	-	7,052	6	7,058	7,055	2,523	36%
Securitisation exposures	858	-	-	858	-	858	858	332	39%
TOTAL IRB	363,905	(7,995)	-	256,969	85,487	342,458	294,662	90,073	31%
TOTAL CREDIT DILUTION AND DELIVERY RISK	844,372	(17,124)	471,338	662,412	167,346	829,760	727,965	319,204	44%
Equity	8,214	(121)	-	8,214	-	8,214	8,214	16,639	203%
Simple Approach	4,429	(39)	-	4,429	-	4,429	4,429	10,782	243%
Not listed instruments in sufficiently diversified portfolios	4,183	(36)	-	4,183	-	4,183	4,183	9,990	239%
Listed in exchange-traded markets	246	(3)	-	246	-	246	246	792	322%
PD/LGD Approach	3,592	(47)	-	3,592	-	3,592	3,592	4,896	136%
Intern Models	193	(35)	-	193	-	193	193	961	498%
TOTAL CREDIT RISK	852,586	(17,245)	471,338	670,626	167,346	837,974	736,179	335,843	46%

⁽¹⁾ Gross exposure of provisions before credit risk mitigation techniques, excluding contributions to the default of a CCP

⁽²⁾ Includes provisions and adjustments due to impairment of financial assets and contingent risks and commitments

⁽³⁾ Exposures are only adjusted by provisions in those cases that are calculated by Standardised approach

^{(4a)(4b)} Eligible credit mitigation techniques are included, either on-balance or off-balance, according to Chapter 4 of CRR

⁽⁵⁾ It corresponds to the exposure in the adjusted value by eligible credit mitigation techniques

⁽⁶⁾ Exposure to credit risk at default, calculated as (4a)+((4b)*CCF)

3.2.3.2. Average value of the exposures in 2017 and 2016.

The table below shows the average value of exposure to credit risk in 2017 and 2016, for both the advanced measurement

and standardised approaches for each one of the exposure categories:

Table 11. EU CRB-B – Total and average net amount of exposures (includes counterparty credit risk) (Million Euros)

	12-31-17	12-31-17
	Net value of exposures at the end of the period (4Q) ⁽¹⁾	Average net exposures over the period
Central governments or central banks	6,813	5,591
Institutions	97,056	88,605
Corporates	130,564	131,251
Of which: Specialised lending	9,216	10,075
Of which: SMEs	16,195	16,367
Retail	115,408	116,630
Secured by real estate property	83,174	84,417
Qualifying revolving	20,098	21,090
Other retail	12,136	11,123
SMEs	3,659	3,325
Non-SMEs	8,477	7,797
Equity	7,798	8,217
TOTAL IRB APPROACH	357,639	350,294
Central governments or central banks	122,356	122,111
Regional governments or local authorities	10,133	7,718
Public sector entities	1,552	2,849
Multilateral development banks	93	101
International organisations	1	2
Institutions	22,159	25,831
Corporates	130,461	130,715
Of which: SMEs	21,002	22,061
Retail	91,527	87,309
Of which: SMEs	24,258	26,000
Secured by mortgages on immovable property	49,545	52,696
Of which: SMEs	9,009	9,161
Exposures in default	5,108	4,973
Exposures associated with particularly high risk	2,489	2,602
Covered bonds	-	-
Claims on institutions and corporates with a short-term credit assessment	25	197
Collective investments undertakings	34	86
Equity exposures	-	-
Other exposures	21,166	22,492
TOTAL STANDARDISED APPROACH	456,649	459,681
TOTAL	814,288	809,976

⁽¹⁾ The table above shows net original exposure of COREP statements about Credit Risk and CCR by standardised and IRB approach

3.2.3.3. Distribution by geographic area

The following chart present the distribution by geographic areas of the original exposure net of provisions, by the

obligor's country. The distribution includes exposure under the standardised and advanced measurement approaches, as well as counterparty risk, but not including holding in equities.

Table 12. EU CRB-C – Geographical breakdown of exposures (includes counterparty credit risk) (Million Euros. 12-31-17)

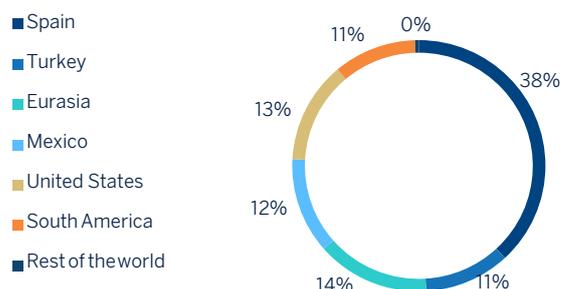
Exposure Class ⁽¹⁾	Net EO of provisions ⁽²⁾							Total
	Spain	Turkey	Eurasia	Mexico	USA	South America	Other areas	
Central governments or central banks	594	0	431	135	4,231	974	448	6,813
Institutions	44,341	26	48,044	505	2,543	540	1,056	97,056
Corporates	61,137	499	36,571	18,512	10,291	2,246	1,307	130,564
Of which: Specialised lending	3,541	239	4,285	1	303	275	572	9,216
Of which: SMEs	15,016	3	209	925	5	29	7	16,195
Retail	101,320	1	576	13,371	41	65	34	115,408
Secured by real estate property	82,528	1	526	13	36	44	26	83,174
Qualifying revolving	6,684	0	33	13,356	4	15	6	20,098
Other retail	12,108	0	18	1	1	6	2	12,136
SMEs	3,650	-	8	0	0	1	0	3,659
Non-SMEs	8,459	0	9	1	1	5	2	8,477
Equity	5,771	157	263	811	201	468	126	7,798
TOTAL IRB APPROACH	213,164	683	85,886	33,333	17,308	4,294	2,972	357,639
Central governments or central banks	63,669	16,533	11,186	14,475	6,037	10,456	0	122,356
Regional governments or local authorities	687	31	84	2,030	7,135	166	-	10,133
Public sector entities	2	75	29	756	-	689	-	1,552
Multilateral development banks	-	5	36	-	3	48	-	93
International organisations	0	-	1	-	0	-	-	1
Institutions	1,265	2,467	6,867	6,033	1,826	3,509	193	22,159
Corporates	3,326	31,413	8,300	15,076	46,746	24,941	660	130,461
Of which: SMEs	1,391	9,557	931	328	3,663	5,035	96	21,002
Retail	13,354	25,767	1,928	12,008	14,656	23,790	23	91,527
Of which: SMEs	6,523	10,917	420	258	2,250	3,886	3	24,258
Secured by mortgages on immovable property	4,751	8,506	2,332	10,685	9,360	13,851	60	49,545
Of which: SMEs	321	5,854	311	2,237	1	287	-	9,010
Exposures in default	1,401	1,583	516	471	296	839	2	5,108
Exposures associated with particularly high risk	169.95	146.724	0.069	417.955	1054.884	699.757	0	2489.339
Covered bonds	-	-	-	-	-	-	-	-
Claims on institutions and corporates with a short-term credit assessment	0	-	16	8	-	-	-	25
Collective investments undertakings	1	-	26	-	8	(0)	-	34
Equity exposures	-	-	-	-	-	-	-	-
Other exposures	9,227	1,988	350	4,846	1,718	3,037	0	21,166
TOTAL STANDARDISED APPROACH	97,853	88,516	31,670	66,807	88,840	82,026	937	456,649
TOTAL	311,017	89,199	117,556	100,140	106,147	86,320	3,909	814,288

⁽¹⁾ Geographical areas have been determined based on the counterparty's origin

⁽²⁾ The table above shows net original exposure of COREP statements about Credit Risk and CCR by standardised and IRB approach

It also shows graphically the distribution of original exposure by geographic area, revealing the Group's high level of geographical diversification, which constitutes one of the key levers for its strategic growth.

Chart 6: Distribution by geographical area of credit risk exposure



The next table shows the distribution by geographical area of the defaulted and impaired exposures of financial assets and contingent risks, as well as the adjustments for credit risk:

Table 13. EU CR1-C – Credit quality of exposures by geography (includes counterparty credit risk) (Million Euros. 12-31-17)

	a	b	c	d	e	f
	Gross Original exposure ⁽¹⁾					
	Defaulted exposures	Non-defaulted exposures	Credit risk adjustment	Accumulated write-offs	Credit risk adjustment charges of the period	Net values
Spain	14,074	305,906	(8,963)	23,133	837	311,017
Turkey	2,341	88,067	(1,209)	40	842	89,199
Eurasia	1,079	117,159	(682)	288	232	117,556
Mexico	1,125	100,029	(1,014)	2,065	473	100,140
USA	958	105,790	(601)	3,408	395	106,147
South America	2,039	85,684	(1,403)	1,171	388	86,320
Other areas	68	3,852	(12)	51	73	3,909
TOTAL	21,685	806,487	(13,884)	30,156	3,240	814,288

⁽¹⁾ CCR is included, whose corrections for impairment as of December 31, 2017 amounted to 10 Million Euros

⁽²⁾ The table above shows gross original exposure of COREP statements about Credit Risk and CCR by standardised and IRB approach

3.2.3.4. Credit quality of exposure by exposure class and instrument

Below is the value of the exposures by exposure class, broken down into defaulted and non-defaulted exposures as of

December 31, 2017. This table excludes exposures subject to the Counterparty Risk framework under Part 3, Title II, Chapter IV of the CRR, as well as exposures subject to the Securitisation framework as defined in Part 3, Title II, chapter V of the CRR.

Table 14. EU CR1-A – Credit quality of exposures by exposure class and instrument (excludes counterparty credit risk) (Million Euros. 12-31-17)

	a		b		c	d	e	f
	Gross Original exposure ⁽⁴⁾ of:		Defaulted exposures	Non-defaulted exposures	Credit risk adjustment	Accumulated write-offs	Credit risk adjustment charges of the period	Net values ⁽³⁾
Central governments or central banks	96	5,567	4	-	(74)	5,660		
Institutions	194	33,965	62	15	3	34,097		
Corporates	6,207	124,490	3,447	5,087	(1,831)	127,250		
Of which: Specialised lending	331	7,814	109	3,497	(57)	8,036		
Of which: SMEs	3,485	14,382	1,821	6	(924)	16,046		
Of which: Others	2,392	102,294	1,518	1,583	(850)	103,168		
Retail	5,397	112,342	2,339	1,609	(238)	115,400		
Secured by real estate property	4,479	79,887	1,192	772	(403)	83,174		
Qualifying revolving	168	20,457	527	51	15	20,098		
Other retail	750	11,998	620	785	150	12,128		
SMEs	367	3,483	199	100	61	3,651		
Non-SMEs	383	8,515	421	685	89	8,477		
Equity	-	7,798	-	-	-	7,798		
TOTAL IRB APPROACH	11,894	284,163	5,852	6,711	(2,140)	290,204		
Central governments or central banks	141	116,594	48	9	13	116,546		
Regional governments or local authorities	9	10,108	8	13	4	10,100		
Public sector entities	-	1,551	4	19	(27)	1,547		
Multilateral development banks	-	93	1	-	-	93		
International organisations	-	1	-	-	-	1		
Institutions	79	15,048	17	23	(32)	15,031		
Corporates	4,033	126,707	1,613	15,303	(1,259)	125,094		
Retail	2,917	92,709	1,246	3,595	592	91,463		
Secured by mortgages on immovable property	2,107	49,883	339	2,466	29	49,545		
Exposures in default ⁽¹⁾	9,753	-	4,645	-	(261)	5,107		
Exposures associated with particularly high risk ⁽²⁾	40	2,518	67	153	(74)	2,490		
Covered bonds	-	-	-	-	-	-		
Claims on institutions and corporates with a short-term credit assesment	-	24	()	-	(2)	24		
Collective investments undertakings	2	34	-	9	-	34		
Equity exposures	-	-	-	-	-	-		
Other exposures	465	21,200	34	1,856	(91)	21,166		
TOTAL STANDARDISED APPROACH	9,792	436,472	8,022	23,445	(1,107)	438,242		
TOTAL	21,685	720,635	13,875	30,156	(3,247)	728,446		
Of which: Loans	20,333	424,971	13,556			431,750		
Of which: Debt securities	76	73,498	47			73,527		
Of which: Off-balance sheet exposures	1,276	184,129	273			185,132		
Of which: Others	-	38,037	-			38,037		

⁽¹⁾ Exposures in default are additionally broken down by their respective categories of origin

⁽²⁾ Exposures associated with particularly high risk that are in default are reported in the column "Exposures in default", since they are not included in the total amount of the exposures in default of the COREP of Credit Risk by standardised approach

⁽³⁾ Net exposure is calculated as follows:

- Net exposure by standardised approach = "Non-defaulted exposures" - "Credit risk adjustment"; except "Exposures in default" and "Items associated with particularly high risk" that are calculated as exposures by IRB approach do;

- Net exposure by IRB approach = "Exposures in default" + "Non-defaulted exposures" - "Credit risk adjustment"

⁽⁴⁾ The table above shows gross original exposure of COREP statements about Credit Risk by standardised and IRB approach

3.2.3.5. Distribution by sector

The following table shows the distribution of original exposure by economic sector (standardised and advanced measurement approach) of original exposure net of provisions for financial assets and contingency risks, excluding counterparty risk, and including equity:

Table 15. EU CRB-D – Concentration of exposures by industry or counterparty types (excludes counterparty credit risk) (Million Euros. 12-31-17)

Million Euros	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 activities and insurance	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	Household activities as employers of domestic staff; Activities of households as products of goods and services for own use	Extraterritorial organizations activities	Individuals without business activity	Total ⁽¹⁾
Central governments or central banks	-	-	-	-	-	-	-	-	-	-	4,281	-	-	-	1,378	-	-	-	-	-	-	-	5,660
Institutions	9	1	382	481	221	413	23	1,784	6	6	10,486	222	95	42	19,713	4	83	3	107	-	15	-	34,097
Corporates	1,755	4,873	34,298	13,210	924	12,469	16,070	4,744	5,270	6,614	10,024	5,347	6,105	2,695	63	185	882	937	687	2	94	-	127,250
'Of which: Specialised lending	12	430	604	2,778	130	2,047	372	700	-	-	107	251	386	53	58	37	49	2	19	-	-	-	8,036
'Of which: SMEs	516	60	2,887	150	61	3,500	2,878	666	920	219	335	1,934	649	420	4	90	248	186	323	-	-	-	16,046
'Of which: Others	1,226	4,383	30,807	10,282	733	6,923	12,820	3,377	4,350	6,395	9,582	3,162	5,070	2,222	2	58	585	749	346	2	94	-	103,168
Retail	624	47	1,833	119	54	1,881	3,809	1,412	1,464	462	231	460	1,658	662	-	224	660	300	5,510	9	-	93,983	115,400
'Secured by real estate property	412	20	1,024	35	31	1,404	2,465	1,058	1,215	346	187	219	1,412	466	-	179	534	233	4,738	7	-	67,188	83,174
'Qualifying revolving	20	1	35	1	1	31	90	28	37	12	9	9	57	19	-	7	22	10	327	-	-	19,382	20,098
'Other retail	191	26	774	83	22	446	1,254	326	212	103	35	232	189	177	-	37	105	58	445	1	-	7,413	12,128
'SMEs	152	23	708	79	19	362	1,109	243	148	83	23	206	126	135	-	27	87	45	76	1	-	-	3,651
'Non-SMEs	40	3	66	4	3	84	145	82	64	20	12	26	63	42	-	10	18	12	369	-	-	7,413	8,477
Equity	-	-	68	46	3	309	-	-	-	3,548	2,974	279	7	(84)	28	-	-	5	614	-	-	-	7,798
TOTAL IRB APPROACH	2,388	4,921	36,582	13,856	1,202	15,073	19,902	7,939	6,740	10,630	27,996	6,309	7,865	3,314	21,182	413	1,626	1,246	6,918	11	109	93,983	290,204
Central governments or central banks	-	-	1	8	18	-	1	-	-	-	40,793	-	-	-	74,648	-	1	-	1,076	-	-	-	116,546
Regional governments or local authorities	-	-	50	33	65	49	7	266	-	-	114	48	30	1	7,463	595	1,297	17	65	-	-	-	10,100
Public sector entities	1	65	310	148	51	-	2	13	-	-	-	1	7	-	895	22	1	-	30	-	-	-	1,547
Multilateral development banks	-	-	-	-	-	-	-	-	-	-	44	-	-	-	48	-	-	-	-	-	-	-	93
International organisations	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1
Institutions	9	-	6	7	-	13	31	-	-	21	12,078	254	163	15	1,601	3	48	-	784	-	-	-	15,031
Corporates	1,558	5,764	31,176	7,951	698	4,071	15,417	7,559	3,248	3,269	7,037	10,497	3,141	2,144	6,938	853	4,829	701	8,205	37	-	-	125,094
Retail	1,523	444	5,338	328	76	2,883	11,815	2,159	1,229	540	1,344	1,372	2,858	660	-	634	1,919	381	5,108	14	-	50,839	91,463
Secured by mortgages on immovable property	509	548	2,378	1,054	27	1,553	3,871	929	1,396	382	2,372	18,644	2,154	269	-	779	1,696	210	3,664	3	-	7,105	49,545
Exposures in default	79	141	249	42	16	448	347	135	123	20	11	250	274	38	14	18	51	32	1,324	-	-	1,495	5,107
Exposures associated with particularly high risk	1	-	2	-	-	2,158	9	2	2	-	166	88	4	6	-	-	1	-	5	-	-	47	2,489
Covered bonds	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Claims on institutions and corporates with a short-term credit assessment	-	-	-	-	-	-	-	-	-	-	25	-	-	-	-	-	-	-	-	-	-	-	25
Collective investments undertakings	-	-	-	-	-	-	-	-	-	-	34	-	-	-	-	-	-	-	-	-	-	-	34
Equity exposures	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other exposures	1	-	11	-	-	1	10	6	-	-	14,522	1	-	3	-	-	-	-	6,609	-	-	-	21,166
TOTAL STANDARDISED APPROACH	3,680	6,962	39,520	9,573	950	11,176	31,511	11,069	5,998	4,232	78,541	31,155	8,632	3,137	91,608	2,904	9,843	1,340	26,869	54	2	59,486	438,242
TOTAL	6,069	11,883	76,102	23,429	2,152	26,248	51,413	19,008	12,738	14,862	106,537	37,464	16,496	6,451	112,789	3,318	11,469	2,587	33,787	65	111	153,468	728,446

⁽¹⁾ The table above shows net original exposure of COREP statements about Credit Risk by standardised and IRB approach

The next table shows the distribution by counterparty of the defaulted and impaired exposures of financial assets and

contingent risks, as well as their corresponding adjustments for credit risk:

Table 16. EU CR1-B – Credit quality of exposures by industry or counterparty types (excludes counterparty credit risk) (Million Euros. 12-31-17)

	a		b	c	d	e	f
	Gross Original Exposure ⁽¹⁾ of		Non-defaulted exposures	Credit risk adjustment	Accumulated write-offs	Credit risk adjustment charges of the period	Net values
Defaulted exposures							
Agriculture, forestry and fishing	252	6,001	184	49	(150)	6,069	
Mining and quarrying	247	11,770	135	118	132	11,883	
Manufacturing	1,561	76,056	1,515	4,293	112	76,102	
Electricity, gas, steam and air conditioning supply	251	23,441	263	44	(294)	23,429	
Water supply	50	2,128	27	147	(13)	2,152	
Construction	5,870	22,761	2,382	1,051	65	26,248	
Wholesale and retail trade	2,133	50,771	1,491	139	(572)	51,413	
Transport and storage	587	18,872	451	35	(107)	19,008	
Accommodation and food service activities	587	12,466	315	31	(318)	12,738	
Information and communication	133	14,901	172	11	(189)	14,862	
Financial activities and insurance	182	106,578	223	2,385	(236)	106,537	
Real estate activities	1,158	37,124	818	147	(462)	37,464	
Professional, scientific and technical activities	768	16,207	479	146	(331)	16,496	
Administrative and support service activities	265	6,367	180	18	(139)	6,451	
Public administration and defence, compulsory social security	217	112,635	62	2	3	112,789	
Education	65	3,313	61	2	(29)	3,318	
Human health services and social work activities	156	11,469	156	11	(102)	11,469	
Arts, entertainment and recreation	122	2,526	61	4	(41)	2,587	
Other services	640	34,157	1,010	20,305	147	33,787	
Household activities as employers of domestic staff; Activities of households as products of goods and services for own use	2	64	1	0	(2)	65	
Extraterritorial organizations activities	1	111	0	-	(1)	111	
Individuals without business activity	6,439	150,918	3,888	1,220	(722)	153,468	
TOTAL	21,686	720,635	13,875	30,156	(3,247)	728,446	

⁽¹⁾ The table above shows gross original exposure of COREP statements about Credit Risk by standardised and IRB approach

3.2.3.6. Distribution by residual maturity

The following table shows the distribution of net original exposure by residual maturity of financial assets and

contingency risks, broken down by exposure class under the standardised and advanced measurement approaches, excluding counterparty risk and including equity positions:

Table 17. EU CRB-E – Maturity of exposures (excludes counterparty credit risk) (Million Euros. 12-31-17)

	Net exposure value ⁽¹⁾				No stated maturity	Total
	On demand	≤ 1 year	> 1 year ≤ 5 years	> 5 years		
Central governments or central banks	5	569	423	504	4,159	5,660
Institutions	394	9,657	8,704	10,839	4,504	34,097
Corporates	351	45,794	47,627	23,922	9,555	127,250
Of which: Specialised lending	19	788	1,468	5,318	442	8,036
Of which: SMEs	69	4,666	3,442	6,157	1,712	16,046
Of which: Others	264	40,339	42,717	12,447	7,402	103,168
Retail	18	1,801	6,041	86,998	20,541	115,400
Secured by real estate property	5	106	1,915	81,053	95	83,174
Qualifying revolving	0	64	21	0	20,012	20,098
Other retail	13	1,631	4,106	5,945	434	12,128
SMEs	10	1,424	874	933	409	3,651
Non-SMEs	3	207	3,232	5,012	24	8,477
Equity	-	-	-	-	7,798	7,798
TOTAL IRB APPROACH	768	57,821	62,795	122,263	46,557	290,204
Central governments or central banks	19,933	45,409	12,628	38,286	289	116,546
Regional governments or local authorities	97	484	1,505	7,990	25	10,100
Public sector entities	706	630	168	42	1	1,547
Multilateral development banks	-	55	37	-	-	93
International organisations	-	1	-	0	0	1
Institutions	4,707	5,479	3,852	769	224	15,031
Corporates	10,478	39,071	52,262	21,850	1,433	125,094
Retail	3,505	37,647	25,214	15,956	9,141	91,463
Secured by mortgages on immovable property	2,080	6,073	8,785	32,604	2	49,545
Exposures in default	70	578	450	2,025	1,985	5,107
Exposures associated with particularly high risk	0	1,227	1,080	182	1	2,489
Covered bonds	-	-	-	-	-	-
Claims on institutions and corporates with a short-term credit assessment	1	24	-	-	-	25
Collective investments undertakings	-	-	20	8	6	34
Equity exposures	-	-	-	-	-	-
Other exposures	1,821	5,328	38	-	13,978	21,166
TOTAL STANDARDISED APPROACH	43,398	142,006	106,039	119,713	27,086	438,242
TOTAL	44,166	199,827	168,834	241,976	73,643	728,446

⁽¹⁾ The table above shows net original exposure of COREP statements about Credit Risk by standardised and IRB approach

The following table shows the distribution by gross carrying amount of the loans and debt securities by residual maturity

Table 18. EU CR1-D – Ageing of past-due exposures (Million Euros. 12-31-17)

	Gross carrying values ⁽¹⁾					> 1 year
	≤ 30 days	> 30 days ≤ 60 days	> 60 days ≤ 90 days	> 90 days ≤ 180 days	> 180 days ≤ 1 year	
Loans	3,432	759	503	-	-	-
Debt securities	0	-	-	-	-	-
Total exposures	3,432	759	503	-	-	-

⁽¹⁾ Gross carrying values on balance

3.2.3.7. Value adjustments for impairment losses and allowances for contingent risks and commitments

The following table presents the movement recorded in 2017 in all the value adjustments for allowances and impairment

losses of financial assets on the balance sheet; and for contingent risks and commitments.

Table 19. Value adjustments for impairment losses and allowances for contingent risks and commitments (Million Euros)

Item	Value adjustments and provisions on balance	Provisions for contingent liabilities and commitments	TOTAL ⁽¹⁾
			17,133
Increase in impairment charged to income	9,263	286	9,549
Decrease in impairment credited to income	(5,032)	(599)	(5,631)
Decreases due to amounts employed as value adjustments	(6,038)	(374)	(7,166)
Transfers between value adjustments	(482)		
Other adjustments	(273)		
BALANCE AT END OF THE YEAR	13,620	263	13,884
Of which:			
For impaired portfolio	10,228	234	10,462
For current non-impaired portfolio	3,393	29	3,422

⁽¹⁾ Value adjustments for total credit risk (including CCR) according to COREP statements

3.2.3.8. Total impairment losses for the period

The following table shows details of impairment losses and allowances on financial assets and contingent risks and

commitments, as well as derecognition of losses recognised previously in asset write-offs recorded directly in the income statement in 2017 and 2016:

Table 20. EU CR2-A – Changes in the stock of general and specific credit risk adjustments (Million Euros, 12-31-17)

	Accumulated credit risk adjustment ⁽¹⁾
Opening balance	17,133
Increases due to amounts set aside for estimated loan losses during the period	9,549
Decreases due to amounts reversed for estimated loan losses during the period	(5,631)
Decreases due to amounts taken against accumulated credit risk adjustments	(6,038)
Transfers between credit risk adjustments	(482)
Impact of exchange rate differences	(1,115)
Business combinations, including acquisitions and disposals of subsidiaries	(8)
Other adjustments	478
Closing balance	13,884
Recoveries on credit risk adjustments recorded directly to the statement of profit or loss	(526)
Specific credit risk adjustments directly recorded to the statement of profit or loss	3,075

⁽¹⁾ Value adjustments for total credit risk (including CCR) according to COREP statements

In addition, a movement in the stock of non-performing exposures in the balance sheet between December 31, 2017 and December 31, 2016 is shown below:

Table 21. EU CR2-B – Changes in the stock of defaulted and impaired loans and debt securities (Million Euros)

	Gross carrying value defaulted exposures ^{(2) (3)}
Opening balance ⁽¹⁾	23,154
Loans and debt securities that have defaulted or impaired since the last reporting period	4,541
Returned to non-defaulted status	(1,646)
Amounts written off	(5,758)
Other changes	(508)
Closing balance	19,783

⁽¹⁾ Securitisation exposures are excluded

⁽²⁾ Gross carrying values on balance

⁽³⁾ The table above includes exposures derived from Chile as of December 31, 2017

3.2.3.9. Non-performing exposures and restructured and refinanced exposures

Below is a table with a general overview of the non-performing exposures and restructured and refinanced exposures:

Table 22. EU CR1-E – Non-performing and forborne exposures (Million Euros, 12-31-17)

	Gross carrying values of performing and non-performing exposures ^{(1) (2)}						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 ≤ 90 days		Of which: performing forborne	Of which: non-performing			On performing exposures		On non-performing exposures		On non-performing exposures	Of which: forborne exposures	
				Of which: defaulted	Of which: impaired	Of which: forborne	Of which: forborne	Of which: forborne	Of which: forborne				
Debt securities	70,701	-	-	66	66	66	-	(21)	-	(28)	-	-	-
Loans and advances	470,040	1,262	9,193	19,396	19,396	19,396	12,127	(4,097)	(378)	(8,670)	(4,616)	7,478	11,253
Off-balance-sheet exposures	185,405	-	110	1,276	1,276	-	142	(327)	-	(251)	(29)	128	18

⁽¹⁾ The table above does not include exposures derived from Chile as of December 31, 2017

⁽²⁾ Gross carrying values on balance

3.2.4. Information on the standardised approach

3.2.4.1. Identification of external rating agencies

The external credit assessment institutions (ECAIs) appointed by the Group to determine the risk weightings applicable to its exposures are the following: *Standard & Poors*, *Moody's*, *Fitch* and *DBRS*.

The exposures for which the ratings of each *ECAI* are used are those corresponding to the wholesale portfolios, basically involving "Sovereigns and central banks" in developed countries, and "Financial Institutions".

In cases where a counterparty has ratings from different *ECAIs*, the Group follows the procedure laid down in Article 261 of the Solvency Regulations, which specifies the order of priority to be used in the assignment of ratings.

When two different credit ratings made by designated *ECAIs* are available for a rated exposure, the higher risk weighting will be applied. However, when there are more than two credit ratings for the same rated exposure, use is to be made of the two credit ratings that provide the lowest risk weightings. If the two lowest risk weightings coincide, then that weighting will be applied; if they do not coincide, the higher of the two will be applied.

The correspondence between the alphanumeric scale of each agency used and the risk categories used by the Group are defined in the *final draft Implementing Technical Standards on the mapping of the credit assessments of the ECAI under Article 136(1) and (3) of Regulation (EU) No. 575/2013*; complying with the provisions of Article 136 of the CRR.

3.2.4.2. Assignment of the credit ratings of public share issues

The number of cases and the amount of these assignments are not relevant for the Group in terms of admission and management of issuer credit risk.

3.2.4.3. Exposure values before and after the application of credit risk mitigation techniques

The original net exposure amounts for provisions and value adjustments, exposure after risk mitigation techniques, and

RWA density for each exposure category by the standardised approach, are shown below, excluding securitisation and counterparty risk exposure which is presented in section 3.2.6 of this Report.

Table 23. EU CR4 – Standardised approach – Credit risk exposure and CRM effects (Million Euros. 12-31-17)

Exposure Class	Exposures before CCF and CRM ⁽¹⁾		Exposures post-CCF and CRM ⁽²⁾		RWA ⁽³⁾ and RWA Density	
	On-balance sheet amount	Off-balance sheet amount	On-balance sheet amount	Off-balance sheet amount	RWA	RWA Density
Central governments or central banks	102,533	14,013	130,796	758	29,571	22%
Regional governments or local authorities	9,257	843	5,948	538	1,246	19%
Public sector entities	723	824	1,631	66	653	38%
Multilateral development banks	72	21	191	0	14	7%
International Organizations	1	0	1	0	0	0%
Institutions	11,541	3,490	10,793	1,414	4,440	36%
Corporates	80,252	44,841	76,054	15,755	90,120	98%
Retail	57,755	33,708	53,391	2,204	39,146	70%
Secured by mortgages on immovable property	49,031	513	48,416	324	19,609	40%
Exposures in default	4,571	536	4,384	299	5,247	112%
Exposures associated with particularly high risk	2,488	1	2,463	0	3,694	150%
Covered bonds	0	0	0	0	0	0%
Institutions and corporates with a short term credit assessment	25	0	25	0	5	20%
Collective Investment Undertakings	9	26	9	15	24	100%
Equity	0	0	0	0	0	0%
Other Items	21,166	0	20,979	1,376	11,725	52%
Total	339,425	98,817	355,080	22,750	205,493	54%

⁽¹⁾ OE: Original Exposure

⁽²⁾ EAD: Net Original Exposure of provisions, value adjustments and other exposures without risk

⁽³⁾ RWAs: EAD after applying risk-weights

EU CR4 – Standardised approach – Credit risk exposure and CRM effects (Million Euros. 12-31-16)

Exposure Class	Exposures before CCF and CRM ⁽¹⁾		Exposures post-CCF and CRM ⁽²⁾		RWA ⁽³⁾ and RWA Density	
	On-balance sheet amount	Off-balance sheet amount	On-balance sheet amount	Off-balance sheet amount	RWA	RWA Density
Central governments or central banks	104,192	3,462	128,127	1,569	30,046	23%
Regional governments or local authorities	4,825	434	4,776	270	983	19%
Public sector entities	5,109	334	2,951	146	941	30%
Multilateral development banks	59	0	59	0	33	56%
International Organizations	5	0	5	0	0	0%
Institutions	14,613	10,675	13,846	1,739	5,407	35%
Corporates	88,528	42,734	83,141	19,042	100,409	98%
Retail	58,147	21,361	55,253	2,729	40,782	70%
Secured by mortgages on immovable property	54,939	47	54,028	20	21,276	39%
Exposures in default	4,939	267	4,790	200	5,807	116%
Exposures associated with particularly high risk	1,518	18	1,458	4	2,193	150%
Covered bonds	0	0	0	0	0	0%
Institutions and corporates with a short term credit assessment	406	0	406	0	87	22%
Collective Investment Undertakings	9	347	9	125	133	100%
Equity	0	0	0	0	0	0%
Other Items	25,558	421	28,666	2,017	15,463	50%
Total	362,848	80,100	377,516	27,861	223,561	56%

⁽¹⁾ OE: Original Exposure

⁽²⁾ EAD: Net Original Exposure of provisions, value adjustments and other exposures without risk

⁽³⁾ RWAs: EAD after applying risk-weights

In addition, the following tables present the amounts of net exposure, before and after the application of credit risk mitigation techniques, for different risk weightings and for the different exposure categories that correspond to the standardised method, excluding securitisation positions and counterparty credit risk exposure.

Exposure net of provisions and after applying CCF and CRM corresponding to counterparty risk are shown in table EU-CCR3 of section 3.2.6 of this report.

Table 24. Standardised approach: Exposure values before the application of credit risk mitigation techniques (Million Euros. 12-31-17)

Exposure Class	Risk Weight																Total credit exposures amount (pre CCF and pre-CRM)	Of which: unrated	
	0%	2%	4%	10%	20%	35%	50%	70%	75%	100%	150%	250%	370%	1250%	Others	Deducted			
Central Government or central banks	74,193	-	-	-	14,826	-	4,865	-	-	19,361	590	2,711	-	-	-	-	-	116,546	48,926
Regional government or local authorities	803	-	-	-	9,157	-	67	-	-	73	-	-	-	-	-	-	-	10,100	10,093
Public sector entities	2	-	-	-	918	-	254	-	-	343	30	-	-	-	-	-	-	1,547	1,344
Multilateral development banks	44	-	-	-	-	-	27	-	-	21	-	-	-	-	-	-	-	93	93
International Organizations	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0
Institutions	-	497	-	-	9,250	-	2,926	-	-	2,359	-	-	-	-	-	-	-	15,031	13,755
Corporates	-	-	-	-	358	-	309	-	-	124,134	293	-	-	-	-	-	-	125,094	124,690
Retail	-	-	-	-	-	-	-	-	91,463	-	-	-	-	-	-	-	-	91,463	91,309
Secured by mortgages on immovable property	-	-	-	-	-	38,149	7,596	-	642	3,158	-	-	-	-	-	-	-	49,545	49,536
Exposures in default	-	-	-	-	-	-	-	-	-	3,751	1,356	-	-	-	-	-	-	5,107	5,103
Exposures associated with particularly high risk	-	-	-	-	-	-	-	-	-	-	2,489	-	-	-	-	-	-	2,489	2,489
Covered bonds	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Institutions and corporates with a short-term credit assessment	-	-	-	-	25	-	-	-	-	0	-	-	-	-	-	-	-	25	25
Collective investment undertakings	-	-	-	-	-	-	-	-	-	34	-	-	-	-	-	-	-	34	34
Other Items	5,371	-	-	-	5	-	-	-	-	15,783	-	-	-	-	-	6	-	21,166	21,060
Equity	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	80,415	497	-	-	34,539	38,149	16,043	-	92,105	169,018	4,758	2,711	-	-	-	6	-	438,242	368,457

Standardised approach: Exposure values before the application of credit risk mitigation techniques (Million Euros. 12-31-16)

Exposure Class	Risk Weight																Total credit exposures amount (pre CCF and pre-CRM)	Of which: unrated	
	0%	2%	4%	10%	20%	35%	50%	70%	75%	100%	150%	250%	370%	1250%	Others	Deducted			
Central Government or central banks	74,756	-	-	-	3,894	-	6,707	-	-	18,931	337	3,030	-	-	-	-	-	107,655	66,939
Regional government or local authorities	659	-	-	-	4,453	-	34	-	-	113	-	-	-	-	-	-	-	5,259	5,259
Public sector entities	48	-	-	-	4,670	-	122	-	-	562	41	-	-	-	-	-	-	5,442	5,248
Multilateral development banks	-	-	-	-	11	-	34	-	-	14	-	-	-	-	-	-	-	59	59
International Organizations	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	2
Institutions	-	856	-	-	19,096	-	2,688	-	-	2,480	167	-	-	-	-	-	-	25,288	24,238
Corporates	-	-	-	-	359	-	728	-	-	130,033	142	-	-	-	-	-	-	131,262	131,262
Retail	-	-	-	-	-	-	-	-	79,012	493	3	-	-	-	-	-	-	79,508	79,508
Secured by mortgages on immovable property	-	-	-	-	-	43,490	8,559	-	686	2,251	-	-	-	-	-	-	-	54,986	54,986
Exposures in default	-	-	-	-	-	-	-	-	-	3,480	1,725	-	-	-	-	-	-	5,205	5,205
Exposures associated with particularly high risk	-	-	-	-	-	-	-	-	-	113	1,423	-	-	-	-	-	-	1,536	1,536
Covered bonds	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Institutions and corporates with a short-term credit assessment	-	-	-	-	399	-	-	-	-	8	-	-	-	-	-	-	-	406	406
Collective investment undertakings	-	-	-	-	-	-	-	-	-	356	-	-	-	-	-	-	-	356	356
Other Items	9,278	-	-	-	112	-	-	-	-	16,571	-	-	-	-	-	17	-	25,979	25,979
Equity	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	84,746	856	-	-	32,994	43,490	18,872	-	79,698	175,405	3,838	3,030	-	-	-	17	-	442,946	400,983

(1) Of which: Unrated refers to exposures for which no credit rating is available made by designated ECAs.

Table 25. EU CR5 – Standardised approach (Million Euros. 12-31-17)

Exposure Class	Risk Weight															Total	Of which: unrated	
	0%	2%	4%	10%	20%	35%	50%	70%	75%	100%	150%	250%	370%	1250%	Others			Deducted
Central Government or central banks	102,481	-	-	-	2,197	-	4,214	-	-	19,361	590	2,711	-	-	-	-	131,554	53,518
Regional government or local authorities	651	-	-	-	5,695	-	67	-	-	73	-	-	-	-	-	-	6,486	6,486
Public sector entities	75	-	-	-	1,097	-	211	-	-	283	30	-	-	-	-	-	1,697	635
Multilateral development banks	163	-	-	-	-	-	27	-	-	-	-	-	-	-	-	-	191	72
International Organizations	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0
Institutions	-	356	-	-	8,630	-	1,027	-	-	2,193	-	-	-	-	-	-	12,207	11,561
Corporates	-	-	-	-	351	-	298	-	-	90,870	290	-	-	-	-	-	91,808	91,427
Retail	-	-	-	-	-	-	-	-	55,595	-	-	-	-	-	-	-	55,595	55,435
Secured by mortgages on immovable property	-	-	-	-	-	37,695	7,427	-	630	2,989	-	-	-	-	-	-	48,740	48,732
Exposures in default	-	-	-	-	-	-	-	-	-	3,555	1,128	-	-	-	-	-	4,683	4,681
Exposures associated with particularly high risk	-	-	-	-	-	-	-	-	-	-	2,463	-	-	-	-	-	2,463	2,463
Covered bonds	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Institutions and corporates with a short-term credit assessment	-	-	-	-	25	-	-	-	-	-	-	-	-	-	-	-	25	24
Collective investment undertakings	-	-	-	-	-	-	-	-	-	24	-	-	-	-	-	-	24	24
Other Items	10,630	-	-	-	5	-	-	-	-	11,714	-	-	-	-	6	-	22,356	22,241
Equity	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	114,002	356	-	-	18,000	37,695	13,272	-	56,225	131,062	4,501	2,711	-	-	6	-	377,830	297,297

EU CR5 – Standardised approach (Million Euros. 12-31-16)

Exposure Class	Risk Weight															Total	Of which: unrated	
	0%	2%	4%	10%	20%	35%	50%	70%	75%	100%	150%	250%	370%	1250%	Others			Deducted
Central Government or central banks	99,919	-	-	-	2,347	-	5,132	-	-	18,931	337	3,030	-	-	-	-	129,696	84,560
Regional government or local authorities	632	-	-	-	4,268	-	34	-	-	113	-	-	-	-	-	-	5,047	4,982
Public sector entities	81	-	-	-	2,583	-	60	-	-	333	41	-	-	-	-	-	3,097	2,904
Multilateral development banks	0	-	-	-	11	-	34	-	-	14	-	-	-	-	-	-	59	58
International Organizations	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	2
Institutions	-	856	-	-	10,875	-	1,444	-	-	2,243	167	-	-	-	-	-	15,585	13,994
Corporates	-	-	-	-	359	-	743	-	-	100,945	136	-	-	-	-	-	102,182	101,750
Retail	-	-	-	-	-	-	-	-	57,529	451	3	-	-	-	-	-	57,983	57,877
Secured by mortgages on immovable property	-	-	-	-	-	42,650	8,531	-	686	2,181	-	-	-	-	-	-	54,048	54,048
Exposures in default	-	-	-	-	-	-	-	-	-	3,357	1,633	-	-	-	-	-	4,990	3,316
Exposures associated with particularly high risk	-	-	-	-	-	-	-	-	-	-	1,462	-	-	-	-	-	1,462	1,462
Covered bonds	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Institutions and corporates with a short-term credit assessment	-	-	-	-	399	-	-	-	-	8	-	-	-	-	-	-	406	406
Collective investment undertakings	-	-	-	-	-	-	-	-	-	133	-	-	-	-	-	-	133	133
Other Items	15,149	-	-	-	112	-	-	-	-	15,406	-	-	-	-	17	-	30,684	30,384
Equity	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	115,786	856	-	-	20,953	42,650	15,978	-	58,214	144,115	3,778	3,030	-	-	17	-	405,377	355,876

(*) Of which: Unrated refers to exposures for which no credit rating is available made by designated ECAIs.

The following table presents the main variations in the period in terms of RWAs for the Credit and Counterparty Risk standardised approach:

Table 26. RWA flow statements of credit risk exposures under the standardised approach (Million Euros. 12-31-17)

	Credit Risk		Counterparty Credit Risk	
	RWA amounts	Capital Requirements	RWA amounts	Capital Requirements
RWAs as of December 31, 2016	223,561	17,885	4,426	354
Asset size	7,867	629	(1,080)	(86)
Asset quality	(996)	(80)	(51)	(4)
Model updates	-	-	-	-
Methodology and policy	-	-	-	-
Acquisitions and disposals	-	-	-	-
Foreign exchange movements	(24,939)	(1,995)	(234)	(19)
Other	-	-	-	-
RWAs as of December 31, 2017	205,493	16,439	3,060	245

Risk-weighted assets in exposures subject to the standardised approach declined in 2017 by €19,434 billion. This reduction is affected by: the general appreciation of the euro against emerging currencies and the dollar, which has had an impact of -€25,173 billion, offset by the growth in credit portfolios in South America and Turkey.

The table below shows the balances of credit risk and counterparty provisions by exposure categories, as of December 31, 2017 and 2016:

Table 27. Balance of loan-loss provisions, by exposure category (Standardised approach) (Million Euros.)

Exposure Class	Loan-loss provisions	
	2017	2016
Central governments or central banks	48	35
Regional governments or local authorities	8	4
Public sector entities	4	31
Multilateral Development Banks	1	0
International organizations	-	-
Institutions	17	48
Corporates	1,613	2,873
Retail	1,246	654
Secured by mortgages on immovable property	339	310
Exposures in default	4,645	4,906
Exposures associated with particularly high risk	68	142
Covered bonds	-	-
Institutions and corporates with a short-term credit assessment	-	-
Collective investments undertakings	0	2
Other exposures	34	124
TOTAL	8,023	9,130

3.2.5. Information on the IRB approach

3.2.5.1. General information

3.2.5.1.1. Authorisation by the supervisor to use the IRB model

The following is a list of the models authorised by the supervisor for use in the calculation of capital requirements.

Table 28. Models authorized by the supervisor for the purpose of their use in the calculation of capital requirements

Institution Portfolio	Portfolio	Number of models	Model description
BBVA S.A.	Financial institutions	4	1 Rating, 1 PD model, 1 LGD model, 1 EAD model
	Public institutions	5	1 Rating, 1 PD model, 2 LGD models, 1 EAD model
	Specialized finance	2	1 Slotting criteria, 1 EAD model
	Developers	4	1 Rating, 1 PD model, 1 LGD model, 1 EAD model
	Small Corporates	5	1 Rating, 1 PD model, 2 LGD models, 1 EAD model
	Medium-sized Corporates	5	1 Rating, 1 PD model, 2 LGD models, 1 EAD model
	Large Corporates	5	1 Rating, 1 PD model, 2 LGD models, 1 EAD model
	Mortgages	6	2 Scorings, 2 PD models, 1 LGD model, 1 EAD model
	Consumer finance	5	2 Scorings, 2 PD models, 1 LGD model
	Credit cards	10	2 Scorings, 2 PD models, 3 LGD models, 3 EAD models
BBVA Ireland	Credit cards	3	2 Scorings, 1 PD model, 1 LGD model
	Financial institutions	4	1 Rating, 1 PD model, 1 LGD model, 1 EAD model
	Large Corporates	5	1 Rating, 1 PD model, 2 LGD models, 1 EAD model
BBVA Bancomer	Retail Revolving (Credit Cards)	11	4 Scorings, 5 PD models, 1 LGD model, 1 modelo de EAD model
	Large Corporates	5	1 Rating, 1 PD model, 2 LGD models, 1 EAD model
BBVA Group	Medium-sized Corporates	5	1 Rating, 1 PD model, 2 LGD models, 1 EAD model
	Equity	1	1 capital model

The main types of rating models used in the IRB portfolios are ratings for wholesale portfolios and proactive and reactive scorings in the case of retail portfolios.

Rating models

The rating models give contracts/customers a score that orders customers according to their credit quality.

This score is determined by the characteristics of the transactions, economic and financial conditions of the customer, information on payment behavior, credit bureau, etc.

PDs

Based on this score a probability of default (PD) can be assigned to the contract level or customer level through the PD models that transform scores into probabilities of default.

If the data used in these calculations do not cover a complete economic cycle, the additions to NPL and probability of default depend on the phase of the cycle used. As a result, an adjustment has to be made to the cycle to consider this question. It will vary depending on the economic situation and will allow an average PD to be determined over the cycle.

In the case of low default portfolios, the Group uses a variety of techniques to estimate the PDs, such as the use of external default data, or ECAI references.

LGD

The method used to estimate the loss given default is the "Workout LGD", based on the discount of the cash flows of defaulted exposure, recovered at different points of time.

According to the quantitative requirements, to calculate the RWAs a LGD has to be estimated that includes the slowdowns in the economic cycle, called the "DLGD" (the LGD at the bottom of the cycle).

In the case of low default portfolios the Group uses a variety of techniques to estimate LGD, such as the use of LGD data from external studies or empirical estimates, either of sets of low default portfolios (LDPs), or extrapolations of non-LDP portfolios.

CCF

Finally, the conversion factors or CCF are defined as the percentage of the undrawn balance that is expected to be used before the default. It tends to be estimated under a cohort approach based on the historically observed defaults.

A cohort is a 12-month window that has a reference date (close of each month) and contains all the non-performing transactions whose default date is within the cohort. All the transactions will need a contracting date before the reference date. A CCF is calculated in each cohort considering all the defaults included in it.

The approval of the models by the supervisor includes both own estimations of the probability of default (PD), loss given default (LGD) and the internal estimation of credit conversion factors (CCFs).

The Group maintains its calendar established for receiving approval for additional Advanced Internal Models in different risk classes and geographical areas.

3.2.5.1.2. Structure of internal rating systems and relationship between internal and external ratings

The Group has rating tools for each one of the exposure categories listed in the Basel Accord.

The retail portfolio has scoring tools for determining the credit quality of transactions on the basis of information on the transaction itself and on the customer. The scoring models are algorithms calculated using statistical methods that score each transaction. This score reflects the transaction's level of risk and is in direct relation to its probability of default (PD).

These decision models are the basic tool for deciding who should receive a loan and the amount to be granted, thereby contributing to both the arrangement and management of retail-type loans.

For the wholesale portfolio, the Group has rating tools that, unlike scorings, do not assess transactions but rather customers. The Group has different tools for rating the various customer segments: small companies, corporates, government and other government agencies, etc. In those wholesale portfolios where the number of defaults is very low (sovereign risks, corporates, financial institutions) the internal information is supplemented by the benchmarks of external rating agencies.

The PD estimates made by the Group are transferred to the Master Scale, enabling a comparison to be made with the scales used by external agencies. This is shown below

Table 29. Master Scale of BBVA's rating

External rating Standard & Poor's List	Internal rating Reduced List (22 groups)	Probability of default (basic points)		
		Average	Minimum from >=	Maximum
AAA	AAA	1	-	2
AA+	AA+	2	2	3
AA	AA	3	3	4
AA-	AA-	4	4	5
A+	A+	5	5	6
A	A	8	6	9
A-	A-	10	9	11
BBB+	BBB+	14	11	17
BBB	BBB	20	17	24
BBB-	BBB-	31	24	39
BB+	BB+	51	39	67
BB	BB	88	67	116
BB-	BB-	150	116	194
B+	B+	255	194	335
B	B	441	335	581
B-	B-	785	581	1,061
CCC+	CCC+	1,191	1,061	1,336
CCC	CCC	1,500	1,336	1,684
CCC-	CCC-	1,890	1,684	2,121
CC+	CC+	2,381	2,121	2,673
CC	CC	3,000	2,673	3,367
CC-	CC-	3,780	3,367	4,243

3.2.5.1.3. Use of internal estimations for purposes other than the calculation of capital requirements

The Group's internal estimations are a vital component of management based on value creation, giving rise to criteria for assessing the risk-return trade-off.

These measures have a broad range of uses, from the adoption of strategic business decisions through to the individual admission of transactions.

Specifically, internal estimates are used in everyday business in support of credit-risk management through their inclusion

in admission and monitoring processes, as well as in the pricing of transactions.

The management use of performance metrics that consider expected loss, economic capital and risk-adjusted return enables the monitoring of portfolios and the assessment of non-performing positions, among others.

3.2.5.1.4. Process for managing and recognizing the effects of credit risk mitigation

Mitigation is an iterative process whose purpose is to recognise the benefits of the existence of collateral and

guarantees, ordering them from the highest to the lowest credit quality.

The Group uses risk mitigation techniques for exposures pertaining to the wholesale portfolio by replacing the obligor's PD with that of the guarantor, in those cases in which the latter is eligible and its PD is lower than the obligor's. In retail admission processes, the scoring contains the effect of the guarantor, and the recovery flows that are forthcoming throughout the cycle reflect the recoveries related to the guarantees associated with the contracts. This means that the effect of the guarantees is taken into account in the actual estimation of the loss given default for retail portfolios.

3.2.5.1.5. Control mechanisms for internal rating systems

The Entity has a management framework for rating systems that includes all the phases of its life cycle: from the time when a need that triggers the construction or modification of a model is identified, until its use and monitoring.

An appropriate monitoring allows detection of unexpected behavior, identification of incorrect use and even anticipation when changes in the risk profile of the portfolios or products require corrective action to be taken. The monitoring of the risk rating systems is made with a frequency that is appropriate to the nature of the model, the availability of new data, modeling techniques and the importance of its use in management. This is analysed from a twofold perspective: performance and use.

The monitoring of the performance has the aim of detecting deficiencies in the performance of the rating systems for risk anticipating its deterioration over time. It permits the determination whether they operate correctly, helping to verify that the components of the model operate as expected. The framework for monitoring performance can identify weaknesses and identify plans of action needed to ensure correct operation. This analytic framework, a fundamental component of the planning of risk models, establishes the minimum criteria that must be taken into account, as well as the metrics and thresholds to alert undesired behavior.

The monitoring of the use aims to check that the model is used generally, for the planned uses, and appropriately. This control mechanism allows continued detection of deviations from the planned use of models, as well as the establishment of action plans for their correction.

In addition, the entity has an independent area in place for developers of rating systems and the departments responsible for their monitoring. It carries out periodic validations in all geographic areas, reviewing both the construction and performance of rating systems and their possible uses (estimates of capital and provisions, setting limits, stress tests, etc.).

The various aspects to be improved are detected during the review process are reflected in the validation reports by setting recommendations. These reports are presented to the established Risk Committees, together with the state of the action plans associated with the recommendations, to ensure their resolution and the proper operation of the rating systems at any time.

3.2.5.1.6. Description of the internal rating process

There follows a description of the internal classification processes according to each customer category:

- Central banks and central governments:** For this segment, the assignment of ratings is made by the Risk units appointed for this purpose, which periodically analyse this type of customers, rating them according to the parameters included in the corresponding rating model. There are 3 different methods currently in use for assigning country ratings: (i) ratings from external agencies, used for developed nations, emerging countries with elevated incomes and emerging countries where the Group has little risk; (ii) internal rating based on a proprietary tool used for emerging countries where the Group has an appreciable risk; and lastly (iii) the country risk ratings published by the Belgian export credit agency (which manages the quantitative model used by the OECD to assign its country risk ratings) for countries of marginal importance for the Group that have no external ratings. Sovereign ratings are generated in local and foreign currency for all the tools, as well as a transfer rating, which evaluates the risk of inconvertibility/transfer restrictions.

In the case of emerging countries with presence of BBVA subsidiaries or branches, the rating in local currency is adjusted to that obtained by the emerging countries tool under the authorisation of the Risk Committee assigned for this purpose.

- Institutions:** The rating of Public Institutions is generally provided by the risk units responsible for their approval, on a yearly basis, coinciding with the review of customer risk or with the reporting of their accounts.

In the case of financial institutions, the Risk unit responsible makes a regular classification of these customers, continuously monitoring them on domestic and international markets. External ratings are a key factor in assigning ratings for financial institutions.

- Large Companies:** Includes the rating of exposures with corporate business groups. The result is affected both by indicators of business risk (evaluation of the competitive environment, business positioning, regulation, etc.) and financial risk indicators (size of the group by sales, cash generation, levels of debt, financial flexibility, etc.).

In accordance with the characteristics of the large companies segment, the rating model is global in nature, with specific algorithms by sector of activity and geographical adaptations. The rating of these customers is generally calculated within the framework of the annual risk review process, or the admission of new operations.

The responsibility for the assessment lies with the units originating the risk, while those approving it validate it when the decision is taken.

- **Medium-sized companies:** This segment also takes into account quantitative factors derived from economic and financial information, and qualitative factors that are related to the age of the company, the sector, management quality, etc. and alert factors derived from risk monitoring.

As in the Corporate segment, the rating tends to run parallel to the admission process, so the responsibility for rating lies with the unit proposing the risk, while the decision-making level is in charge of validating it.

- **Small Businesses:** As in the case of medium-sized companies, this segment also takes into account quantitative factors derived from economic and financial information, and qualitative factors that are related to the age of the company, the sector, management quality, etc. and alert factors derived from risk monitoring. Similarly, the rating tends to run parallel with the admission process, so the responsibility for rating is with the unit proposing the risk, while the decision-making level is in charge of validating it.
- **Specialised Finance:** For classifying this segment, the Group has chosen to apply the supervisory slotting criteria approach, as included in the Basel Accord of June 2004 and in the Solvency Regulation (CRR article 153.5).
- **Developers:** The rating of real-estate developers covers the rating of both the customers who are developers and the individual real-estate projects. Its use makes it easier to monitor and rate projects during their execution phase, as well as enriching the admission processes.
- **BBVA Bancomer companies:** This segment also takes into account quantitative factors derived from economic and financial information and bureau information, as well as qualitative factors related to the age of the company, the sector, the quality of its management, etc. The rating tends to run parallel to the admission process, so that responsibility for the rating is with the unit originating the risk, while the decision-making body validates it.

In general in the wholesale area, the rating of customers is not limited to admission, as the ratings are updated according to new information available at any time (economic and financial data, changes in the company, external factors, etc.)

- **Retail:** This has been broken down into each one of the exposure categories referred to by the correlations provided for in the sections defined in the Solvency Regulation.

One of the most important processes in which scoring is fully integrated at the highest level and in all decision-making areas is the Group's process for approving retail transactions. Scoring is an important factor for the analysis and resolution of transactions and it is a mandatory requirement to include it in decision-making on risk in those segments for which it has been designed. In the process of marketing and approving retail transactions, the manager is responsible for marketing management, the credit quality and the profitability, in other words, the customer's integrated management, attending to the processes of admission, monitoring and control.

The rating process is as follows for each specific category of retail exposure:

- Mortgages, consumer finance and retail credit cards
 - Spain: The manager collects data on the customer (personal, financial, banking relationship information) and on the transaction (LTV, amount, maturity, destination etc.) and calculates the rating of the transaction with the scoring. The decision of whether it is approved is made based on the results of applying the model.
- Consumer Finance Autos Spain: The financing request may enter through the call center or be directly recorded in web application by our authorised dealers. The necessary information on the customer (personal, financial information, authorisation of the consultation to the external bureau of credit) and on the transaction (maturity, amount, etc.) is recorded to rate the transaction with the scoring. Once the validity of the information provided is obtained, the decision of whether to approve it is made based on the results of applying the model.
- Retail Revolving (BBVA Bancomer credit cards): The manager or specialist party gathers the necessary information on the customer (personal, financial information and authorisation of the consult from the external bureau of credit) and on the transaction (limit requested) to rate the transaction with the scoring. There are additional processes for validating and checking this information through the back office or operational support areas. The decision of whether it is approved is made based on the results of applying the model.

Behavioral: Every month all the active cards are rated according to their transactional behavior and payment status.

Proactive: Each month all the customers who have asset positions in credit cards, consumer finance or mortgages

and liabilities positions are rated, based on information on internal behavior and flows.

d. Proactive - Spain: Each month all the customers who have asset positions in credit cards, consumer finance or mortgages and first and second in liability seniority, are rated according to information on their behavior.

- **Equity:** For its portfolio position registered as equity, the Group is applying the rating obtained for customers as a result of their rating in the lending process.

3.2.5.1.7. Definitions, methods and data for estimating and validating risk parameters

The estimation of the parameters is based on the uniform definition of default established at Group level. Specifically, for a contract or customer to be considered in a situation of default, the provisions of current regulations must be met.

Specifically, there are two approaches within the Group for considering default and estimating parameters:

- The contract-level approach is applied within the sphere of retail risk. Each customer transaction is dealt with as an independent unit in terms of credit risk. Therefore, non-compliance with credit obligations to the bank is handled at the transaction level, regardless of the behavior of the customer with respect to other obligations.
- The customer-level approach is applied to the remainder of the portfolio. The significant unit for defining default is the customer's sum of contracts, which enter a situation of default en masse when the customer defaults.

In addition, to avoid including defaults for small amounts in the estimations, defaulted volumes are to pass through a materiality filter that depends on the type of customer and transaction.

Estimating parameters

In the case of Spain and Mexico, the Group has an RAR information system that reflects exposure to credit risk in the Group's different portfolios included in advanced internal models.

This information system guarantees the availability of historical data recorded by the Group, which are used to estimate the parameters of Probability of Default (PD), Loss Given Default (LGD) and Credit Conversion Factors (CCF). These are then used to calculate the regulatory capital using the advanced measurement approach, economic capital and expected loss by credit risk.

Other sources of information for the Bank may be used in addition, depending on any new needs detected in the

estimation process. Internal estimations of the PD, LGD and CCF parameters are made for all the Group's portfolios.

In the case of low default portfolios (LDP), in which the number of defaults tends to be insufficient for obtaining empirical estimates, use is made of data from external agencies that are merged with the internal information available and expert criteria.

The following shows the estimation methodologies used for the PD, LGD and CCF risk parameters, for the purpose of calculating the capital requirements.

■ Probability of default (PD)

The methodology used for estimating the PD in those cases that have a mass of internal data of sufficient size is based on the creation of pools of exposures. The pools proposed with a view to calibration are defined by pooling contracts together seeking to achieve intra-group uniformity in terms of credit quality and differentiation with all the other risk groups. The largest possible number of pools is defined in order to allow a suitable discrimination of risk.

The fundamental metric used for making these groupings is the score, being supplemented by other metrics relevant to PD that are proven to be sufficiently discriminating depending on the portfolio.

Once the pools of exposures have been defined, the average empirical PD recorded for each one is obtained and adjusted to the cycle. This metric provides stable estimates over the course of the economic cycle, referred to as PD-TTC (through the cycle). This calculation considers the portfolio's track record and provides long-term levels of PD.

In low default portfolios (LDPs) the empirical PDs observed by external credit assessment institutions are used to obtain the PD of internal risk groups.

Finally, in customer-focused portfolios there is a Master Scale, which is simply a standard and uniform rule for credit levels that makes it possible to make comparisons of credit quality in the Group's different portfolios.

■ Loss given default (LGD)

As a general rule, the method used to estimate LGD in portfolios with a sufficient number of defaults is Workout LGD. Here, the LGD of a contract is obtained as a quotient of the sum of all the financial flows recorded during the recovery process that takes place when a transaction defaults, and the transaction's exposure at the time of default.

This estimate is made by considering all the historical data recorded in internal systems. When making the estimates, there are transactions that have already defaulted but for which the recovery process is still ongoing. The loss given default recorded at the time of the estimate is therefore higher than it will ultimately be. The necessary adjustments are made in these cases so as not to distort the estimate.

These estimates are made by defining uniform risk groups in terms of the nature of the operations that determine loss given default. They are made in such a way that there are enough groups for each one to be distinguishable and receive a different estimate.

In keeping with the guidelines set out by the rules, the estimates are made by distinguishing between wholesale and retail type exposures.

There is insufficient historical experience to make a robust estimate in low default portfolios (LDP) using the Workout LGD method, so external sources of information are used, combined with internal data to provide the portfolio with a representative rate of loss given default.

The loss given default rates estimated according to the internal databases the Group holds are conditioned to the moment of the cycle of the data window used, since loss given default varies over the economic cycle. Hence, the following concepts can be defined: long-run loss given default (LRLGD), downturn loss given default (DLGD), and best-estimate loss given default (LGD BE).

LRLGD is calculated by making an adjustment to capture the difference between the loss given default obtained empirically with the available sample and the average loss given default observed throughout the economic cycle if the observation of the cycle is complete.

In addition, the LGD observed in a period of stress in the economic cycle, the downturn loss given default (DLGD) is determined.

These estimates are made for those portfolios whose loss given default is noticeably sensitive to the cycle. The different ways in which the recovery cycles can conclude are determined for each portfolio where this LGD in conditions of stress has not yet been observed, and the level these parameters would have in a downturn situation are estimated.

Finally, LGD BE is determined according to the LGD observed in the BE period, which aims to cover the defaults closest in time to the present, in other words those that have been

produced at a time of the economic cycle that is similar to the present and that also correspond to a very similar portfolio to the present one.

However, for defaulted transactions, the LGD at the worst time will be the LGD BE plus a stress, which is measured based on the volatility of LGD in the BE period.

■ Credit conversion factor (CCF)

As with the two preceding parameters, the exposure at the moment of default is another of the necessary inputs for calculating expected loss and regulatory capital. A contract's exposure usually coincides with its balance. However, this does not hold true in all cases.

For example, for those products with explicit limits, such as credit cards or credit lines, the exposure should incorporate the potential increase in the balance that may be recorded up to the time of default.

In observance of regulatory requirements, exposure is calculated as the drawn balance, which is the real risk at any specific moment, plus a percentage (CCF) of the undrawn balance, which is the part that the customer can still use until the available limit is reached. Therefore, the CCF is defined as the percentage of the undrawn balance that is expected to be used before default occurs.

CCF is estimated by using the cohort approach, analyzing how the exposure varies from a pre-established reference date through to the moment of default, obtaining the average performance according to the relevant metrics.

Different approaches are used for wholesale and retail type exposures. The contract approach analyses the exposure's evolution until the contract's moment of breach of contract, whereas the customer approach analyses changes in the exposure through to the time of default by the customer.

Once again, in low default portfolios (LDP) there is insufficient historical experience to make a reliable calculation with the Workout LGD method defined. In this case, too, use is made of external sources that are combined with internal data to provide a representative CCF of the portfolio.

3.2.5.2. Exposure values by category and PD range

The following table presents the information on credit risk as of December 31, 2017 (excluding counterparty risk, which is set out in detail in Table CCR4 in section 3.2.6.2.2) using the internal ratings-based (IRB) approach, by obligor grade for the different categories of exposure:

Table 30. EU CR6 – IRB approach – Credit risk exposures by exposure class and PD range (Million Euros)

PD Scale as of 12-31-17 ⁽¹⁾	Original on-balance sheet gross exposure	Off-balance sheet exposures pre CCF	Average CCF ⁽²⁾	EAD post CRM and post-CCF	Average PD ⁽³⁾	Number of obligors	Average LGD ⁽⁴⁾	Average Maturity (days) ⁽⁵⁾	RWAs	RWA Density	EL	Value adjustments and provisions
Prudential portfolios for FIRB approach	-	-	-	-	-	-	-	-	-	-	-	-
Prudential portfolios for AIRB approach	206,089	85,560	43.55%	224,504	5.71%	11,479,545	34.27%	-	83,577	37.23%	4,635	(6,975)
Central governments or central banks	5,288	376	49.92%	6,977	0.42%	134	27.93%	67	409	5.86%	5	(4)
0,00<0,15	4,543	136	49.90%	6,466	0.03%	37	26.87%	69	179	2.77%	1	(2)
0,15<0,25	96	72	49.97%	183	0.20%	20	42.73%	59	18	9.82%	0	(0)
0,25<0,50	77	1	38.95%	121	0.30%	6	48.77%	60	48	40.14%	0	(0)
0,50<0,75	117	0	0.00%	88	0.59%	6	37.95%	94	35	39.41%	0	(0)
0,75<2,50	9	25	50.00%	4	1.50%	9	35.52%	50	3	73.75%	0	(0)
2,50<10,00	356	125	50.07%	89	4.70%	40	40.20%	74	121	136.44%	2	(1)
10,00<100,00	1	9	50.21%	5	21.22%	2	20.00%	5	5	103.12%	0	(0)
100(Default)	88	8	50.00%	21	100.00%	14	9.86%	59	0	0.69%	2	(1)
Institutions	27,398	6,761	55.89%	12,560	0.96%	1,869	40.79%	44	3,988	31.75%	55	(62)
0,00<0,15	18,770	4,486	55.51%	9,991	0.08%	948	41.41%	47	2,262	22.64%	3	(7)
0,15<0,25	3,506	908	62.81%	752	0.20%	196	37.03%	44	291	38.64%	1	(1)
0,25<0,50	3,587	816	54.02%	743	0.31%	200	33.59%	39	324	43.58%	1	(1)
0,50<0,75	510	158	62.91%	336	0.51%	121	36.57%	33	214	63.81%	1	(0)
0,75<2,50	466	346	50.76%	461	1.22%	183	44.23%	40	515	111.69%	2	(1)
2,50<10,00	326	43	53.17%	147	3.70%	146	47.97%	42	250	169.99%	3	(4)
10,00<100,00	40	3	50.75%	42	19.65%	28	45.50%	40	107	255.01%	4	(2)
100(Default)	193	1	86.52%	88	100.00%	47	46.95%	42	26	29.19%	41	(46)
Corporate SMEs	14,260	3,606	43.93%	15,502	22.70%	43,278	47.68%	48	9,935	64.09%	1,666	(1,821)
0,00<0,15	1,147	621	43.51%	1,835	0.12%	5,134	51.85%	56	520	28.32%	1	(4)
0,15<0,25	566	274	42.88%	1,015	0.20%	2,308	47.79%	43	381	37.50%	1	(2)
0,25<0,50	1,031	362	43.33%	1,402	0.31%	4,106	51.77%	47	704	50.19%	2	(6)
0,50<0,75	1,331	373	45.19%	1,505	0.51%	5,310	49.66%	46	896	59.49%	4	(6)
0,75<2,50	3,132	974	45.33%	3,201	1.20%	10,460	47.19%	46	2,623	81.94%	18	(18)
2,50<10,00	3,344	764	43.51%	2,943	4.22%	10,329	43.47%	42	3,369	114.49%	53	(194)
10,00<100,00	413	63	42.47%	309	16.06%	1,523	39.91%	62	501	162.06%	20	(14)
100(Default)	3,296	174	41.01%	3,291	100.00%	4,108	47.63%	63	942	28.62%	1,568	(1,577)
Corporate Non-SMEs	50,757	53,929	50.58%	76,577	3.51%	13,759	42.12%	55	37,614	49.12%	800	(1,518)
0,00<0,15	17,194	26,765	49.16%	30,981	0.11%	2,647	43.27%	59	8,885	28.68%	15	(34)
0,15<0,25	5,071	7,709	48.55%	9,200	0.20%	1,432	43.39%	56	3,687	40.07%	8	(12)
0,25<0,50	8,859	8,240	51.01%	13,089	0.31%	2,277	43.15%	62	6,927	52.93%	18	(28)
0,50<0,75	7,693	7,907	57.82%	11,311	0.49%	2,280	41.65%	54	7,395	65.38%	23	(18)
0,75<2,50	5,567	1,872	45.44%	5,420	1.02%	2,548	40.33%	45	4,806	88.67%	22	(19)
2,50<10,00	3,539	1,157	55.76%	3,650	3.36%	1,721	40.32%	44	4,486	122.90%	50	(93)
10,00<100,00	596	126	49.99%	646	13.13%	105	31.44%	23	957	148.13%	28	(17)
100(Default)	2,239	153	44.49%	2,279	100.00%	749	27.88%	49	470	20.64%	635	(1,297)
Retail - Mortgage exposures	79,867	4,499	4.99%	80,073	6.09%	1,102,494	17.74%	-	8,268	10.33%	907	(1,192)
0,00<0,15	58,258	3,219	5.00%	58,412	0.05%	852,045	16.15%	-	1,333	2.28%	5	(6)
0,15<0,25	3,609	49	4.98%	3,611	0.20%	41,780	22.57%	-	347	9.60%	2	(2)
0,25<0,50	2,740	410	4.98%	2,760	0.33%	38,939	25.23%	-	423	15.31%	2	(3)
0,50<0,75	2,097	242	4.98%	2,108	0.50%	28,012	25.26%	-	443	20.99%	3	(3)
0,75<2,50	4,066	333	4.98%	4,081	1.11%	49,623	22.96%	-	1,305	31.98%	10	(15)
2,50<10,00	3,981	205	4.98%	3,988	4.76%	45,473	20.58%	-	2,642	66.26%	38	(240)

PD Scale as of 12-31-17 ⁽¹⁾	Original on-balance sheet gross exposure	Off-balance sheet exposures pre CCF	Average CCF ⁽²⁾	EAD post CRM and post-CCF	Average PD ⁽³⁾	Number of obligors	Average LGD ⁽⁴⁾	Average Maturity (days) ⁽⁵⁾	RWAs	RWA Density	EL	Value adjustments and provisions
10,00<100,00	637	41	4.98%	639	17.89%	7,550	23.08%	-	826	129.34%	26	(26)
100(Default)	4,478	0	5.10%	4,474	100.00%	39,072	18.35%	-	949	21.21%	821	(898)
Retail - Other exposures SMEs	3,037	812	60.79%	3,456	13.36%	121,952	54.38%	-	1,608	46.54%	241	(198)
0,00<0,15	196	175	58.87%	299	0.12%	16,665	54.81%	-	37	12.34%	0	(0)
0,15<0,25	90	53	61.10%	122	0.20%	5,308	55.92%	-	23	18.62%	0	(0)
0,25<0,50	186	80	60.95%	234	0.31%	9,094	56.07%	-	58	24.97%	0	(0)
0,50<0,75	284	116	60.37%	350	0.51%	12,120	54.72%	-	116	33.23%	1	(1)
0,75<2,50	702	200	63.29%	811	1.20%	26,454	54.22%	-	394	48.61%	5	(3)
2,50<10,00	1,019	151	61.09%	1,073	4.56%	36,181	55.06%	-	713	66.43%	27	(16)
10,00<100,00	207	25	57.59%	209	19.80%	7,592	51.55%	-	197	94.45%	21	(13)
100(Default)	354	12	52.51%	359	100.00%	8,538	52.00%	-	70	19.56%	186	(165)
Retail - Other exposures Non-SMEs	8,879	19	53.51%	8,885	5.66%	821,034	53.15%	-	3,017	33.95%	209	(421)
0,00<0,15	3,981	10	57.50%	3,987	0.06%	306,838	53.49%	-	358	8.97%	1	(3)
0,15<0,25	435	1	53.48%	436	0.19%	47,482	56.72%	-	103	23.74%	0	(1)
0,25<0,50	727	1	57.41%	728	0.33%	76,924	58.58%	-	254	34.88%	1	(2)
0,50<0,75	581	1	66.46%	581	0.55%	60,010	58.33%	-	273	46.96%	2	(3)
0,75<2,50	1,039	2	60.09%	1,038	1.19%	115,016	54.76%	-	640	61.66%	7	(9)
2,50<10,00	1,596	4	44.74%	1,597	4.35%	160,905	49.55%	-	1,204	75.35%	34	(101)
10,00<100,00	138	0	56.86%	136	21.62%	17,374	50.89%	-	161	117.76%	15	(14)
100(Default)	383	1	0.00%	383	100.00%	36,485	38.82%	-	25	6.50%	149	(288)
Retail - qualifying revolving (QRRE)	6,023	14,603	21.44%	9,154	6.63%	9,374,525	72.87%	-	6,764	73.90%	505	(527)
0,00<0,15	942	4,804	29.27%	2,348	0.04%	3,132,253	48.08%	-	33	1.39%	0	(1)
0,15<0,25	16	48	33.95%	32	0.21%	67,924	51.56%	-	2	5.86%	0	(0)
0,25<0,50	160	355	20.92%	234	0.33%	247,187	63.39%	-	26	11.05%	1	(0)
0,50<0,75	376	1,745	11.61%	578	0.52%	542,379	76.76%	-	108	18.74%	2	(2)
0,75<2,50	989	3,059	15.03%	1,449	1.21%	1,234,690	80.05%	-	540	37.28%	14	(12)
2,50<10,00	2,414	4,057	19.96%	3,224	5.40%	2,872,090	83.71%	-	3,549	110.07%	147	(137)
10,00<100,00	959	533	30.35%	1,120	21.65%	1,131,749	83.54%	-	2,498	222.91%	203	(233)
100(Default)	168	0	17.80%	168	100.00%	146,253	82.01%	-	9	5.27%	137	(142)
Equity	3,390	-	-	3,390	0.52%	-	80.94%	-	4,953	146.10%	12	(1,123)
0,00<0,15	2,174	-	-	2,174	0.14%	-	89.86%	-	2,604	119.78%	3	
0,15<0,25	86	-	-	86	0.20%	-	65.00%	-	88	103.05%	0	
0,25<0,50	1	-	-	1	0.31%	-	65.00%	-	1	123.80%	0	
0,50<0,75	4	-	-	4	0.51%	-	65.00%	-	5	152.20%	0	
0,75<2,50	1,108	-	-	1,108	1.25%	-	65.00%	-	2,212	199.65%	9	
2,50<10,00	18	-	-	18	2.55%	-	65.00%	-	41	236.04%	0	
10,00<100,00	-	-	-	-	-	-	-	-	-	-	-	
100(Default)	-	-	-	-	-	-	-	-	-	-	-	
Corporate - Specialized lending	7,190	955	77.58	7,931	-	500	0.00%	-	7,021	88.53%	234	(109)
Total Advanced Approach	206,089	85,560	43.55%	224,504	5.71%	11,479,545	34%	-	83,577	37%	4,635	(6,975)

⁽¹⁾ PD intervals according to RPDR document

⁽²⁾ Calculated as EAD after CCF for off-balance exposures over total off-balance exposure before CCF

⁽³⁾ Corresponds to PD by EAD-weighted debtor category

⁽⁴⁾ Corresponds to LGD by EAD-weighted debtor category

⁽⁵⁾ Corresponds to the EAD-weighted debtor expiration in days

EU CR6 – IRB approach – Credit risk exposures by exposure class and PD range (Million Euros)

PD Scale as of 12-31-16 ⁽¹⁾	Original on-balance sheet gross exposure	Off-balance sheet exposures pre CCF	Average CCF ⁽²⁾	EAD post CRM and post-CCF	Average PD ⁽³⁾	Number of obligors	Average LGD ⁽⁴⁾	Average Maturity (days) ⁽⁵⁾	RWAs	RWA Density	EL	Value adjustments and provisions
Prudential portfolios for FIRB approach	-	-	-	-	-	-	-	-	-	-	-	-
Prudential portfolios for AIRB approach	211,002	87,864	44.09%	229,701	6.52%	11,145,699	33.93%	-	89,589	39.00%	5,239	(7,873)
Central governments or central banks	4,372	651	47.99%	4,684	1.33%	159	27.21%	70	430	9.17%	16	(75)
0,00<0,15	3,594	73	49.98%	4,197	0.04%	45	26.08%	64	185	4.40%	1	(2)
0,15<0,25	97	205	44.86%	139	0.20%	17	41.76%	42	42	30.14%	0	(0)
0,25<0,50	91	48	57.59%	71	0.31%	18	43.62%	59	36	50.05%	0	(0)
0,50<0,75	137	24	42.21%	35	0.51%	11	48.98%	113	36	103.36%	0	-
0,75<2,50	30	2	42.04%	31	0.88%	7	50.74%	102	44	142.32%	0	-
2,50<10,00	185	227	50.86%	158	3.98%	38	28.79%	77	80	50.74%	2	(2)
10,00<100,00	-	1	52.83%	0	21.22%	4	20.00%	48	0	104.29%	0	(0)
100(Default)	237	72	48.93%	53	100.00%	19	24.30%	67	7	13.52%	13	(71)
Institutions	26,687	6,393	60.22%	10,394	1.19%	1,631	36.72%	43	3,547	34.12%	50	(58)
0,00<0,15	15,729	4,469	60.04%	6,247	0.08%	678	39.06%	48	1,311	20.98%	2	(6)
0,15<0,25	2,886	537	64.86%	940	0.20%	147	36.11%	38	308	32.80%	1	(0)
0,25<0,50	6,116	958	51.62%	1,719	0.31%	267	28.79%	45	727	42.30%	2	(0)
0,50<0,75	673	190	75.82%	536	0.51%	120	33.44%	37	252	46.92%	1	(3)
0,75<2,50	651	128	52.92%	598	1.10%	184	36.95%	46	507	84.77%	2	(1)
2,50<10,00	310	96	62.23%	225	4.35%	144	38.31%	41	303	134.65%	4	(7)
10,00<100,00	75	15	53.06%	44	18.77%	53	46.42%	41	109	249.45%	4	(3)
100(Default)	249	1	46.82%	84	100.00%	38	41.65%	61	29	34.82%	35	(38)
Corporate SMEs	17,432	3,363	43.35%	18,672	24.86%	41,784	45.24%	63	12,171	65.18%	2,030	(2,751)
0,00<0,15	1,014	559	42.84%	1,754	0.12%	3,552	52.12%	80	546	31.12%	1	(8)
0,15<0,25	580	205	45.90%	855	0.20%	2,096	52.06%	51	348	40.71%	1	(5)
0,25<0,50	1,052	319	45.54%	1,443	0.31%	3,788	50.71%	59	712	49.33%	2	(9)
0,50<0,75	1,728	420	42.73%	2,029	0.50%	5,229	46.47%	56	1,248	61.53%	5	(12)
0,75<2,50	3,659	734	45.78%	3,728	1.18%	11,415	46.09%	52	2,927	78.51%	20	(30)
2,50<10,00	4,585	872	40.64%	4,220	4.29%	10,858	39.71%	56	4,530	107.35%	72	(368)
10,00<100,00	411	65	43.14%	289	14.98%	976	36.89%	41	449	155.58%	16	(33)
100(Default)	4,403	190	41.36%	4,354	100.00%	3,870	43.93%	93	1,411	32.40%	1,913	(2,287)
Corporate Non-SMEs	51,509	55,741	51.15%	79,986	4.67%	11,664	41.79%	62	38,225	47.79%	1,074	(2,365)
0,00<0,15	16,853	28,921	50.46%	33,207	0.11%	2,634	43.04%	74	9,395	28.29%	15	(32)
0,15<0,25	6,306	7,625	49.04%	10,120	0.20%	1,180	43.36%	39	4,355	43.04%	9	(67)
0,25<0,50	9,000	8,472	52.33%	13,110	0.31%	1,780	43.14%	60	6,961	53.09%	17	(36)
0,50<0,75	6,265	6,571	54.65%	9,312	0.50%	1,781	41.35%	56	5,981	64.23%	19	(38)
0,75<2,50	6,056	2,613	53.94%	6,986	1.07%	1,897	41.33%	52	6,142	87.91%	31	(23)
2,50<10,00	3,278	976	46.14%	3,286	3.33%	1,543	38.42%	49	3,624	110.29%	42	(198)
10,00<100,00	545	254	55.24%	671	17.46%	102	28.37%	47	1,018	151.75%	38	(25)
100(Default)	3,205	309	50.48%	3,295	100.00%	747	27.38%	52	750	22.76%	902	(1,947)
Retail - Mortgage exposures	83,659	5,190	4.98%	83,894	6.00%	1,142,943	18.66%	-	10,690	12.74%	983	(1,595)
0,00<0,15	56,559	3,732	4.98%	56,738	0.05%	811,018	17.43%	-	1,504	2.65%	5	(25)
0,15<0,25	3,205	50	4.98%	3,207	0.21%	37,146	22.34%	-	309	9.62%	1	(2)
0,25<0,50	4,529	448	4.98%	4,551	0.31%	67,560	21.52%	-	584	12.84%	3	(9)
0,50<0,75	3,133	260	4.98%	3,146	0.52%	44,265	21.84%	-	578	18.38%	4	(6)
0,75<2,50	5,285	417	4.98%	5,303	1.14%	68,893	21.71%	-	1,625	30.65%	13	(28)
2,50<10,00	5,327	218	4.98%	5,333	4.84%	61,633	20.85%	-	3,629	68.04%	53	(507)

PD Scale as of 12-31-16 ⁽¹⁾	Original on-balance sheet gross exposure	Off-balance sheet exposures pre CCF	Average CCF ⁽²⁾	EAD post CRM and post-CCF	Average PD ⁽³⁾	Number of obligors	Average LGD ⁽⁴⁾	Average Maturity (days) ⁽⁵⁾	RWAs	RWA Density	EL	Value adjustments and provisions
10,00<100,00	1,198	65	4.98%	1,201	19.63%	14,103	22.51%	-	1,536	127.90%	53	(78)
100(Default)	4,423	0	4.52%	4,415	100.00%	38,325	19.27%	-	924	20.94%	851	(939)
Retail - Other exposures SMEs	2,621	676	61.44%	3,033	8.64%	97,469	60.08%	-	1,500	49.46%	164	(137)
0,00<0,15	62	38	58.40%	84	0.14%	3,739	58.75%	-	12	14.75%	0	(1)
0,15<0,25	97	53	60.27%	129	0.20%	4,902	59.23%	-	25	19.38%	0	(1)
0,25<0,50	208	92	61.01%	265	0.31%	9,016	58.94%	-	68	25.75%	0	(2)
0,50<0,75	319	99	62.44%	380	0.51%	11,766	60.41%	-	135	35.49%	1	(4)
0,75<2,50	843	228	61.87%	984	1.20%	30,884	60.13%	-	515	52.34%	7	(12)
2,50<10,00	818	150	60.63%	907	4.30%	31,380	60.03%	-	631	69.64%	23	(21)
10,00<100,00	80	15	73.12%	90	15.08%	1,862	56.06%	-	80	88.43%	8	(9)
100(Default)	194	2	45.05%	195	100.00%	3,920	64.03%	-	34	17.31%	125	(88)
Retail - Other exposures Non-SMEs	7,053	6	42.37%	7,055	6.84%	714,520	52.79%	-	2,523	35.76%	207	(333)
0,00<0,15	2,924	1	32.49%	2,924	0.06%	239,268	53.75%	-	261	8.92%	1	(3)
0,15<0,25	298	0	34.16%	298	0.19%	37,016	57.27%	-	72	24.00%	0	(1)
0,25<0,50	542	1	51.10%	542	0.32%	63,309	57.99%	-	185	34.15%	1	(2)
0,50<0,75	480	1	53.99%	480	0.56%	55,567	57.45%	-	224	46.55%	2	(3)
0,75<2,50	849	1	51.99%	849	1.20%	104,404	54.29%	-	521	61.32%	5	(7)
2,50<10,00	1,452	1	49.85%	1,452	4.40%	162,027	48.89%	-	1,079	74.29%	31	(34)
10,00<100,00	136	0	27.63%	136	21.68%	18,757	50.14%	-	156	115.30%	15	(23)
100(Default)	373	1	0.00%	373	100.00%	34,172	40.80%	-	25	6.81%	152	(260)
Retail - qualifying revolving (QRRE)	5,931	14,391	23.42%	9,302	6.62%	9,135,528	74.41%	-	7,376	79.29%	499	(512)
0,00<0,15	685	3,975	31.09%	1,921	0.04%	2,595,733	48.38%	-	27	1.41%	0	(1)
0,15<0,25	13	42	34.86%	28	0.21%	55,043	52.34%	-	2	5.96%	0	(0)
0,25<0,50	85	129	30.46%	125	0.30%	168,343	50.79%	-	10	7.98%	0	(0)
0,50<0,75	366	1,540	12.90%	564	0.51%	441,285	77.83%	-	103	18.22%	2	(2)
0,75<2,50	997	3,564	17.34%	1,615	1.19%	1,344,096	80.55%	-	611	37.81%	15	(12)
2,50<10,00	2,692	4,554	23.57%	3,766	5.32%	3,176,974	83.46%	-	4,149	110.17%	168	(153)
10,00<100,00	948	586	32.58%	1,139	21.62%	1,225,741	80.72%	-	2,469	216.80%	199	(221)
100(Default)	146	0	24.14%	146	100.00%	128,313	77.81%	-	6	4.20%	113	(124)
Equity	3,592	-	-	3,592	0.18%	-	87.90%	-	4,896	136.30%	6	(47)
0,00<0,15	2,412	-	-	2,412	0.14%	-	89.33%	-	2,866	118.83%	3	(47)
0,15<0,25	769	-	-	769	0.20%	-	85.54%	-	1,342	174.46%	1	-
0,25<0,50	316	-	-	316	0.31%	-	89.61%	-	543	171.90%	1	-
0,50<0,75	95	-	-	95	0.51%	-	65.00%	-	144	152.23%	0	-
0,75<2,50	-	-	-	-	-	-	-	-	-	-	-	-
2,50<10,00	-	-	-	-	-	-	-	-	-	-	-	-
10,00<100,00	-	-	-	-	-	-	-	-	-	-	0	-
100(Default)	-	-	-	-	-	-	-	-	-	-	-	-
Corporate - Specialized lending	8,145	1,453	1	9,089	-	1	-	-	8,233	90.59%	211	-
Total Advanced Approach	211,002	87,864	44.09%	229,701	6.52%	11,145,699	33.93%	-	89,589	39.00%	5,239	(7,873)

⁽¹⁾ PD intervals according to RPDR document

⁽²⁾ Calculated as EAD after CCF for off-balance exposures over total off-balance exposure before CCF

⁽³⁾ Corresponds to PD by EAD-weighted debtor category

⁽⁴⁾ Corresponds to LGD by EAD-weighted debtor category

⁽⁵⁾ Corresponds to the EAD-weighted debtor expiration in days

With the aim of providing calculation data for the validation of the reliability of calculating PD, the table below gives a comparison of the PDs used in calculating the IRB capital with the effective default rates of the Group's obligors for credit and counterparty risks, for the Group's main geographic areas (BBVA S.A. and Bancomer).

Specifically, the table compares the PD used in calculating capital by the advanced approach with the effective default rates of obligors.

The criteria adopted for presenting the information of the standard EBA table are as follows:

- Portfolio: The breakdown of the portfolios corresponds to that recommended by the supervisor, excluding the equity positions.
- PD scale: Corresponds to the master rating scale in section 3.2.5.1.2 (Table 28).
- External rating equivalent: Uses the equivalence between the PDs and the external ratings described in section 3.2.5.1.2.
- Weighted PD and arithmetic average PD by obligors: Uses the PD after mitigation, i.e. which associated with guarantors.
- Number of obligors: Presents the obligors at the close of the year and at the close of the previous year.
- Defaulted obligors: For the purpose of guaranteeing the traceability of the table, columns "g" and "h" of the standard table have been combined to report the information on transactions/customers that defaulted at some time in the last 12 months, so that the defaulted obligors in the last year are shown for each PD range.
- Average historical annual default rate: This presents the annual default rate of the last five years.

Table 31. EU CR9 – IRB approach – Backtesting of PD per exposure class (BBVA S.A. 12-31-17)

PD Range	External rating equivalent	Weighted average PD	Arithmetic average PD by obligors	Number of obligors		Defaulted obligors in the year	Average historical annual default rate
				December 31, 2017	December 31, 2016		
Central governments or central banks							
0.00<0.02	AAA	0.01%	0.01%	4	4	-	-
0.02<0.03	AA+	0.02%	0.02%	2	2	-	-
0.03<0.04	AA	0.03%	0.03%	-	1	-	-
0.04<0.05	AA-	0.04%	0.04%	9	4	-	-
0.05<0.06	A+	0.05%	0.05%	6	3	-	-
0.06<0.09	A	0.08%	0.08%	-	21	-	-
0.09<0.11	A-	0.10%	0.10%	8	7	-	-
0.11<0.17	BBB+	0.14%	0.14%	9	5	-	-
0.17<0.24	BBB	0.20%	0.20%	20	19	-	-
0.24<0.39	BBB-	0.30%	0.30%	7	19	-	-
0.39<0.67	BB+	0.52%	0.53%	7	12	-	-
0.67<1.16	BB	0.88%	0.88%	2	7	-	-
1.16<1.94	BB-	1.50%	1.50%	7	3	-	50.00%
1.94<3.35	B+	2.55%	2.55%	13	30	-	14.29%
3.35<5.81	B	4.41%	4.41%	20	2	-	-
5.81<10.61	B-	7.85%	7.85%	8	6	1	20.00%
10.61<100.00	C	21.22%	21.22%	2	4	-	-
100.00 (Default)	D	100.00%	100.00%	14	19	-	-
Institutions							
0.00<0.02	AAA	0.03%	0.03%	9	13	-	-
0.02<0.03	AA+	0.03%	0.03%	9	10	-	-
0.03<0.04	AA	0.03%	0.03%	22	16	-	-
0.04<0.05	AA-	0.04%	0.04%	78	100	-	-
0.05<0.06	A+	0.05%	0.05%	244	215	-	-
0.06<0.09	A	0.08%	0.08%	238	188	-	-
0.09<0.11	A-	0.10%	0.10%	479	486	-	0.01%
0.11<0.17	BBB+	0.14%	0.14%	1,190	1,183	1	0.01%
0.17<0.24	BBB	0.20%	0.20%	754	784	1	0.02%
0.24<0.39	BBB-	0.31%	0.31%	360	421	-	0.43%
0.39<0.67	BB+	0.51%	0.51%	226	277	1	0.07%
0.67<1.16	BB	0.88%	0.88%	107	202	1	2.02%
1.16<1.94	BB-	1.50%	1.50%	170	100	-	-
1.94<3.35	B+	2.55%	2.54%	76	88	1	0.59%
3.35<5.81	B	4.41%	4.41%	31	54	2	4.08%
5.81<10.61	B-	7.86%	8.01%	42	41	1	-
10.61<100	C	19.78%	19.67%	22	79	-	-
100.00 (Default)	D	100.00%	100.00%	91	77	-	-
Corporate - SMEs							
0.00<0.02	AAA	0.03%	0.03%	104	21	-	-
0.02<0.03	AA+	0.03%	0.03%	18	5	-	9.09%

PD Range	External rating equivalent	Weighted average PD	Arithmetic average PD by obligors	Number of obligors		Defaulted obligors in the year	Average historical annual default rate
				December 31, 2017	December 31, 2016		
0.03<0.04	AA	0.03%	0.03%	12	7	-	-
0.04<0.05	AA-	0.05%	0.05%	40	-	-	-
0.05<0.06	A+	0.05%	0.05%	13	7	-	-
0.06<0.09	A	0.07%	0.07%	26	5	-	-
0.09<0.11	A-	0.10%	0.10%	2,814	1,815	1	0.07%
0.11<0.17	BBB+	0.14%	0.14%	2,469	1,917	4	0.15%
0.17<0.24	BBB	0.20%	0.20%	2,342	2,238	3	0.08%
0.24<0.39	BBB-	0.31%	0.31%	4,029	3,870	9	0.37%
0.39<0.67	BB+	0.51%	0.51%	5,146	5,041	16	0.59%
0.67<1.16	BB	0.88%	0.88%	5,420	5,396	39	1.05%
1.16<1.94	BB-	1.50%	1.50%	4,910	5,009	55	0.45%
1.94<3.35	B+	2.55%	2.54%	4,469	4,549	92	3.04%
3.35<5.81	B	4.41%	4.41%	2,979	2,776	76	9.98%
5.81<10.61	B-	8.47%	8.58%	2,961	2,967	197	3.36%
10.61<100	C	15.56%	16.36%	1,553	1,009	71	9.24%
100.00 (Default)	D	100.00%	100.00%	4,191	3,959	-	-
Corporate - Non-SMEs							
0.00<0.02	AAA	-	-	-	-	-	-
0.02<0.03	AA+	0.03%	0.03%	26	-	-	-
0.03<0.04	AA	0.03%	0.03%	30	-	-	3.03%
0.04<0.05	AA-	0.04%	0.04%	21	-	-	4.17%
0.05<0.06	A+	0.05%	0.05%	43	-	1	7.69%
0.06<0.09	A	0.08%	0.08%	296	-	2	1.16%
0.09<0.11	A-	0.10%	0.10%	977	-	-	0.01%
0.11<0.17	BBB+	0.14%	0.14%	1,575	-	9	0.02%
0.17<0.24	BBB	0.20%	0.20%	1,504	-	3	0.10%
0.24<0.39	BBB-	0.31%	0.31%	2,223	-	4	0.33%
0.39<0.67	BB+	0.51%	0.51%	1,991	-	13	0.44%
0.67<1.16	BB	0.88%	0.88%	1,190	-	9	1.24%
1.16<1.94	BB-	1.51%	1.50%	711	-	3	3.74%
1.94<3.35	B+	2.55%	2.55%	678	-	12	3.61%
3.35<5.81	B	4.41%	4.41%	369	-	27	13.13%
5.81<10.61	B-	9.18%	9.21%	185	-	31	1.38%
10.61<100	C	14.10%	18.89%	72	-	17	23.24%
100.00 (Default)	D	100.00%	100.00%	551	-	-	-
Retail - Mortgage exposures							
0.00<0.02	AAA	0.03%	0.03%	425,773	345,748	71	0.02%
0.02<0.03	AA+	0.03%	0.03%	91,467	81,098	65	0.08%
0.03<0.04	AA	0.03%	0.03%	15,066	15,798	11	0.04%
0.04<0.05	AA-	0.05%	0.05%	137,763	114,384	89	0.07%
0.05<0.06	A+	0.06%	0.06%	12,625	42,790	19	0.06%
0.06<0.09	A	0.07%	0.07%	79,387	68,091	89	0.20%
0.09<0.11	A-	0.09%	0.09%	32,317	64,817	67	0.20%
0.11<0.17	BBB+	0.14%	0.14%	57,647	78,292	165	0.22%
0.17<0.24	BBB	0.20%	0.21%	41,780	37,146	119	0.39%
0.24<0.39	BBB-	0.33%	0.32%	38,939	67,560	207	0.43%
0.39<0.67	BB+	0.50%	0.52%	28,012	44,265	218	0.90%
0.67<1.16	BB	0.82%	0.84%	26,559	38,006	353	1.49%
1.16<1.94	BB-	1.67%	1.68%	23,064	30,887	513	2.59%
1.94<3.35	B+	2.72%	2.71%	16,889	23,370	888	5.36%
3.35<5.81	B	3.85%	3.85%	11,762	16,126	1,347	12.17%
5.81<10.61	B-	7.29%	7.25%	16,822	22,131	2,451	14.89%
10.61<100	C	17.89%	18.29%	7,550	14,107	2,368	37.61%
100.00 (Default)	D	100.00%	100.00%	39,072	38,327	-	-
Retail - Other exposures SMEs							
0.00<0.02	AAA	-	-	-	-	-	-
0.02<0.03	AA+	-	-	-	-	-	-
0.03<0.04	AA	-	-	-	-	-	-
0.04<0.05	AA-	-	-	-	-	-	-
0.05<0.06	A+	-	-	-	-	-	-
0.06<0.09	A	-	-	-	1	-	-
0.09<0.11	A-	0.10%	0.10%	11,473	314	-	-
0.11<0.17	BBB+	0.14%	0.14%	5,331	3,440	2	0.10%
0.17<0.24	BBB	0.20%	0.20%	5,349	4,947	10	0.07%
0.24<0.39	BBB-	0.31%	0.31%	9,193	9,106	31	0.22%
0.39<0.67	BB+	0.51%	0.51%	12,242	11,898	70	0.21%
0.67<1.16	BB	0.88%	0.88%	13,614	15,030	138	0.63%
1.16<1.94	BB-	1.50%	1.50%	13,238	16,388	239	1.10%
1.94<3.35	B+	2.55%	2.55%	14,627	14,503	309	1.64%
3.35<5.81	B	4.41%	4.41%	12,355	9,565	432	2.88%
5.81<10.61	B-	8.00%	8.07%	9,971	7,932	643	4.82%
10.61<100	C	19.83%	19.43%	7,795	1,892	244	4.01%
100.00 (Default)	D	100.00%	100.00%	8,653	3,920	-	-

PD Range	External rating equivalent	Weighted average PD	Arithmetic average PD by obligors	Number of obligors		Defaulted obligors in the year	Average historical annual default rate
				December 31, 2017	December 31, 2016		
Retail - Other exposures Non-SMEs							
0.00<0.02	AAA	0.03%	0.03%	109,370	84,643	39	0.01%
0.02<0.03	AA+	0.03%	0.03%	12,758	12,793	14	0.02%
0.03<0.04	AA	0.03%	0.03%	30,512	29,546	4	0.01%
0.04<0.05	AA-	0.05%	0.05%	782	1,358	6	0.00%
0.05<0.06	A+	0.05%	0.05%	14,125	16	13	0.04%
0.06<0.09	A	0.07%	0.07%	52,443	43,750	65	0.07%
0.09<0.11	A-	0.10%	0.10%	20,076	14,501	37	0.13%
0.11<0.17	BBB+	0.13%	0.13%	66,777	52,661	99	0.12%
0.17<0.24	BBB	0.19%	0.19%	47,482	37,017	166	0.27%
0.24<0.39	BBB-	0.33%	0.33%	76,925	63,309	354	0.36%
0.39<0.67	BB+	0.55%	0.55%	60,011	55,569	433	0.66%
0.67<1.16	BB	0.88%	0.88%	60,232	54,822	689	0.37%
1.16<1.94	BB-	1.52%	1.52%	54,792	49,584	803	1.78%
1.94<3.35	B+	2.62%	2.62%	58,578	56,271	1,178	1.30%
3.35<5.81	B	4.48%	4.48%	72,510	73,417	2,393	2.75%
5.81<10.61	B-	7.39%	7.44%	29,825	32,343	1,760	7.49%
10.61<100	C	21.62%	21.46%	17,376	18,758	4,144	27.52%
100.00 (Default)	D	100.00%	100.00%	36,485	34,172	-	-
Retail - qualifying revolving (QRRE)							
0.00<0.02	AAA	0.03%	0.03%	2,329,553	1,910,664	368	0.01%
0.02<0.03	AA+	0.03%	0.03%	200,306	173,347	154	0.06%
0.03<0.04	AA	0.03%	0.03%	74,047	59,020	82	0.08%
0.04<0.05	AA-	0.04%	0.04%	103,172	81,096	93	0.07%
0.05<0.06	A+	0.05%	0.05%	62,530	54,909	105	0.13%
0.06<0.09	A	0.07%	0.07%	126,848	115,188	285	0.16%
0.09<0.11	A-	0.10%	0.10%	64,513	51,810	118	0.18%
0.11<0.17	BBB+	0.14%	0.14%	171,283	149,699	668	0.31%
0.17<0.24	BBB	0.21%	0.20%	67,924	55,043	163	0.27%
0.24<0.39	BBB-	0.30%	0.30%	195,989	168,340	1,071	0.45%
0.39<0.67	BB+	0.49%	0.51%	137,800	113,095	1,122	0.76%
0.67<1.16	BB	0.91%	0.93%	168,930	154,058	2,342	1.17%
1.16<1.94	BB-	1.58%	1.55%	71,915	60,458	1,184	1.89%
1.94<3.35	B+	2.62%	2.60%	121,293	101,689	3,121	2.43%
3.35<5.81	B	4.37%	4.39%	64,420	57,992	2,189	3.87%
5.81<10.61	B-	7.43%	7.45%	46,855	46,302	2,785	5.15%
10.61<100	C	14.77%	15.53%	33,622	19,226	2,639	8.89%
100.00 (Default)	D	100.00%	100.00%	33,994	22,497	-	-
Corporate - Specialized lending				861	840	3	

EU CR9 – IRB approach – Backtesting of PD per exposure class (Bancomer. 12-31-17)

PD Range	External rating equivalent	Weighted average PD	Arithmetic average PD by obligors	Number of obligors		Defaulted obligors in the year	Average historical annual default rate
				December 31, 2017	December 31, 2016		
Corporate - SMEs							
0.00<0.02	AAA	-	-	-	-	-	-
0.02<0.03	AA+	0.03%	0.03%	-	-	-	-
0.03<0.04	AA	0.04%	0.04%	-	-	-	-
0.04<0.05	AA-	0.05%	0.05%	-	-	-	-
0.05<0.06	A+	0.06%	0.06%	-	-	-	-
0.06<0.09	A	0.08%	0.08%	-	-	-	-
0.09<0.11	A-	0.10%	0.10%	-	-	-	-
0.11<0.17	BBB+	0.14%	-	-	-	-	-
0.17<0.24	BBB	0.20%	0.20%	138	8	-	-
0.24<0.39	BBB-	0.31%	0.31%	358	158	-	-
0.39<0.67	BB+	0.53%	0.53%	517	502	-	-
0.67<1.16	BB	0.85%	0.85%	492	799	-	-
1.16<1.94	BB-	1.42%	1.42%	338	892	-	-
1.94<3.35	B+	2.46%	2.46%	249	664	-	-
3.35<5.81	B	4.12%	4.12%	111	265	-	-
5.81<10.61	B-	7.34%	7.38%	63	132	-	-
10.61<100,00	C	15.42%	15.42%	30	4	-	-
100.00 (Default)	D	-	-	-	-	-	-
Corporate - Non-SMEs							
0.00<0.02	AAA	-	-	-	-	-	-
0.02<0.03	AA+	-	-	-	-	-	-
0.03<0.04	AA	-	-	-	-	-	-

PD Range	External rating equivalent	Weighted average PD	Arithmetic average PD by obligors	Number of obligors		Defaulted obligors in the year	Average historical annual default rate
				December 31, 2017	December 31, 2016		
0.04<0.05	AA-	-	-	-	-	-	-
0.05<0.06	A+	0.05%	0.05%	2	1	-	-
0.06<0.09	A	0.08%	0.08%	15	7	-	-
0.09<0.11	A-	0.10%	0.10%	14	4	-	-
0.11<0.17	BBB+	0.13%	0.13%	66	16	-	-
0.17<0.24	BBB	0.18%	0.18%	124	48	-	-
0.24<0.39	BBB-	0.11%	0.11%	348	183	4	-
0.39<0.67	BB+	0.44%	0.44%	513	175	11	0.91%
0.67<1.16	BB	0.84%	0.84%	439	180	22	1.94%
1.16<1.94	BB-	1.24%	1.24%	393	223	23	1.46%
1.94<3.35	B+	2.40%	2.40%	301	187	12	1.15%
3.35<5.81	B	4.20%	4.20%	172	100	14	3.06%
5.81<10.61	B-	7.97%	7.97%	95	46	7	3.88%
10.61<100	C	-	-	36	9	-	6.25%
100.00 (Default)	D	100.00%	100.00%	216	166	-	-
Retail - qualifying revolving (QRRE)							
0.00<0.02	AAA	-	-	-	-	-	-
0.02<0.03	AA+	-	-	-	-	-	-
0.03<0.04	AA	-	-	-	-	-	-
0.04<0.05	AA-	-	-	-	-	-	-
0.05<0.06	A+	-	-	-	-	-	-
0.06<0.09	A	-	-	-	-	-	-
0.09<0.11	A-	-	-	-	-	-	-
0.11<0.17	BBB+	0.15%	0.15%	1	-	-	-
0.17<0.24	BBB	-	-	-	-	-	-
0.24<0.39	BBB-	0.38%	0.38%	51,198	3	-	0.15%
0.39<0.67	BB+	0.53%	0.53%	404,579	328,190	777	0.21%
0.67<1.16	BB	0.89%	0.89%	452,764	572,130	2,292	0.42%
1.16<1.94	BB-	1.52%	1.52%	541,081	557,450	4,149	0.74%
1.94<3.35	B+	2.63%	2.63%	692,988	831,725	8,682	1.12%
3.35<5.81	B	4.56%	4.56%	803,451	961,825	14,869	1.64%
5.81<10.61	B-	7.92%	7.92%	1,143,083	1,177,441	25,234	1.92%
10.61<100	C	21.80%	21.80%	1,098,127	1,206,515	42,675	3.22%
100.00 (Default)	D	100.00%	100.00%	112,259	105,816	-	-

The information contained in the above tables is set out below in graphic format (including counterparty risk):

Chart 8: Advanced measurement approach: Average weighted PD by EAD

Chart 7: Advanced measurement approach: EAD by obligor category

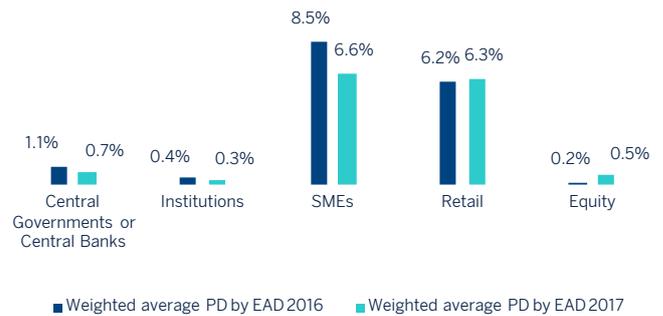
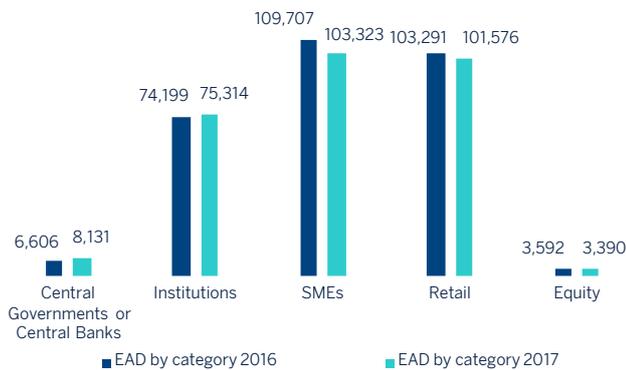


Chart 9: Advanced measurement approach: Average weighted LGD by EAD

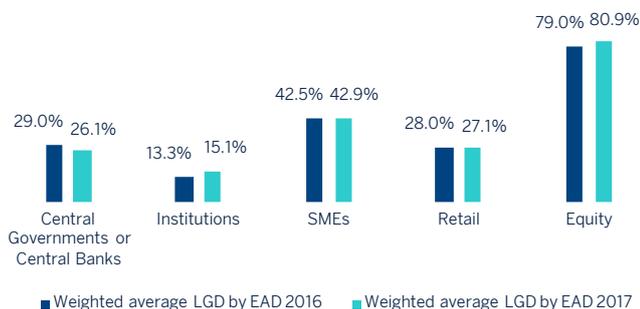
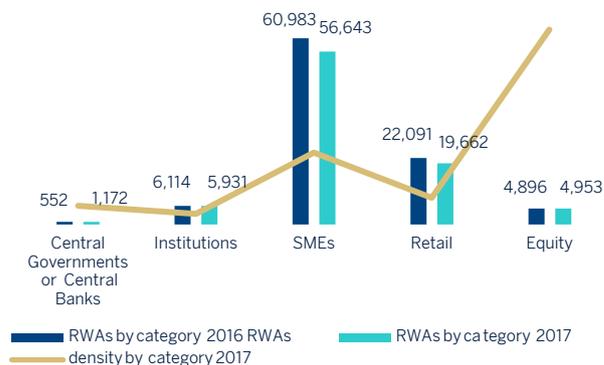


Chart 10: Advanced measurement approach: RWAs by obligor category



The following table presents the main variations in the year in terms of RWAs for the Credit Risk and Counterparty advanced measurement approach:

Table 32. EU CR8 – RWA flow statements of credit risk exposures under the IRB approach (Million Euros)

	Credit Risk		Counterparty Credit Risk	
	RWA amounts	Capital Requirements	RWA amounts	Capital Requirements
RWAs as of December 31, 2016	84,694	6,776	5,048	404
Asset size	492	39	34	3
Asset quality	(2,055)	(164)	(182)	(15)
Model updates	568	45	-	-
Methodology and policy	-	-	-	-
Acquisitions and disposals	(2,271)	(182)	-	-
Foreign exchange movements	(3,015)	(241)	(116)	(9)
Other	211	17	-	-
RWAs as of December 31, 2017	78,624	6,290	4,784	383

Risk-weighted assets in exposures subject to the internal model declined in 2017 by €6.334 billion. This reduction is affected by: the general appreciation of the euro (particularly significant due to its impact on portfolios denominated in dollars and Mexican pesos), which has had an impact of -€3.131 billion, or nearly 50% of the total reduction; the improved credit portfolio profile, the sale of some non-strategic assets, mainly the portfolio of fixed-income instruments, which have offset the organic growth, and the update of the model carried out in Bancomer’s Corporates portfolio.

3.2.5.3. Comparative analysis of the estimations made

The following charts compare the expected loss adjusted to the cycle calculated according to the Group’s internal estimates for the main portfolios approved by the European Central Bank, with the effective loss incurred between 2001 and 2017. They also present the average effective loss between 2001 and 2017 in accordance with the following:

- **Expected loss:** expected regulatory loss calculated with the internal estimates based on calibrations in force as of 2017, and adapted to the economic cycle, i.e. the annual average expected loss in an economic cycle.
- **Observed loss:** effective loss calculated as the ratio of gross additions to NPA over the average observed exposure multiplied by the estimated point in time severity².
- **Average:** effective average loss (2001-2017), which is the average of effective losses for each year (light blue solid line).

The effective loss is the annual loss incurred. It must be less than the expected loss adjusted to the cycle in the best years of an economic cycle, and greater during years of crisis.

The comparison has been made for the portfolios of Mortgages, Consumer Finance Credit Cards and (2004-2017) Autos (retail), and SMEs and Developers (2009-2017), all of them in Spain and Portugal. In Mexico, the comparison

² The LGD (PIT) methodology allows for a better measurement of observed losses. For more recent years, given that the recovery processes have not concluded, the best estimate of final LGD is included.

has been carried out for the Credit Card portfolio (2006-2017 window) and SMEs and Large Companies (2006-2017 window). Regarding the categories of Institutions (Public and Financial Institutions) and Corporates, historical experience shows that there is such a small number of defaulted exposures (Low Default Portfolios) that it is not statistically significant, and hence the reason the comparison is not shown.

The charts show that during the years of biggest economic growth, in general the effective loss was significantly lower than the expected loss adjusted to the cycle calculated using internal models.

The contrary was the case after the start of the crisis. This is in line with the major economic slowdown and the financial difficulties of households and companies, above all in the case of developers and construction companies.

The fact that in some portfolios the average observed loss is greater than the estimated loss is consistent with the fact that the observed time window may be worse than what would be expected in a complete economic cycle. In fact, this window has fewer expansive years than crisis years. This is not representative of a complete economic cycle.

Retail Mortgages:

Starting in 2007, the effective losses are above the expected loss adjusted to the cycle, as they are losses incurred in years of crisis. The effective losses are lower than that adjusted to the cycle, demonstrating the conservative nature of the regulatory estimate.

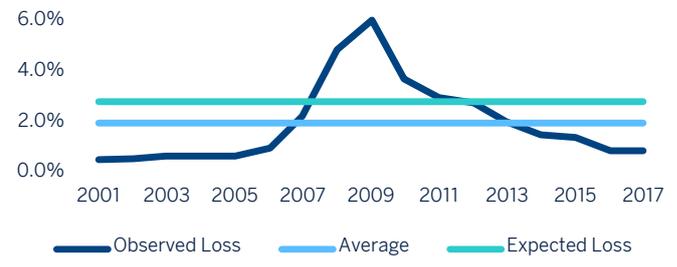
Chart 11: Comparative analysis of expected loss: Retail mortgages



Consumer finance

The chart shows that during the years of biggest economic growth the effective loss was lower than the expected loss adjusted to the cycle. The contrary was the case starting in 2007. This is in line with the major economic slowdown and the financial difficulties of households. In any case, the comparison between the expected loss adjusted to the cycle and effective loss shows conservative levels.

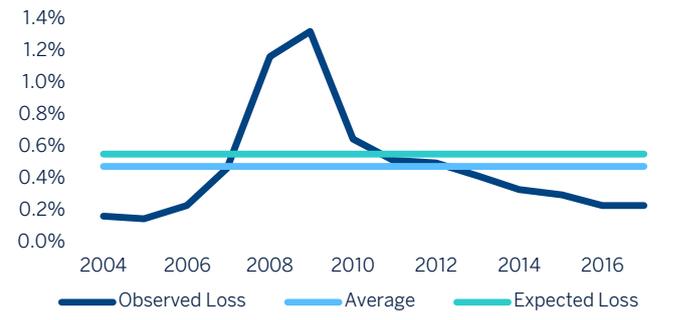
Chart 12: Comparative analysis of expected loss: Consumer finance



Credit cards:

As in the case of Mortgages and Consumer Finance, the observed loss is lower than the Expected Loss adjusted to the cycle calculated using internal models at best periods of the cycle, and higher during its worst periods.

Chart 13: Comparative analysis of expected loss: Credit cards



Automobiles:

In the case of the Automobile portfolio, the expected loss adjusted to the cycle continues to be higher than the average effective losses for the last fifteen years, which suggests the conservative nature of the estimate.

Chart 14: Comparative analysis of expected loss: Automobiles



Mexico Credit Cards:

In the case of the main Bancomer card portfolio the average Expected Loss of the cycle is slightly above the average of observed losses, which is desirable from the conservative point of view.

Chart 16: Comparative analysis of expected loss: Mexico Credit Cards



SMEs and Developers:

Due to a methodological change in the estimate of LGD, only the expected loss for the 2009-2017 window is shown for the SME and Developer portfolios. It can be seen that since 2009 the observed losses are much higher than the average expected losses in the cycle. This is because the major difficulties suffered by companies in the years of crisis, particularly those in the Construction and Developer businesses. The chart also shows that the average expected loss of the cycle is below the average observed losses. The reason is the use of an observation window which is unrepresentative of a complete economic cycle (the estimate would include comparatively more years of crisis than of economic growth).

Chart 15: Comparative analysis of expected loss: SMEs and Developers



Mexico Corporates:

As with the card portfolio, the Mexico corporates portfolio shows conservative levels of expected loss adjusted to the cycle if it is compared with the average observed loss.

Chart 17: Comparative analysis of expected loss: Mexico Corporates



3.2.5.3.1. Impairment losses (IRB)

The table below shows the balances of specific, generic and country risk for credit risk and counterparty provisions, by

exposure categories, as of December 31, 2017 and December 31, 2016.

Table 33. Balance of loan-loss provisions, by exposure category (Advanced approach. Million Euros)

Category of exposure	Loan-loss provisions	
	2017	2016
Central governments or central banks	4	78
Institutions	71	61
Corporates	3,447	5,279
Retail	2,339	2,577
Of which: Secured by real estate collateral	1,192	1,595
Of which: Qualifying revolving retail	527	512
Of which: Other retail assets	620	470
TOTAL	5,861	7,994

3.2.5.4. Risk weightings of specialised lending exposures

The solvency regulation stipulates that the consideration of specialised lending companies is to apply to legal entities with the following characteristics:

- The exposure is to an entity created specifically to finance and/or operate physical assets
- The contractual arrangements give the lender a substantial degree of control over the assets and income they generate.

The primary source of repayment of the obligation is the income generated by the assets being financed, rather than the independent capacity of the borrower.

The following table presents the exposures assigned to each one of the risk weightings of the specialised lending exposures (including counterparty risk) as of December 31, 2017:

Table 34. EU CR10 (1) – IRB: specialised lending (Million Euros. 12-31-17)

Regulatory categories	Remaining Maturity	Specialized lending			RW	Exposure Amount ⁽³⁾	RWAs	Expected Losses
		On-balance sheet amount ⁽¹⁾	Off-balance sheet amount ⁽²⁾					
Category 1	Less than 2.5 years	-	-	50%	-	-	-	
Category 1	Equal to or more than 2.5 years	2,966	842	70%	3,771	2,640	15	
Category 2	Less than 2.5 years	423	246	70%	567	397	2	
Category 2	Equal to or more than 2.5 years	2,050	497	90%	2,489	2,240	20	
Category 3	Less than 2.5 years	349	18	115%	380	437	11	
Category 3	Equal to or more than 2.5 years	904	312	115%	1,211	1,392	33	
Category 4	Less than 2.5 years	18	6	250%	24	61	2	
Category 4	Equal to or more than 2.5 years	227	137	250%	364	910	29	
Category 5	Less than 2.5 years	143	20	0%	153	-	77	
Category 5	Equal to or more than 2.5 years	109	58	0%	152	-	76	
Total	Less than 2.5 years	934	290		1,125	895	91	
Total	Equal to or more than 2.5 years	6,256	1,846		7,986	7,181	173	

⁽¹⁾ Corresponds to the amount of the net exposure of provisions and cancellations

⁽²⁾ Corresponds to the value of off-balance sheet exposure, regardless of credit conversion factors (CCF), or the effect of the Credit Risk Mitigation (CRM) techniques

⁽³⁾ Corresponds to exposure value after CRM and CCF

EU CR10 (1) – IRB: specialised lending (Million Euros. 12-31-16)⁽⁴⁾

		Specialized lending						
Regulatory categories	Remaining Maturity	On-balance sheet amount ⁽¹⁾	Off-balance sheet amount ⁽²⁾	RW	Exposure Amount ⁽³⁾	RWAs	Expected Losses	
Category 1	Less than 2.5 years	-	-	50%	-	-	-	
Category 1	Equal to or more than 2.5 years	3,148	1,174	70%	4,168	2,918	17	
Category 2	Less than 2.5 years	820	438	70%	1,083	758	4	
Category 2	Equal to or more than 2.5 years	2,404	804	90%	3,050	2,745	24	
Category 3	Less than 2.5 years	292	22	115%	341	393	9	
Category 3	Equal to or more than 2.5 years	754	380	115%	1,088	1,251	30	
Category 4	Less than 2.5 years	35	9	250%	41	103	3	
Category 4	Equal to or more than 2.5 years	426	190	250%	617	1,542	48	
Category 5	Less than 2.5 years	151	6	0%	145	-	53	
Category 5	Equal to or more than 2.5 years	115	18	0%	143	-	53	
Total	Less than 2.5 years	1,297	475		1,610	1,254	70	
Total	Equal to or more than 2.5 years	6,848	2,566		9,067	8,456	171	

⁽¹⁾ Corresponds to the amount of the net exposure of provisions and cancellations⁽²⁾ Corresponds to the value of off-balance sheet exposure, regardless of credit conversion factors (CCF), or the effect of the Credit Risk Mitigation (CRM) techniques⁽³⁾ Corresponds to exposure value after CRM and CCF⁽⁴⁾ The table above is showed only for comparison purposes and corresponds to the proforma as of December 2016

3.2.5.5. Risk weightings of equity exposures

The following table presents the exposures assigned to each one of the risk weightings of equity exposures as of December 31, 2017.

Table 35. EU CR10 (2) – IRB: Equity (Million Euros. 12-31-17)

		Equity under the IRB approach				
Categories	On-balance sheet amount ⁽¹⁾	Off-balance sheet amount ⁽²⁾	RW	Exposure Amount ⁽³⁾	RWAs	Capital Requirements
Simple method - Private Equity Exposures	525	-	190%	525	998	80
Simple method - Exchange-traded equity exposures	170	-	290%	170	493	39
Simple method - Other Equity Exposures	88	-	370%	88	324	26
Exposures subject to 250% risk weighting	3,098	-	250%	3,099	7,747	620
Intern model	527	-		527	2,261	181
PD/LGD method	3,390	-		3,390	4,953	396
Total	7,798	-		7,798	16,775	1,342

⁽¹⁾ Corresponds to the amount of the net exposure of provisions and cancellations⁽²⁾ Corresponds to the value of off-balance sheet exposure, regardless of credit conversion factors (CCF), or the effect of the Credit Risk Mitigation (CRM) techniques. As of December 31, 2017 derivatives on shares are included as on-balance sheet⁽³⁾ Corresponds to exposure value after CRM and CCF

EU CR10 (2) – IRB: Equity (Million Euros. 12-31-16)

		Equity under the IRB approach				
Categories	On-balance sheet amount ⁽¹⁾	Off-balance sheet amount ⁽²⁾	RW	Exposure Amount ⁽³⁾	RWAs	Capital Requirements
Simple method - Private Equity Exposures	840	-	190%	840	1,595	128
Simple method - Exchange-traded equity exposures	198	-	290%	198	575	46
Simple method - Other Equity Exposures	113	-	370%	113	417	33
Exposures subject to 250% risk weighting	3,278	-	250%	3,278	8,195	656
Intern model	193	-		193	961	77
PD/LGD method	3,592	-		3,592	4,896	392
Total	8,214	-		8,214	16,639	1,331

⁽¹⁾ Corresponds to the amount of the net exposure of provisions and cancellations⁽²⁾ Corresponds to the value of off-balance sheet exposure, regardless of credit conversion factors (CCF), or the effect of the Credit Risk Mitigation (CRM) techniques. As of December 31, 2017 derivatives on shares are included as on-balance sheet⁽³⁾ Corresponds to exposure value after CRM and CCF

In addition, section 3.4 shows detailed information on structural equity risk.

3.2.6. Information on counterparty risk

Counterparty exposure involves that part of the original exposure corresponding to derivative instruments,

repurchase and resale transactions, securities lending transactions and deferred settlement transactions.

The following table shows the amount in terms of EAD of the counterparty risk, broken down by product and risk:

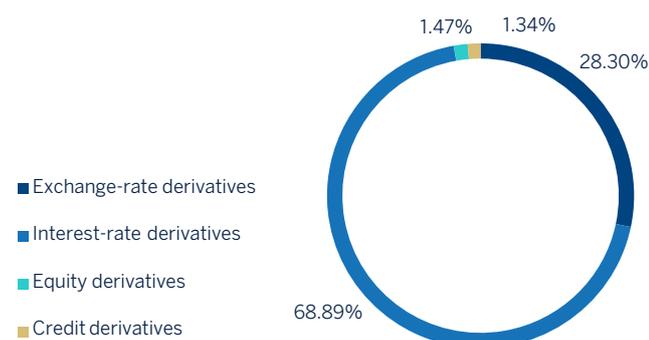
Table 36. Counterparty risk. EAD derivatives by product and risk (Million Euros. 12-31-17)

	Foreign-exchange risk	Interet rate risk	Equity risk	Commodity risk	Credit risk	Other risks	TOTAL
Term operations	7,314	-	14	-	-	-	7,328
FRAAs	-	0	-	-	-	-	0
Swaps	-	16,337	35	-	-	-	16,373
Options	133	1,790	338	-	-	-	2,261
Other products	-	-	-	-	353	-	353
TOTAL	7,446	18,128	387	-	353	-	26,314

Counterparty risk. EAD derivatives by product and risk (Million Euros. 12-31-16)

	Foreign-exchange risk	Interet rate risk	Equity risk	Commodity risk	Credit risk	Other risks	TOTAL
Term operations	3,901	2	7	-	-	-	3,910
FRAAs	-	8	-	-	-	-	8
Swaps	-	19,186	34	-	-	-	19,220
Options	379	2,515	1,137	1	-	-	4,031
Other products	-	-	-	-	704	-	704
TOTAL	4,280	21,711	1,178	1	704	-	27,873

Chart 18: EAD for derivatives broken down by risk



The generation of exposures is undertaken in a manner that is consistent with those used for the monitoring and control of credit risk limits. The time horizon is divided up into intervals, and the market risk factors (interest rates, exchange rates, etc.) underlying the instruments that determine their valuation are simulated for each interval.

The exposures are generated from 500 different scenarios using the Monte Carlo method for risk factors (subject to counterparty risk) and applying the corresponding mitigating factors to each counterparty (i.e. applying collateral and/or netting arrangements as applicable).

The correlations, loss given defaults, internal ratings and associated probabilities of default are consistent with the Group's economic model for general credit risk.

3.2.6.1. Policies for managing counterparty risk

3.2.6.1.1. Methodology: allocation of internal capital and limits to exposures subject to counterparty risk

The Group has an economic model for calculating internal capital through exposure to counterparty risk in treasury operations. This model has been implemented in the Risk unit systems in Market areas. It is used to measure the credit exposures for each of the counterparties for which the entity operates.

The capital for each counterparty is then calculated using the exposure profile and taking into account the analytical formula adopted by Basel. This figure is modified by an adjustment factor for the possible maturity subsequent to one year of the operations in a similar vein to the general approach adopted by Basel for the treatment of credit risk.

Counterparty limits are specified within the financial programs authorised for each subsidiary within the line

item of treasury limits. It stipulates both the limit and the maximum maturity for the transaction.

The businesses that generate counterparty risk are subject to risk limits that control both bilateral risk and risk with CCPs. When setting these limits for each business area and segment, and to ensure their correct application, the corresponding capital consumption and revenue generated by this operation are taken into account.

There is also a risk committee that analyses individually the most significant transactions to assess (among other aspects) the relationship between profitability and risk.

The consumption of transactions within the limits is measured in terms of mark-to-market valuation plus the potential risk with Monte Carlo Simulation methodology (95% confidence level) and bearing in mind possible mitigating factors (such as netting, break clauses and collateral contracts).

Management of consumption by lines in the Markets area is carried out through a corporate platform that enables online monitoring of the limits and availabilities established for the different counterparties and customers. This control is completed by independent units of the business area to guarantee proper segregation of functions.

3.2.6.1.2. Policies for ensuring the effectiveness of collateral and establishing the value adjustments for impairment to cover this risk

The Group negotiates agreements with its customers to mitigate counterparty risk within the legal frameworks applicable in each of the countries where it operates. These agreements regulate the exchange of guarantees as a mechanism to reduce exposure derived from transactions that generate counterparty risk.

The assets covered by these agreements include cash, as well as financial assets with a high asset quality. In addition, the agreements with customers include mechanisms that allow the immediate replacement of the collateral if its quality is impaired (for example, a reduction in the market value or adverse changes in the asset rating).

Mitigation by netting transactions and by collateral only reduces the consumption of limits and capital if there is a positive opinion on their immediate effectiveness in case of the counterparty's default or insolvency.

The MENTOR tool has been specifically designed to store and process the collateral contracts concluded with counterparties. This application enables the existence of collateral to be taken into account at the transaction level (useful for controlling and monitoring the status of specific

operations) as well as at the counterparty level. Furthermore, said tool feeds the applications responsible for estimating counterparty risk by providing all the necessary parameters for considering the impact of mitigation in the portfolio due to the agreements signed.

Likewise, there is also an application that reconciles and adjusts the positions serving the Collateral and Risks units.

In order to guarantee the effectiveness of collateral contracts, the Group carries out a daily monitoring of the market values of the operations governed by such contracts and of the deposits made by the counterparties. Once the amount of the collateral to be delivered or received is obtained, the collateral demand (margin call), or the demand received, is carried out at the intervals established in the contract, usually daily.

If significant variations arise from the process of reconciliation between the counterparties, after a reconciliation in economic terms, they are reported by the Collateral unit to the Risks unit for subsequent analysis and monitoring. Within the control process, the Collateral unit issues a daily report on the guarantees which includes a description by counterparty of the exposure and collateral, making special reference to those guarantee deficits at or beyond the set warning levels.

Financial assets and liabilities may be the object of netting, in other words presentation for a net amount in the balance sheet, only when the Group's entities comply with the provisions of IAS 32 - Paragraph 42, and thus have the legally obliged right to offset the amounts recognised, and the intention to settle the net amount or to divest the asset and pay the liability at the same time.

In addition, the Group has assets and liabilities on the balance sheet that are not netted and for which there are master netting agreements, but for which there is neither the intention nor the right to settle. The most common types of events that trigger netting of reciprocal obligations include the bankruptcy of the credit institution in question, swiftly accumulating indebtedness, default, restructuring or the winding up of the entity.

In the current market context, derivatives are arranged under a variety of framework contracts, with the most general being those developed by the International Swaps and Derivatives Association (ISDA), and for the Spanish market the Framework Agreement for Financial Transactions (FAFT). Practically all portfolio derivative operations have been concluded under these master contracts, including in them the netting clauses referred to in the above point as Master Netting Agreements, considerably reducing the credit exposure in these instruments. In addition, in the contracts concluded with professional counterparties, annexes are included with collateral agreements called Credit Support

Annexes (CSA), thus minimizing exposure to a possible counterparty insolvency.

At the same time, the Group has a high volume of assets bought and sold under repurchase agreements traded through clearing houses that use mechanisms to reduce counterparty risk, as well as through various master contracts in bilateral operations, the most common being the Global

Master Repurchase Agreement (GMRA), which is published by the International Capital Market Association (ICMA). This tends to have clauses added relating to the exchange of collateral within the main body of the master contract itself.

The following summary table presents the potential effects of netting and collateral agreements in derivative operations as of December 31, 2017:

Table 37. Assets and liabilities subject to contractual netting rights (Million Euros . 12-31-17)

Offsetting of financial instruments	Gross Recognized Amount (A)	Offsetted balance sheet amounte (B)	Net amount presented on balance sheet (C=A-B)	Non-offsetted gross amount (D)		Net amount (E=C-D)
				Amount related to recognized financial instruments	Collateral (including cash)	
Assets						
Trading and hedging derivatives	53,709	11,584	42,125	27,106	7,442	7,578
Repurchase agreement (Repos)	25,413	56	25,356	26,223	141	(1,008)
Total assets	79,122	11,641	67,482	53,328	7,583	6,570
Liabilities						
Trading and hedging derivatives	53,396	11,644	41,752	27,106	8,328	6,318
Repurchase agreements (Repos)	40,798	56	40,742	40,158	21	563
Total liabilities	94,194	11,701	82,494	67,264	8,349	6,881

Assets and liabilities subject to contractual netting rights (Million Euros . 12-31-16)

Offsetting of financial instruments	Gross Recognized Amount (A)	Offsetted balance sheet amounte (B)	Net amount presented on balance sheet (C=A-B)	Non-offsetted gross amount (D)		Net amount (E=C-D)
				Amount related to recognized financial instruments	Collateral (including cash)	
Assets						
Trading and hedging derivatives	61,757	13,587	48,170	32,146	6,571	9,453
Repurchase agreement (Repos)	25,593	2,912	22,681	23,080	174	(573)
Total assets	87,350	16,499	70,851	55,226	6,745	8,880
Liabilities						
Trading and hedging derivatives	60,518	14,080	46,439	32,146	7,272	7,021
Repurchase agreements (Repos)	49,475	2,912	46,563	47,915	176	(1,528)
Total liabilities	109,993	16,991	93,001	80,061	7,448	5,492

3.2.6.1.3. Policies on the risk of adverse effects due to correlations

Derivatives contracts may give rise to potential adverse correlation effects between the exposure to the counterparty and its credit quality (wrong-way-exposures).

The Group has specific policies for treating these kinds of exposures, which establish:

- How to identify transactions subject to adverse correlation risk.
- A specific admission procedure transaction by transaction.
- Measurements appropriate to the risk profile with adverse correlation.

- Control and monitoring of the transaction.

3.2.6.1.4. Impact of collateral in the event of a downgrade in credit quality

In derivatives transactions, as a general policy the Group does not subscribe collateral contracts that involve an increase in the amount to be deposited in the event of the Group being downgraded.

The general criteria applied to date with banking counterparties is to establish a zero threshold within collateral contracts, irrespective of the mutual rating; provision will be made as collateral of any difference that arises through mark-to-market valuation. During 2017, with the entry into force of the regulatory obligations for exchange of margins for derivatives that are not offset in the clearing houses, all the

collateral annexes have been adapted to the characteristics required by the regulation, among which is that of establishing a zero threshold.

3.2.6.2. Amounts of counterparty risk

The original exposure for the counterparty risk of derivatives, according to Chapter 6 of the CRR, can be calculated using the following methods: original risk, mark-to-market valuation, standardised and internal models.

The Group calculates the value of exposure to risk through the mark-to-market method, obtained as the aggregate of the positive mark-to-market value after contractual netting agreements plus the potential future risk of each transaction or instrument.

Below is a breakdown of the amount in terms of original exposure, EAD and RWAs:

Table 38. Positions subject to counterparty credit risk in terms of EO, EAD and RWAs

Exposure Class and risk types	2017											
	Securities financing transactions			Derivatives and transactions with deferred settlement			From contractual netting between products			Total		
	OE	EAD	RWAs	OE	EAD	RWAs	OE	EAD	RWAs	OE	EAD	RWAs
Central governments or central banks	5,455	3,915	180	7	8	4	348	436	4	5,810	4,360	188
Regional governments or local authorities	1	0	0	1	-	-	31	30	6	33	30	6
Public sector entities	-	-	-	-	-	-	4	4	1	4	4	1
Multilateral Development Banks	-	-	-	-	-	-	-	-	-	-	-	-
Institutions	2,681	470	249	2,173	2,173	339	2,275	1,440	765	7,128	4,082	1,353
Corporates	4,038	212	202	791	791	785	538	508	494	5,367	1,511	1,480
Retail	15	2	1	31	31	20	17	17	11	64	50	31
Secured by mortgages on immovable property	-	-	-	-	-	-	-	-	-	-	-	-
Exposures in default	-	-	-	0	0	0	0	0	0	0	0	1
Exposures associated with particularly high risk	-	-	-	-	-	-	-	-	-	-	-	-
Covered bonds	-	-	-	-	-	-	-	-	-	-	-	-
Short-term claims on institutions and corporate	-	-	-	-	-	-	-	-	-	-	-	-
Collective investments undertakings	-	-	-	-	-	-	-	-	-	-	-	-
Other exposures	-	6,051	-	-	-	-	-	867	-	-	6,918	-
Total credit risk by standardised approach	12,190	10,649	632	3,003	3,003	1,147	3,214	3,304	1,282	18,407	16,956	3,060
Central governments or central banks	1,075	1,075	750	19	19	13	59	59	0	1,154	1,154	763
Institutions	46,133	46,133	337	1,967	1,966	661	14,869	14,655	945	62,968	62,754	1,943
Corporates	13	13	0	490	490	329	2,811	2,811	1,744	3,314	3,314	2,074
Of which: SMEs	-	-	-	55	55	39	94	94	82	149	149	121
Of which: companies of specialized finance	-	-	-	278	278	218	903	903	838	1,180	1,180	1,056
Of which: other	13	13	0	158	158	73	1,814	1,814	824	1,985	1,985	897
Retail	-	-	-	4	4	2	4	4	2	8	8	4
Of which: Secured by real estate collateral	-	-	-	-	-	-	-	-	-	-	-	-
Of which: Qualifying revolving retail	-	-	-	-	-	-	-	-	-	-	-	-
Of which: Other retail assets	-	-	-	4	4	2	4	4	2	8	8	4
Other corporates: SMEs	-	-	-	4	4	2	4	4	2	8	8	4
Other corporates: No SMEs	-	-	-	0	0	0	0	0	0	0	0	0
Total credit risk by IRB approach	47,221	47,221	1,087	2,480	2,479	1,005	17,743	17,529	2,691	67,444	67,230	4,784
TOTAL CREDIT RISK	59,411	57,870	1,720	5,483	5,483	2,152	20,957	20,833	3,973	85,851	84,186	7,844

Positions subject to counterparty credit risk in terms of EO, EAD and RWAs

Exposure Class and risk types	2016											
	Securities financing transactions			Derivatives and transactions with deferred settlement			From contractual netting between products			Total		
	OE	EAD	RWAs	OE	EAD	RWAs	OE	EAD	RWAs	OE	EAD	RWAs
Central governments or central banks	4,072	3,855	51	13	13	-	378	362	8	4,463	4,229	59
Regional governments or local authorities	-	-	-	4	4	1	23	23	5	27	27	5
Public sector entities	-	-	-	0	0	0	-	-	-	0	0	0
Multilateral Development Banks	-	-	-	-	-	-	-	-	-	-	-	-
Institutions	4,661	325	45	1,857	1,857	427	2,930	1,369	491	9,448	3,551	963
Corporates	6,461	1,342	957	1,461	1,461	1,448	1,180	1,140	948	9,102	3,944	3,352
Retail	-	-	-	48	48	32	12	12	7	59	59	39
Secured by mortgages on immovable property	-	-	-	-	-	-	-	-	-	-	-	-
Exposures in default	-	-	-	0	0	0	0	0	0	0	0	0
Exposures associated with particularly high risk	-	-	-	-	-	-	-	-	-	-	-	-
Covered bonds	-	-	-	-	-	-	-	-	-	-	-	-
Short-term claims on institutions and corporate	-	-	-	-	-	-	-	-	-	-	-	-
Collective investments undertakings	85	6	6	0	0	0	0	0	0	85	6	6
Other exposures	-	9,305	-	21	21	0	0	1,600	0	21	10,925	0
Total credit risk by standardised approach	15,279	14,833	1,059	3,403	3,403	1,908	4,524	4,506	1,459	23,205	22,742	4,426
Central governments or central banks	428	428	4	31	31	10	98	98	36	556	556	50
Institutions	47,302	47,302	547	2,806	2,806	804	13,451	13,373	1,093	63,558	63,480	2,444
Corporates	-	-	-	534	534	398	3,117	3,117	2,153	3,650	3,650	2,551
Of which: SMEs	-	-	-	46	46	44	114	114	109	160	160	153
Of which: companies of specialized finance	-	-	-	251	251	236	1,337	1,337	1,241	1,588	1,588	1,477
Of which: other	-	-	-	237	237	118	1,665	1,665	803	1,902	1,902	921
Retail	-	-	-	2	2	1	4	4	2	7	7	3
Of which: Secured by real estate collateral	-	-	-	-	-	-	-	-	-	-	-	-
Of which: Qualifying revolving retail	-	-	-	-	-	-	-	-	-	-	-	-
Of which: Other retail assets	-	-	-	2	2	1	4	4	2	7	7	3
Other corporates: SMEs	-	-	-	2	2	1	4	4	2	6	6	3
Other corporates: No SMEs	-	-	-	0	0	0	0	0	0	0	0	0
Total credit risk by advanced approach	47,729	47,729	551	3,373	3,373	1,212	16,669	16,591	3,284	67,772	67,694	5,048
TOTAL CREDIT RISK	63,008	62,562	1,610	6,776	6,776	3,120	21,193	21,097	4,743	90,977	90,435	9,473

From the amounts shown in the table above, those referring to the counterparty risk in the trading book are shown below:

Table 39. Amounts of counterparty risk in the trading book (Million Euros)

Counterparty Risk Trading Book Activities	2017		2016	
	Mtm Method	Internal Models (IMM)	Mtm Method	Internal Models (IMM)
Standardised Approach	194	-	269	-
Advanced Approach	296	-	360	-
Total	490	-	629	-

The Group currently has a totally residual amount of capital requirements for trading-book activity liquidation risk.

The following table presents the amounts in million euros involved in the counterparty risk of derivatives as of December 31, 2017 and December 31, 2016:

Table 40. EU CCR5-A – Impact of netting and collateral held on exposure values ⁽¹⁾ (Million Euros . 12-31-17)

	Gross positive fair value or net carrying amount	Netting benefits	Netted current credit exposure	Collateral held	Net credit exposure
Derivatives ⁽²⁾	42,125	(29,327)	12,798	(6,029)	6,769
SFTs	25,979	(644)	25,335	(26,219)	(884)
Cross-product netting	-	-	-	-	-
Total	68,104	(29,972)	38,133	(32,248)	5,885

⁽¹⁾ SFTs includes both relative amount of recognised financial instruments and collaterals that are not netted on balance sheet but reduce credit risk.
Collaterals of derivatives correspond only to those that mitigate for capital purpose

⁽²⁾ Positive mark to market of derivatives is include

Below is a complete overview of the methods used to calculate the regulatory requirements for counterparty credit risk and the main parameters of each method (excluding

requirements for CVA and exposures offset through a CCP, which are shown in tables CCR2 and CCR8, respectively).

Table 41. EU CCR1 – Analysis of CCR exposure by approach (Million Euros)

	12-31-17				12-31-16			
	Replacement Cost / Current market value	Potential future credit exposure	EAD post- CRM	RWAs	Replacement Cost / Current market value	Potential future credit exposure	EAD post- CRM	RWAs
Mark to market	12,514	10,254	21,213	6,001	12,476	15,098	24,205	7,762
Internal Model Method (for derivatives and SFTs)	-	-	-	-	-	-	-	-
Simple Approach for credit risk mitigation (for SFTs)	-	-	-	-	-	-	-	-
Comprehensive Approach for credit risk mitigation (for SFTs)	-	-	56,937	1,643	-	-	61,421	1,557
VaR for SFTs	-	-	-	-	-	-	-	-
Total	12,514	10,254	78,150	7,644	12,476	15,098	85,626	9,319

3.2.6.2.1. Counterparty risk by standardised approach

The following table presents a breakdown of exposure to counterparty credit risk (following mitigation and CCF techniques) calculated using the standardised method, by exposure class and risk weighting:

Table 42. EU CCR3 – Standardised approach – CCR exposures by regulatory portfolio and risk (Million Euros. 12-31-17)

Exposure Class	Risk weight											Total	Of which: unrated
	0%	2%	4%	10%	20%	50%	70%	75%	100%	150%	Others		
Central governments or central banks	4,058	-	-	-	-	226	-	-	75	0	-	4,360	3,619
Regional government or local authorities	-	-	-	-	30	-	-	-	-	-	-	30	8
Public sector entities	-	-	-	-	4	-	-	-	-	-	-	4	4
Multilateral development banks	-	-	-	-	-	-	-	-	-	-	-	-	-
International organisations	-	-	-	-	-	-	-	-	-	-	-	-	-
Institutions	-	1,099	72	-	1,778	322	-	-	812	-	-	4,082	3,937
Corporates	-	-	-	-	3	46	-	-	1,458	4	-	1,511	1,505
Retail	-	-	-	-	-	-	-	50	-	-	-	50	50
Institutions and corporates with a short term credit assessment	-	-	-	-	-	-	-	-	-	-	-	-	-
Other items	6,918	-	-	-	-	-	-	-	-	0	-	6,918	6,918
Total	10,976	1,099	72	-	1,816	594	-	50	2,345	5	-	16,955	16,043

EU CCR3 – Standardised approach – CCR exposures by regulatory portfolio and risk (Million Euros. 12-31-16)

Exposure Class	Risk weight											Total	Of which: unrated
	0%	2%	4%	10%	20%	50%	70%	75%	100%	150%	Others		
Central governments or central banks	4,121	-	-	-	-	97	-	-	11	-	-	4,229	4,180
Regional government or local authorities	-	-	-	-	27	-	-	-	-	-	-	27	27
Public sector entities	-	-	-	-	-	-	-	-	-	-	-	-	-
Multilateral development banks	-	-	-	-	-	-	-	-	-	-	-	-	-
International organisations	-	-	-	-	-	-	-	-	-	-	-	-	-
Institutions	-	523	197	-	2,120	381	-	-	329	1	-	3,551	3,101
Corporates	-	-	-	-	220	783	-	7	2,933	-	-	3,944	2,941
Retail	-	-	-	-	-	-	-	59	-	-	-	59	59
Institutions and corporates with a short term credit assessment	-	-	-	-	-	-	-	-	-	-	-	-	-
Other items	10,925	-	-	-	-	-	-	-	7	-	-	10,932	10,929
Total	15,046	523	197	-	2,368	1,261	-	66	3,280	1	-	22,742	21,238

⁽¹⁾ Of which: Unrated refers to exposures for which no credit rating is available made by designated ECAIs.

3.2.6.2.2. Counterparty risk by advanced measurement approach

The following table presents the relevant parameters used to calculate the capital requirements for counterparty credit risk in the IRB models as of December 31, 2017:

Table 43. EU CCR4 – IRB approach – CCR exposures by portfolio and PD scale

PD scale as of 12-31-17 ⁽¹⁾	EAD post-CRM	Average PD ⁽²⁾	Number of Obligors	Average LGD ⁽³⁾	Average Maturity (days) ⁽⁴⁾	RWAs	RWA Density
Prudential Portfolio- FIRB method	-	-	-	-	-	-	-
Prudential Portfolio- AIRB method	67,230	0.2%	8,319	26.0%		4,784	7.1%
Central governments or central banks	1,154	2.6%	4	15.3%	48	763	66.1%
0.00 to <0.15	59	0.0%	1	1.2%	1	0	0.0%
0.15 to <0.25	-	-	-	-	-	-	-
0.25 to <0.50	19	0.3%	1	40.0%	150	13	65.9%
0.50 to <0.75	446	0.5%	1	-	37	-	-
0.75 to <2.5	-	-	-	-	-	-	-
2.50 to <10,00	630	4.4%	1	26.7%	4	750	119.1%
10,00 to <100,00	-	-	-	-	-	-	-
100,00 (Default)	-	-	-	-	-	-	-
Institutions	62,754	0.2%	2,082	26.2%	31	1,943	3.1%
0.00 to <0.15	52,512	0.1%	1,651	26.6%	32	1,572	3.0%
0.15 to <0.25	2,698	0.2%	145	24.4%	23	90	3.3%
0.25 to <0.50	5,620	0.3%	77	25.4%	21	87	1.5%
0.50 to <0.75	206	0.5%	28	16.4%	32	30	14.3%
0.75 to <2.5	800	1.1%	154	23.7%	30	85	10.7%
2.50 to <10,00	913	3.9%	22	22.1%	45	77	8.4%
10,00 to <100,00	5	21.2%	4	22.3%	71	3	67.7%
100,00 (Default)	-	100.0%	1	-	-	-	-
Corporate - SMEs	149	12.3%	2,514	39.6%	547	121	81.4%
0.00 to <0.15	10	0.1%	362	36.1%	54	2	18.0%
0.15 to <0.25	9	0.2%	172	40.3%	42	2	25.8%
0.25 to <0.50	8	0.3%	281	40.4%	67	3	34.3%
0.50 to <0.75	11	0.5%	353	40.4%	52	5	47.3%
0.75 to <2.5	48	1.1%	700	38.9%	72	44	91.1%
2.50 to <10,00	46	4.7%	503	40.4%	80	58	126.0%
10,00 to <100,00	2	16.0%	60	35.2%	94	2	147.7%
100,00 (Default)	15	100.0%	83	40.5%	85	5	33.3%
Corporate - Non-SMEs	1,985	0.3%	1,444	41.3%	73	897	45.2%
0.00 to <0.15	1,072	0.1%	434	40.1%	68	286	26.7%
0.15 to <0.25	231	0.2%	199	39.8%	66	82	35.3%
0.25 to <0.50	203	0.3%	301	44.0%	75	111	54.5%
0.50 to <0.75	404	0.5%	225	43.9%	83	338	83.6%
0.75 to <2.5	56	1.1%	185	43.5%	95	54	96.0%
2.50 to <10,00	17	4.3%	79	41.4%	70	25	147.7%
10,00 to <100,00	0	20.5%	3	44.0%	85	1	229.9%
100,00 (Default)	1	100.0%	18	43.3%	66	0	37.2%
Retail - Other SMEs	8	14.3%	1,889	38.1%	-	4	47.3%
0.00 to <0.15	0	0.1%	139	36.0%	-	0	9.2%
0.15 to <0.25	0	0.2%	41	40.0%	-	0	11.4%
0.25 to <0.50	0	0.3%	99	40.0%	-	0	17.4%
0.50 to <0.75	0	0.4%	122	28.6%	-	0	23.4%
0.75 to <2.5	1	1.2%	398	40.0%	-	1	35.4%
2.50 to <10,00	2	4.6%	772	37.8%	-	1	46.9%
10,00 to <100,00	3	16.9%	203	40.0%	-	2	66.8%
100,00 (Default)	1	100.0%	115	26.7%	-	0	13.2%
Retail - Other Non-SMEs	0	1.6%	25	26.2%	-	0	55.4%
0.00 to <0.15	0	0.1%	5	26.7%	-	-	-
0.15 to <0.25	-	-	-	-	-	-	-
0.25 to <0.50	-	-	1	-	-	-	-
0.50 to <0.75	-	-	1	-	-	-	-
0.75 to <2.5	0	0.7%	8	20.0%	-	0	50.0%
2.50 to <10,00	0	1.7%	8	26.7%	-	0	56.6%
10,00 to <100,00	-	-	2	-	-	-	-
100,00 (Default)	-	-	-	-	-	-	-
Corporate - Especialized lending	1,180	-	361	-	-	1,056	89.5%
Total Advanced Approach	67,230	0.2%	8,319	26.0%		4,784	7.1%

⁽¹⁾ PD intervals according to RPDR document

⁽²⁾ Corresponds to PD by EAD-weighted debtor category

⁽³⁾ Corresponds to LGD by EAD-weighted debtor category

⁽⁴⁾ Corresponds to the EAD-weighted debtor expiration in days

EU CCR4 – IRB approach – CCR exposures by portfolio and PD scale

PD scale as of 12-31-16 ⁽¹⁾	EAD post-CRM	Average PD ⁽²⁾	Number of Obligor	Average LGD ⁽³⁾	Average Maturity (days) ⁽⁴⁾	RWAs	RWA Density
Prudential Portfolio- FIRB method	-	-	-	-	-	-	-
Prudential Portfolio- AIRB method	67,694	0.3%	6,029	25.4%	-	5,048	7.5%
Central governments or central banks	556	0.6%	9	12.9%	112	50	9.0%
0.00 to <0.15	73	0.0%	2	26.4%	90	9	12.2%
0.15 to <0.25	52	0.2%	2	44.0%	182	35	67.6%
0.25 to <0.50	1	0.3%	1	20.0%	151	0	34.1%
0.50 to <0.75	1	0.5%	1	20.0%	166	0	44.2%
0.75 to <2.5	429	0.8%	3	6.8%	73	5	1.3%
2.50 to <10,00	-	0.0%	-	0.0%	-	-	0.0%
10,00 to <100,00	-	0.0%	-	0.0%	-	-	0.0%
100,00 (Default)	-	0.0%	-	0.0%	-	-	0.0%
Institutions	63,480	0.3%	973	25.6%	39	2,444	3.8%
0.00 to <0.15	52,247	0.1%	716	26.8%	39	1,720	3.3%
0.15 to <0.25	956	0.2%	45	19.2%	30	74	7.8%
0.25 to <0.50	4,353	0.3%	46	21.6%	38	145	3.3%
0.50 to <0.75	3,587	0.5%	35	14.3%	31	108	3.0%
0.75 to <2.5	1,255	1.2%	79	27.6%	38	125	9.9%
2.50 to <10,00	634	4.4%	20	23.1%	58	93	14.7%
10,00 to <100,00	448	19.3%	32	22.2%	55	179	39.9%
100,00 (Default)	-	0.0%	-	0.0%	-	-	0.0%
Corporate - SMEs	160	12.8%	2,232	39.4%	89	153	95.3%
0.00 to <0.15	5	0.1%	225	40.5%	68	1	18.2%
0.15 to <0.25	3	0.2%	150	40.7%	66	1	27.3%
0.25 to <0.50	7	0.3%	240	40.1%	47	2	30.4%
0.50 to <0.75	15	0.5%	314	40.8%	89	7	48.3%
0.75 to <2.5	36	1.0%	681	34.5%	81	32	90.2%
2.50 to <10,00	76	4.6%	496	41.0%	119	101	131.9%
10,00 to <100,00	2	19.0%	37	41.4%	93	3	131.3%
100,00 (Default)	16	100.0%	89	40.6%	115	6	35.5%
Corporate - Non-SMEs	1,902	0.4%	1,066	42.8%	79	921	48.4%
0.00 to <0.15	1,128	0.1%	260	42.6%	81	394	34.9%
0.15 to <0.25	232	0.2%	165	41.3%	63	102	44.2%
0.25 to <0.50	161	0.3%	186	43.9%	80	96	59.9%
0.50 to <0.75	229	0.5%	197	43.6%	77	181	78.9%
0.75 to <2.5	130	1.2%	153	43.3%	86	118	91.3%
2.50 to <10,00	20	4.4%	76	43.1%	85	27	136.9%
10,00 to <100,00	1	16.1%	8	43.0%	86	1	208.7%
100,00 (Default)	3	100.0%	21	41.9%	73	1	29.0%
Retail - Other SMEs	6	6.2%	1,467	37.0%	-	3	45.7%
0.00 to <0.15	0	0.1%	16	40.0%	-	0	10.0%
0.15 to <0.25	0	0.2%	45	40.0%	-	0	14.4%
0.25 to <0.50	0	0.3%	90	40.0%	-	0	17.2%
0.50 to <0.75	0	0.5%	132	40.0%	-	0	23.6%
0.75 to <2.5	1	0.8%	534	26.7%	-	1	35.5%
2.50 to <10,00	3	5.1%	620	40.0%	-	2	48.6%
10,00 to <100,00	1	21.6%	30	40.0%	-	1	70.2%
100,00 (Default)	-	0.0%	-	0.0%	-	-	0.0%
Retail - Other Non-SMEs	0	1.2%	10	31.2%	-	0	50.7%
0.00 to <0.15	-	0.0%	-	0.0%	-	-	0.0%
0.15 to <0.25	-	0.0%	1	0.0%	-	-	0.0%
0.25 to <0.50	-	0.0%	-	0.0%	-	-	0.0%
0.50 to <0.75	-	0.0%	2	0.0%	-	-	0.0%
0.75 to <2.5	0	1.2%	2	40.0%	-	0	45.2%
2.50 to <10,00	0	1.3%	4	20.0%	-	0	57.7%
10,00 to <100,00	-	0.0%	1	0.0%	-	-	0.0%
100,00 (Default)	-	0.0%	-	0.0%	-	-	0.0%
Corporate - Especialized lending	1,588	-	272	-	-	1,477	93.0%
Total Advanced Approach	67,694	0.3%	6,029	25.4%	-	5,048	7.5%

⁽¹⁾ PD intervals according to RPDR document⁽²⁾ Corresponds to PD by EAD-weighted debtor category⁽³⁾ Corresponds to LGD by EAD-weighted debtor category⁽⁴⁾ Corresponds to the EAD-weighted debtor expiration in days

3.2.6.2.3. Composition of collateral for counterparty risk exposures

a table with a breakdown of all the types of collateral contributed or received by the Group to strengthen or reduce

exposure to counterparty credit risk related to derivative transactions and securities financing transactions as of December 31, 2017 is presented below:

Table 44. EU CCR5-B – Composition of collateral for exposures to CCR (Million Euros. 12-31-17)

	Collateral used in derivative transactions				Collateral used in SFTs	
	Fair Value of Collateral received		Fair Value of posted Collateral		Fair Value of Collateral received	Fair Value of posted Collateral
	Segregated ⁽¹⁾	Unsegregated ⁽²⁾	Segregated ⁽¹⁾	Unsegregated ⁽²⁾		
Cash- domestic currency	4	2,353	7	-	29,053	24,244
Cash- other currencies	0	1,549	6	160	11,025	1,735
Domestic sovereign debt	-	-	-	-	10,852	17,000
Other sovereign debt	-	12	-	-	5,591	8,938
Government agency debt	-	4	-	4	330	477
Corporate bonds	-	468	-	-	3,891	10,088
Equity securities	-	0	-	-	-	3,207
Other collateral	-	1,638	-	-	5,554	447
Total	5	6,024	13	163		

⁽¹⁾ Refers to collateral that is held in a bankruptcy-remote manner in the meaning of Article 300 in the CRR.

⁽²⁾ Refers to collateral that is not held in a bankruptcy-remote manner.

^(*) Only collaterals which are considered as capital mitigation are included

Table 45. EU CCR5-B – Composition of collateral for exposures to CCR (Million Euros. 12-31-16)

	Collateral used in derivative transactions				Collateral used in SFTs	
	Fair Value of Collateral received		Fair Value of posted Collateral		Fair Value of Collateral received	Fair Value of posted Collateral
	Segregated ⁽¹⁾	Unsegregated ⁽²⁾	Segregated ⁽¹⁾	Unsegregated ⁽²⁾		
Cash- domestic currency	1	2,193	21	100	29,723	22,449
Cash- other currencies	1,612	652	11	-	16,840	151
Domestic sovereign debt	-	-	-	-	8,246	8,111
Other sovereign debt	-	-	-	-	10,521	26,023
Government agency debt	-	25	-	9	108	290
Corporate bonds	-	12	-	-	1,844	10,786
Equity securities	-	2,205	-	-	-	2,581
Other collateral	-	13	-	-	2,038	124
Total	1,613	5,100	32	109	69,320	70,516

⁽¹⁾ Refers to collateral that is held in a bankruptcy-remote manner in the meaning of Article 300 in the CRR.

⁽²⁾ Refers to collateral that is not held in a bankruptcy-remote manner.

^(*) Only collaterals which are considered as capital mitigation are included

3.2.6.2.4. Credit derivative transactions

The table below shows the amounts corresponding to transactions with credit derivatives, broken down into purchased and sold derivatives:

Table 45. EU CCR6 – Credit derivatives exposures (Million Euros. 12-31-17)

Notionals	Credit derivative hedges		Other credit derivatives
	Protection Bought	Protection Sold	
Single-name credit default swaps	13,848	16,333	-
Index credit default swaps	5,374	5,929	-
Total return swaps	8,374	8,265	-
Credit options	-	2,039	-
Other credit derivatives	100	100	-
Fair Values	(451)	423	-
Positive fair value (asset)	48	441	-
Negative fair value (liability)	(499)	(18)	-

EU CCR6 – Credit derivatives exposures (Million Euros. 12-31-16)

	Credit derivative hedges		Other credit derivatives
	Protection Bought	Protection Sold	
Notionals	9,325	10,074	
Single-name credit default swaps	5,126	5,641	-
Index credit default swaps	1,654	1,609	-
Total return swaps	1,565	1,895	-
Credit options	100	50	-
Other credit derivatives	880	880	-
Fair Values	(34)	(43)	-
Positive fair value (asset)	112	150	-
Negative fair value (liability)	(145)	(193)	-

As of year-end 2017 and 2016, the Group did not use credit derivatives in brokerage activities as collateral.

3.2.6.3. CVA charge requirements

The surcharge for CVA in Capital refers to the additional surcharge in capital on account of the unexpected CVA adjustment loss, for which there are two approaches:

- Standardised Approach (Art. 384 CRR): application of a standard regulatory formula. The formula applied is an analytical approximation to the calculating of the CVA VaR by supposing that the counterparty spreads depend on a single systematic risk factor and on its own idiosyncratic factor, both variables distributed by independent normal distributions, assuming a 99% confidence level.
- Advanced Approach (Art 383 CRR): based on the market risk VaR approach, which requires a calculation of the

“CVA VaR”, assuming the same confidence level (99%) and time horizon (10 days), as well as a stressed scenario. As of December 31, 2017 and December 31, 2016, the Group has no surcharge for CVA calculated under the advanced approach.

Procedures for calculating the valuation of adjustments and reserves

Credit valuation adjustments (CVA) and debit valuations adjustments (DVA) are incorporated into derivative valuations of both assets and liabilities, to reflect the impact on fair value of the counterparty credit risk and own credit risk, respectively. (See Note 8 of the Group’s Consolidated Financial Statements for more information).

The amounts in million euros involved in the adjustments by credit risk as of December 31, 2017 and December 31, 2016 are below:

Table 46. EU CCR2 – CVA capital charge (Million Euros. 12-31-17)

	Exposure value	RWA
Total portfolios subject to the advanced method	-	-
(i) VaR component (included 3x multiplier)	-	-
(ii) SVaR component (included 3x multiplier)	-	-
All portfolios subject to the standardised method	7,865	1,566
Total subject to the CVA capital charge	7,865	1,566

EU CCR2 – CVA capital charge (Million Euros. 12-31-16)

	Exposure value	RWA
Total portfolios subject to the advanced method	-	-
(i) VaR component (included 3x multiplier)	-	-
(ii) SVaR component (included 3x multiplier)	-	-
All portfolios subject to the standardised method	10,181	2,321
Total subject to the CVA capital charge	10,181	2,321

The variations in terms of RWAs during the period are below:

Table 47. Variations in terms of RWAs of CVA (Million Euros)

CVA		
RWAs as of December 31, 2016		2,321
Effects	Asset size	(755)
RWAs as of December 31, 2017		1,566

The variations in terms of RWAs by CVA in the analysis period are caused mainly by review and optimisation of the scope of positions subject to CVA.

3.2.6.4. Exposures to central counterparty entities

The following table presents a complete overview of the exposures to central counterparty entities by type of exposure (arising from transactions, margins, contributions to the guarantee fund) and their corresponding capital requirements:

Table 48. EU CCR8 – Exposures to CCPs (Million Euros)

	12-31-17		12-31-16	
	EAD post CRM	RWA	EAD post CRM	RWA
Exposures to QCCPs (total)	7,703	186	6,373	242
Exposures for trades at QCCPs (excluding initial margin and default fund contributions); of which	5,903	119	4,633	119
(i) OTC Derivatives	482	11	435	13
(ii) Exchange-traded derivatives	689	14	427	9
(iii) Securities financing transactions (SFTs)	824	16	965	19
(iv) Netting sets where cross-product netting has been approved	3,909	78	2,806	79
Segregated initial margin	1,558	-	526	-
Non-segregated initial margin	155	18	1,116	30
Pre-funded default fund contributions	87	49	97	92
Alternative calculation of own funds requirements for exposures	-	-	-	-
Exposures to non-QCCPs (total)	246	84	176	34
Exposures for trades at non-QCCPs (excluding initial margin and default to contributions); of which	132	80	176	34
(i) OTC Derivatives	17	17	-	-
(ii) Exchange-traded derivatives	6	3	-	-
(iii) Securities financing transactions (SFTs)	109	60	176	34
(iv) Netting sets where cross-product netting has been approved	-	-	-	-
Segregated initial margin	110	-	-	-
Non-segregated initial margin	4	4	-	-
Pre-funded default fund contributions	0	0	-	-
Unfunded default fund contributions	-	-	-	-

3.2.7. Information on securitisations

3.2.7.1. General characteristics of securitisations

3.2.7.1.1. Purpose of securitisation

The Group's current policy on securitisation considers a program of recurrent issuance, with a deliberate diversification of securitised assets that adjusts their volume to the Bank's capital requirements and to market conditions.

This program is complemented by all the other finance and equity instruments, thereby diversifying the need to resort to wholesale markets.

The definition of the strategy and the execution of the operations, as with all other wholesale finance and capital management, is supervised by the Assets & Liabilities Committee, with the pertinent internal authorisations obtained directly from the Board of Directors or from the Executive Committee.

The main aim of securitisation is to serve as an instrument for the efficient management of the balance sheet, above all as a source of liquidity at an efficient cost, obtaining liquid assets through eligible collateral, as a complement to other financial instruments. In addition, there are other secondary objectives associated with the use of securitisation instruments, such as freeing up of regulatory capital by transferring risk and the freeing of potential excess over the expected loss, provided it is allowed by the volume of the first-loss tranche and risk transfer.

Main risk exposure in securitisation operations:

1. Default risk

Consists in the obligor not paying at the due date and in the correct way the contractual obligations assumed (for example, potential non-payment of installments).

In the particular case of securitisations, the entities provide information to investors on the situation of the

securitised loan portfolio. In this respect, it is worth noting that transactions transferred to the Securitisation Fund do not include defaults, or at most, if there is one, in no case do they exceed 30 days of non-payment, demonstrating the high quality of transactions that are securitised. The rating agencies take this element closely into account when analyzing the credit risk of transactions.

BBVA monitors the changes in these indicators with the aim of establishing specific action plans in the different products, in order to correct any deviations that are leading to a deterioration in credit quality.

Monthly information is available on all these indicators to monitor them, in some cases daily. It includes flows of additions, recoveries, irregular investment and the non-performing loan ratio. The information is obtained through different applications and reports prepared in the Risks area.

BBVA's philosophy of recovery for unpaid loans consists of defining an operating system that allows a speedy and efficient correction of the irregular situation. It is based on a highly personalised management, with a key role being played by the Recovery Manager and his close and ongoing relationship with the debtor.

The main guarantee is always the mortgage on the asset that is the object of acquisition and finance, or on the primary residence. In addition, there are frequent personal guarantees issued by the holders of the loan or the guarantors, which reinforce the repayment of the debt and quality of the risk. The rights to collection before insurance companies are also subrogated in favor of the Bank in cases where there is damage to the mortgaged building due to fire or other duly stipulated causes.

2. Early repayment risk

This derives from the potential total or partial prepayment by the obligor of the amounts corresponding to the securitised loans, which could imply that the maturity of the securitisation bonds calculated at the time of the issue is shorter than the maturity of the loans transferred to the Fund.

This risk is basically manifested due to the variations of market interest rates, but despite its importance it is not the only determining factor; to this have to be added other more personal elements, such as inheritance, divorce, change of residence, etc.

In the specific case of our securitisations, this risk is very limited, as the maturity date of the securitisation bond issue is set according to the maturity of the last loan of the portfolio used.

3. Liquidity risk

At times it is noted that a possible limited liquidity of the markets in which the bonds are traded could constitute a risk derived from the securitisation processes.

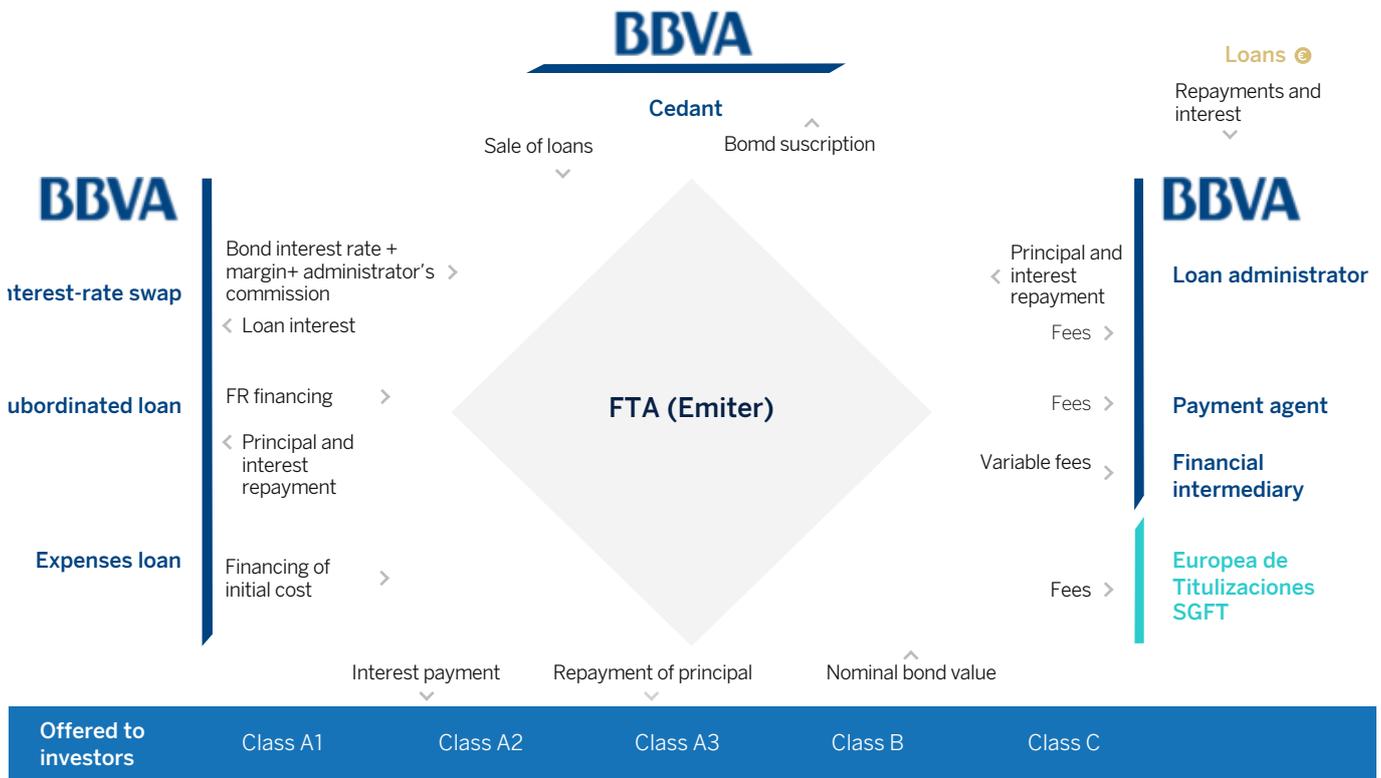
Although it is true that an entity may not undertake to contract in the secondary market one of the bonds issued by the Securitisation Fund, and thus provide liquidity to the funds, the securitisation process itself consists of converting illiquid assets that form part of the Bank's balance sheet into liquid assets in the form of securitisation bonds, which give the possibility for trading and transferring them in a regulated market. This would not be the case if they were not subject to the securitisation process.

In addition, understanding liquidity risk as the possible time mismatch between the maturities of the collections generated by the loans and the payments the bonds originate, BBVA has not so far made any securitisation issues in which there is a divergence between collections and payments. The entities that have programs for commercial paper issuance, in which this risk is typically present, mitigate it with the use of liquidity lines that are included in the structure of the Fund.

3.2.7.1.2. Functions performed by the securitisation process and degree of involvement

The Group's degree of involvement in its securitisation funds is not usually restricted to the mere role of assignor and administrator of the securitised portfolio.

Chart 19: Functions carried out in the securitisation process and degree of involvement of the Group



As can be seen in the above chart, the Group has usually taken additional roles such as:

- Payment Agent.
- Provider of the treasury account.
- Provider of the subordinated loan and of the loan for start-up costs, with the former being the one that finances the first-loss tranche, and the latter financing the fund's fixed expenditure.
- Administrative agent of the securitised portfolio

The Group has not assumed the role of sponsor of securitisations originated by third-party institutions.

The Group's balance sheet maintains the first-loss tranches of all securitisations performed.

It is worth noting that the Group has maintained a consistent line in the generation of securitisation operations since the credit crunch, which began in July 2007.

In addition, the Group has carried out its first synthetic securitisation, introducing this new operating procedure as an additional source of release of regulatory capital.

3.2.7.1.3. Methods used for the calculation of risk-weighted exposures in its securitisation activity

The methods used to calculate risk-weighted exposures in securitisations are:

- The standard securitisation method: When this method is used for fully securitised exposures, in full or in a predominant manner if it involves a mixed portfolio.
- The IRB approach: When internal models are used for securitised exposures, in full or in a predominant manner. Within the alternatives of the IRB approach, use is made of the model based on external ratings.

3.2.7.2. Accounting treatment of securitisation

3.2.7.2.1. Criteria for removing or maintaining assets subject to securitisation on the balance sheet

The accounting procedure for the transfer of financial assets depends on the manner in which the risks and benefits associated with securitised assets are transferred to third parties.

Financial assets are only removed from the consolidated balance sheet when the cash flows they generate have dried up or when their implicit risks and benefits have been substantially transferred out to third parties.

The Group is considered to substantially transfer the risks and benefits when these account for the majority of the overall risks and benefits of the securitised assets.

When the risks and benefits of transferred assets are substantially conveyed to third parties, the financial asset transferred is deregistered from the consolidated balance sheet, and any right or obligation retained or created as a result of the transfer is simultaneously recognised.

In many situations, it is clear whether the entity has substantially transferred all the risks and benefits associated with the transfer of an asset or not. However, when it is not sufficiently clear if the transfer took place or not, the entity evaluates its exposure before and after the transfer by comparing the variation in the amounts and the calendar of the net cash flows of the transferred asset. Therefore, if the exposure to the variation in the current value of the net cash flows of the financial asset does not significantly change as a result of the transfer, it is understood that the entity has not substantially transferred all the risks and benefits associated with the ownership of the asset.

When the risks and/or benefits associated with the financial asset transferred are substantially retained, the asset transferred is not deregistered from the consolidated balance sheet and continues to be valued according to the same criteria applied prior to the transfer.

In the specific case of securitisation funds to which Group institutions transfer their loan-books, existing contractual rights other than voting rights are to be considered with a view to analyzing their possible consolidation. It is also necessary to consider the design and purpose of each fund, as well as the following factors (among others):

- Evidence of the practical ability to direct the relevant activities of the funds according to the specific needs of the business (including the decisions that may arise in particular circumstances only).
- Possible existence of special relations with the funds.
- The Group's implicit or explicit commitments to back the funds.
- Whether the Group has the capacity to use its power over the funds to influence the amount of the returns to which it is exposed.

Thus, there are cases where the Group is highly exposed to the existing variable returns and retains decision-making powers over the institution, either directly or through an agent. In these cases, the securitisation funds are consolidated with the Group.

3.2.7.2. Criteria for the recognition of earnings in the event of the removal of assets from the balance sheet

In order for the Group to recognise the result generated on the sale of financial instruments, the sale has to involve the corresponding removal from the accounts, which requires the fulfillment of the requirements governing the substantial transfer of risks and benefits as described in the preceding point.

The result will be reflected on the income statement, being calculated as the difference between the book value and the net value received including any new additional assets obtained minus any liabilities assumed.

When the amount of the financial asset transferred matches the total amount of the original financial asset, the new financial assets, financial liabilities and liabilities for the provision of services, as appropriate, that are generated as a result of the transfer will be recorded according to their fair value.

3.2.7.2.3. Key hypothesis for valuing risks and benefits retained on securitised assets

The Group considers that a substantial withholding is made of the risks and benefits of securitisations when the subordinated bonds of issues are kept and/or it grants subordinated finance to the securitisation funds that mean substantially retaining the credit losses expected from the loans transferred.

3.2.7.3. Risk transfer in securitisation activities

A securitisation fulfills the criterion of significant and effective transfer of risk, and therefore falls within the solvency framework of the securitisations, when it meets the conditions laid down in Articles 244.2 and 243.2 of the CRR.

3.2.7.4. Securitisation exposure in the investment portfolio and financial instruments held for trading

The table below shows the amounts in terms of EAD of investment and trading book by type of exposure:

Table 49. SEC1: Securitisation exposures in the banking book (Million Euros. 12-31-17)

12-31-17	Bank acts as originator			Bank acts as sponsor			Bank acts as investor		
	Traditional	Synthetic	Subtotal	Traditional	Synthetic	Subtotal	Traditional	Synthetic	Subtotal
Retail (total)- of which	-	-	-	-	-	-	4,635	-	4,635
Residential mortgage	-	-	-	-	-	-	4,447	-	4,447
Credit card	-	-	-	-	-	-	188	-	188
Other retail exposures	-	-	-	-	-	-	-	-	-
Re-Securitisation	-	-	-	-	-	-	-	-	-
Wholesale (total)- of which	97	2,391	2,488	-	-	-	338	-	338
Loans to corporates	56	2,391	2,447	-	-	-	51	-	51
Commercial mortgage	-	-	-	-	-	-	1	-	1
Lease and receivables	42	-	42	-	-	-	-	-	-
Other wholesale	-	-	-	-	-	-	285	-	285
Re-Securitisation	-	-	-	-	-	-	-	-	-

SEC1: Securitisation exposures in the banking book (Million Euros. 12-31-16)

12-31-16	Bank acts as originator			Bank acts as sponsor			Bank acts as investor		
	Traditional	Synthetic	Subtotal	Traditional	Synthetic	Subtotal	Traditional	Synthetic	Subtotal
Retail (total)- of which	14	-	14	-	-	-	5,485	-	5,485
Residential mortgage	-	-	-	-	-	-	5,232	-	5,232
Credit card	-	-	-	-	-	-	253	-	253
Other retail exposures	14	-	14	-	-	-	-	-	-
Re-Securitisation	-	-	-	-	-	-	-	-	-
Wholesale (total)- of which	107	-	107	-	-	-	434	-	434
Loans to corporates	65	-	65	-	-	-	61	-	61
Commercial mortgage	-	-	-	-	-	-	2	-	2
Lease and receivables	42	-	42	-	-	-	-	-	-
Other wholesale	-	-	-	-	-	-	372	-	372
Re-Securitisation	-	-	-	-	-	-	-	-	-

As of December 31 2017 and December 31 2016, the Group has no securitisation exposure in the financial instruments held for trading.

3.2.7.5. Investment or retained securitisations

The table below shows the amounts in terms of EAD and RWAs of investment securitisation positions by type of

exposure, tranches and weighting ranges corresponding to the securitisations and their corresponding capital requirements as of December 31, 2017 and December 31, 2016.

Below are the main variations in terms of RWAs during the period related to the investment and retained securitisations:

Table 51. Variation in terms of RWAs of investment and retained Securitisations (Million Euros)

Securitisation Risk		
RWAs as of December 31, 2016		1,477
Effects	Activity	274
RWAs as of December 31, 2017		1,751

3.2.7.6. Originated securitisations

3.2.7.6.1. Rating agencies used

The external credit assessment institutions (ECAI) that have been involved in the Group's issues that fulfill the criteria of risk transfer and fall within the securitisations solvency framework are, generally, Fitch, Moody's, S&P and DBRS. The types of securitisation exposure for which each agency is used are, with no differentiation between the different agencies, all the asset types that tend to be used as residential mortgage loans, loans to SMEs and small companies, consumer finance and autos and leasing.

In all the SSPEs, the agencies have assessed the risk of the entire issuance structure:

- Awarding ratings to all bond tranches.
- Establishing the volume of the credit enhancement.
- Establishing the necessary triggers (early termination of the restitution period, pro-rata amortisation of AAA classes, pro-rata amortisation of series subordinated to AAA and amortisation of the reserve fund, amongst others).

In each and every one of the issues, in addition to the initial rating, the agencies carry out regular quarterly monitoring.

3.2.7.6.2. Breakdown of securitised balances by type of asset

The table below shows the amounts in terms of EAD and RWAs of investment securitisation positions originated by type of exposure, tranches and weighting ranges corresponding to the securitisations and their corresponding capital requirements as of December 31, 2017 and December 31, 2016.

The next tables give the current outstanding balance, non-performing exposures and impairment losses recognised in the period corresponding to the underlying assets of

originated securitisations, in which risk transfer criteria are fulfilled, broken down by type of asset, as of December 31, 2017 and December 31, 2016.

Table 53. Breakdown of securitized balances by type of asset (Million Euros. 12-31-17)

Type of asset	Current balance	Of which: Non-performing Exposures ⁽¹⁾	Total impairment losses for the period
Commercial and residential mortgages	1	-	-
Credit cards	-	-	-
Financial leasing	64	7	4
Lending to corporates and SMEs	2,238	16	3
Consumer finance	-	-	-
Receivables	-	-	-
Securitisation balances	-	-	-
Others	-	-	-
TOTAL	2,304	23	7

⁽¹⁾ Includes the total number of impaired exposures due to non-performing or for reasons other than non-performing

Breakdown of securitized balances by type of asset (Million Euros. 12-31-16)

Type of asset	Current balance	Of which: Non-performing Exposures ⁽¹⁾	Total impairment losses for the period
Commercial and residential mortgages	2	8	6
Credit cards	-	-	-
Financial leasing	97	13	-
Lending to corporates and SMEs	73	12	0
Consumer finance	3	0	1
Receivables	-	-	-
Securitisation balances	-	-	-
Others	-	-	-
TOTAL	174	33	7

⁽¹⁾ Includes the total number of impaired exposures due to non-performing or for reasons other than non-performing

In 2017 and 2016, there were no securitisations that fulfill the transfer criteria according to the requirements of the solvency regulation, and, therefore, no results were recognised.

BBVA has been the structurer of all transactions effected since 2006 (excluding the transactions for the merged companies Unnim and Catalunya Banc).

The table below shows the outstanding balance of underlying assets of securitisations originated by the Group, in which risk transfer criteria are not met. These, therefore, are not included in the solvency framework for securitisations; the capital exposed is calculated as if they had not been securitised:

Table 54. Outstanding balance corresponding to the underlying assets of the Group's originated Securitizations, in which risk transfer criteria are not fulfilled (Million Euros)

Type of asset	Current Balance	
	2017	2016
Commercial and residential mortgages	28,576	28,921
Credit cards	-	-
Financial leasing	3	3
Lending to corporates and SMEs	357	689
Consumer finance	3,036	2,266
Receivables	-	-
Securitisation balances	-	-
Mortgage-covered bonds	-	-
Others	-	-
TOTAL	31,971	31,880

In addition, the Group has carried out its first synthetic securitisation, introducing this new operating procedure as an additional source of release of regulatory capital. In a synthetic securitisation, the credit risk of the underlying loans is transferred to the securitisation funds, mainly by setting up guarantees or loan-based derivatives.

In the specific case of the Group's first synthetic securitisation, the issue was for a total of €3.0 billion, which covers the potential losses on a portfolio of around 15,000 loans to Spanish SMEs. This was arranged by contracting a mezzanine financial guarantee facility with a European supranational body and the commitment to reinvest €1.0 billion on contracting new loans to SMEs. This operation enabled the Group to release €683m in RWAs. The nominal value of this financial guarantee is €143m.

3.2.8. Information on credit risk mitigation techniques

3.2.8.1. Hedging based on netting operations on and off the balance sheet

Within the limits established by the rules on netting in each one of its operating countries, the Group negotiates with its customers the assignment of the derivatives business to master agreements (e.g., ISDA or CMOF) that include the netting of off-balance-sheet transactions.

The clauses of each agreement determine in each case the transactions subject to netting.

The mitigation of counterparty risk exposure stemming from the use of mitigation techniques (netting plus the use of collateral agreements) leads to a reduction in overall exposure (current market value plus potential risk).

As pointed out above, financial assets and liabilities may be the object of netting, in other words presentation for a net amount on the balance sheet, only when the Group's entities comply with the provisions of IAS 32 - Paragraph 42, and thus have the legal right to offset the amounts recognised, and the intention to settle the net amount or to divest the asset and pay the liability at the same time.

3.2.8.2. Hedging based on collateral

3.2.8.2.1. Management and valuation policies and procedures

The procedures for management and valuation of collateral are included in the Specific Collateral Rules, or in the Policies and Procedures for Retail and Wholesale Credit Risk.

These Policies and Procedures lay down the basic principles of credit-risk management, which includes the management of the collateral assigned in transactions with customers.

Accordingly, the risk management model jointly values the existence of a suitable cash flow generation by the obligor that enables them to service the debt, together with the existence of suitable and sufficient guarantees that ensure the recovery of the credit when the obligor's circumstances render them unable to meet their obligations.

The valuation of the collateral is governed by prudential principles that involve the use of appraisal for real-estate guarantees, market price for shares, quoted value of shares in a mutual fund, etc.

The milestones under which the valuations of the collaterals must be updated in accordance with local regulation are established under these prudential principles.

With respect to the entities that carry out the valuation of the collateral, principles are in place in accordance with local regulations that govern their level of relationship and dependence with the Group and their recognition by the local regulator. These valuations will be updated by statistical methods, indices or appraisals of goods, which shall be carried out under the generally accepted standards in each market and in accordance with local regulations.

All collateral assigned is to be properly instrumented and recorded in the corresponding register, as well as receiving the approval of the Group's legal units.

3.2.8.2.2. Types of collaterals

As collateral for the purpose of calculating equity, the Group uses the coverage established in the solvency regulations. The following are the main collaterals available in the Group:

- Mortgage collateral: The collateral is the property upon which the loan is arranged.
- Financial collateral: Their object is any one of the following financial assets, as per articles 197 and 198 of the solvency regulation.
 - Cash deposits, deposit certificates or similar securities.
 - Debt securities issued for the different categories.
 - Shares or convertible bonds.
- Other property and rights used as collateral. The following property and rights are considered acceptable as collateral as per article 200 of the solvency regulation.

- Cash deposits, deposit certificates or similar instruments held in third-party institutions other than the lending credit institution, when these are pledged in favor of the latter.
- Life insurance policies pledged in favor of the lending credit institution.
- Debt securities issued by other institutions, provided that these securities are to be repurchased at a pre-set

price by the issuing institutions at the request of the holder of the securities.

The value of the exposure hedged with financial collateral and other collateral calculated using the standardised and advanced approaches, and the counterparty risk, is as follows:

Table 55. Exposure covered with financial guarantees and other collateral calculated using the standardised and advanced approaches (Million Euros)

Exposures Classes	2017		2016	
	Exposure covered by financial guarantees	Exposure covered by other eligible collateral	Exposure covered by financial guarantees	Exposure covered by other eligible collateral
Central governments or central banks	2,662	-	2,238	-
Regional governments or local authorities	91	-	23	-
Public sector entities	15	29	166	-
Multilateral Development Banks	-	-	-	-
International Organizations	-	-	-	-
Institutions	4,097	106	7,394	-
Corporates	9,165	1,388	12,338	306
Retail	870	1,287	1,263	45
Secured by mortgages on immovable property	518	58	89	292
Exposures in default	16	0	24	11
Exposures associated with particularly high risk	1	-	0	-
Covered bonds	-	-	-	-
Short-term claims on institutions and corporate	-	-	-	-
Collective investments undertakings	-	-	79	-
Other exposures	-	-	1	-
TOTAL GUARANTEES VALUE UNDER STANDARDISED APPROACH	17,435	2,867	23,614	653
Central governments or central banks	713	0	459	0
Institutions	48,818	141	49,574	677
Retail	77	854	-	-
Corporates	1,296	8,397	1,272	12,186
TOTAL GUARANTEES VALUE UNDER IRB APPROACH	50,904	9,392	51,305	12,862
TOTAL	68,340	12,259	74,920	13,515

3.2.8.3. Hedging based on personal guarantees

According to the solvency regulations, unfunded credit protection consists of personal guarantees, including those arising from credit insurance, that have been granted by the providers of coverage defined in articles 201 and 202 of the solvency regulation.

In the category of Retail exposure under the advanced measurement approach, guarantees impact on the PD and do not reduce the amount of the credit risk in EAD.

The total value of the exposure covered with personal guarantees is as follows (including counterparty risk):

Table 56. Exposure covered by personal guarantees. Standardised and advanced approach (Million Euros)

Exposures Classes	Exposure covered by personal guarantees	
	2017	2016
Central governments or central banks	-	-
Regional governments or local authorities	3,247	38
Public sector entities	12	2,323
Multilateral Development Banks	-	-
International organizations	-	-
Institutions	508	534
Corporates	3,100	1,650
Retail	2,537	1,823
Secured by mortgages on immovable property	42	531
Exposures in default	172	115
Exposures associated with particularly high risk	24	61
Covered bonds	-	-
Short-term claims on institutions and corporate	-	-
Collective investments undertakings	-	-
Other exposures	4,069	1,069
TOTAL PERSONAL GUARANTEES VALUE UNDER STANDARDISED APPROACH	13,710	8,145
Central governments or central banks	621	1,105
Institutions	20,091	21,433
Retail	106	30
Corporates	8,058	6,768
Of which: SMEs	2,057	2,103
Of which: SMEs subject to corrector factor	-	-
Of which: others	6,002	4,665
TOTAL PERSONAL GUARANTEES VALUE UNDER IRB APPROACH	28,876	29,336
TOTAL	42,586	37,481

an overview of the level of use of each of the credit risk mitigation techniques employed by the Group as of December 31, 2017 is presented below:

Table 57. CR3 – CRM techniques – Overview ⁽¹⁾ (Million Euros. 12-31-17)

	Exposures unsecured - carrying amount	Exposures secured - Carrying amount	Exposures secured by collateral	Exposures secured by financial guarantees	Exposures secured by credit derivatives
Total Loans	344,164	87,537	37,616	27,161	-
Total debt securities	56,288	17,239	6,051	7,692	-
Total exposures	400,451	104,777	43,666	34,853	-
Of which: defaulted	8,842	2,221	1,376	374	-

⁽¹⁾ Securitisation risk is not included

CR3 – CRM techniques – Overview ⁽¹⁾ (Million Euros. 12-31-16)

	Exposures unsecured - carrying amount	Exposures secured - Carrying amount	Exposures secured by collateral	Exposures secured by financial guarantees	Exposures secured by credit derivatives
Total Loans	359,945	93,919	44,080	12,626	-
Total debt securities	72,179	11,328	9,524	293	-
Total exposures	432,188	105,183	53,604	12,919	-
Of which: defaulted	9,269	2,972	2,326	587	-

⁽¹⁾ Securitisation risk is not included

3.2.8.4. Risk concentration

BBVA has established the measurement, monitoring and reporting criteria for the analysis of large credit exposures that could represent a risk of concentration, with the aim of guaranteeing their alignment with the risk appetite defined in the Group.

In particular, measurement and monitoring criteria are established for large exposures at the level of individual concentrations, concentrations of retail portfolios and wholesale sectors, and geographical concentrations.

A quarterly measurement and monitoring process has been established for reviewing the risks of concentration.

The main measures to prevent risk concentration in BBVA are:

- At both BBVA Group level and the subsidiaries belonging to the banking group, there are details affecting the customers (groups) that present the biggest exposure (greater than 10% of fully-loaded CET-1; in the subsidiaries the figure of the banks' own funds is used). If a customer presents a level of concentration that exceeds the thresholds, the maintenance of this exposure must be justified every year in writing, or the measures to reduce the exposure be explained (for example, cancellation of risks).

- As an additional support to management, the level of portfolio concentration is calculated using the Herfindahl index. The level of concentration at Group level is "very low".
- The measures for reducing credit risk do not have a significant impact on the level of BBVA Group's major exposure, and they are used solely as a mechanism for mitigating intra-group risk (standby letters of credit issued by BBVA in favor of the banking Group's subsidiaries).
- The typical sector concentration is based on the grouping of risks according to the economic activity carried out. BBVA uses a classification that groups activities into 15 sectors. All of them are at BBVA Group level, under the acceptable thresholds.
- In retail portfolios, the analysis is carried out at sub-portfolio level (mortgages and non-mortgage retail). Both are under the acceptable thresholds at BBVA Group level.

3.2.9. RWA density by geographical area

A summary of the average weighting percentages by exposure category existing in the main geographical areas in which the Group operates is shown below for credit risk and counterparty exposure, for the purpose of obtaining an overview of the entity's risk profile in terms of RWAs.

Table 58. Breakdown of RWA density by geographical area and approach (Million Euros. 12-31-17)

Category of exposure	RWA density ^{(1) (2)}							
	TOTAL	Spain ⁽³⁾	Turkey	Eurasia	Mexico	USA	South America	Rest of the World
Central governments or central banks	22%	18%	41%	3%	10%	5%	65%	0%
Regional governments or local authorities	19%	1%	22%	20%	10%	20%	63%	0%
Public sector entities	38%	0%	55%	1%	20%	19%	67%	0%
Multilateral Development Banks	7%	0%	0%	0%	0%	0%	50%	0%
International organizations	0%	0%	0%	0%	0%	0%	0%	0%
Institutions	36%	49%	47%	36%	29%	22%	35%	72%
Corporates	98%	98%	99%	96%	77%	100%	97%	100%
Retail	70%	67%	68%	72%	75%	71%	71%	75%
Secured by mortgages on immovable property	40%	38%	46%	39%	43%	37%	38%	47%
Exposures in default	112%	119%	100%	102%	106%	135%	102%	100%
Exposures associated with particularly high risk	150%	150%	150%	151%	150%	150%	150%	0%
Covered bonds	0%	0%	0%	0%	0%	0%	0%	0%
Short-term claims on institutions and corporate	20%	20%	0%	18%	25%	0%	0%	0%
Collective investments undertakings	100%	100%	0%	100%	0%	100%	0%	0%
Other exposures	40%	89%	30%	31%	17%	71%	29%	2%
Securitisation exposures	21%	0%	0%	0%	50%	21%	0%	0%
TOTAL CREDIT RISK BY STANDARDISED APPROACH	52%	35%	67%	39%	33%	66%	68%	76%
Central governments or central banks	14%	31%	2%	7%	11%	1%	55%	19%
Institutions	8%	14%	58%	4%	16%	16%	20%	13%
Corporates	55%	57%	51%	48%	64%	40%	58%	59%
Retail	19%	14%	29%	25%	106%	19%	23%	17%
Securitisation exposures	26%	26%	0%	0%	0%	0%	0%	0%
TOTAL CREDIT RISK BY IRB APPROACH	29%	27%	40%	20%	73%	23%	51%	34%
TOTAL CREDIT RISK DILUTION AND DELIVERY	43%	30%	67%	25%	45%	59%	67%	42%

⁽¹⁾ Does not include equity exposures

⁽²⁾ Calculated as RWAs/EAD

⁽³⁾ In Spain, Central Governments or Central Banks include deferred assets.

Breakdown of RWA density by geographical area and approach (Million Euros. 12-31-16)

Category of exposure	RWA density ^{(1) (2)}							
	TOTAL	Spain ⁽³⁾	Turkey	Eurasia	Mexico	USA	South America	Rest of the World
Central governments or central banks	22%	17%	44%	4%	13%	12%	68%	0%
Regional governments or local authorities	19%	10%	25%	30%	2%	20%	66%	0%
Public sector entities	30%	8%	85%	70%	20%	20%	59%	0%
Multilateral Development Banks	56%	0%	0%	8%	0%	0%	104%	0%
International organizations	0%	0%	0%	0%	0%	0%	0%	0%
Institutions	33%	5%	76%	26%	26%	21%	31%	57%
Corporates	98%	95%	99%	94%	88%	99%	98%	99%
Retail	70%	68%	68%	72%	74%	71%	72%	78%
Secured by mortgages on immovable property	39%	39%	45%	40%	37%	37%	39%	49%
Exposures in default	116%	118%	112%	102%	100%	129%	118%	100%
Exposures associated with particularly high risk	150%	150%	150%	0%	150%	0%	150%	0%
Covered bonds	0%	0%	0%	0%	0%	0%	0%	0%
Short-term claims on institutions and corporate	22%	22%	0%	20%	0%	0%	21%	0%
Collective investments undertakings	100%	100%	0%	100%	0%	100%	100%	0%
Other exposures	37%	68%	49%	8%	18%	61%	27%	0%
Securitisation exposures	22%	0%	0%	0%	50%	22%	0%	0%
TOTAL CREDIT RISK BY STANDARDISED APPROACH	53%	33%	72%	35%	36%	65%	67%	83%
Central governments or central banks	8%	21%	2%	4%	18%	1%	9%	19%
Institutions	8%	15%	65%	4%	25%	23%	38%	22%
Corporates	56%	58%	75%	50%	61%	44%	72%	57%
Retail	21%	15%	157%	38%	105%	18%	25%	28%
Securitisation exposures	39%	39%	0%	0%	0%	0%	0%	0%
TOTAL CREDIT RISK BY IRB APPROACH	31%	28%	49%	21%	72%	34%	57%	44%
TOTAL CREDIT RISK DILUTION AND DELIVERY	44%	30%	72%	25%	47%	61%	67%	51%

⁽¹⁾ Does not include equity exposures⁽²⁾ Calculated as RWAs/EAD⁽³⁾ In Spain, Central Governments or Central Banks include deferred assets.

3.2.10. Risk protection and reduction policies. Supervision strategies and processes

In most cases, maximum exposure to credit risk is reduced by collateral, credit enhancements and other actions which mitigate the Group's exposure. The BBVA Group applies a credit risk hedging and mitigation policy derived from an approach to the banking business focused on relationship banking.

The existence of guarantees could be a necessary but not sufficient instrument for accepting risks, as the assumption of risks by the Group requires the verification of the debtor's capacity for repayment, or that the debtor can generate sufficient resources to allow the amortisation of the risk incurred under the agreed terms.

The policy of accepting risks is therefore organised into three different levels in BBVA Group:

- Analysis of the financial risk of the operation, based on the debtor's capacity for repayment or generation of funds.
- The constitution of guarantees that are adequate for the risk assumed, in any of the generally accepted forms: monetary, secured, personal or hedge guarantees; and finally,

- Assessment of the repayment risk (asset liquidity) of the guarantees received.

This is carried out through a prudent risk management policy which involves analyzing the financial risk in a transaction, based on the repayment or resource generation capacity of the credit receiver, the provision of guarantees -in any of the generally accepted ways (monetary, collateral or personal guarantees and hedging)- appropriate to the risk borne, and lastly on the valuation of the recovery risk (the asset's liquidity) of the guarantees received.

The procedures for the management and valuation of collateral are set out in the Credit Risk Management Policies and Procedures (retail and wholesale), which establish the basic principles for credit risk management, including the management of collateral arranged in transactions with customers. The criteria for the systematic, standardised and effective treatment of collateral in credit transaction procedures in BBVA Group's wholesale and retail banking are included in the Specific Collateral Rules.

The methods used to value the collateral are in line with the best market practices and imply the use of appraisal of real-estate collateral, the market price in market securities, the trading price of shares in mutual funds, etc. All collateral assigned must be properly drawn up and entered in the

corresponding register. They must also have the approval of the Group's legal units.

The following is a description of the main types of collateral for each financial instrument class:

- Financial assets held for trading: The guarantees or credit enhancements obtained directly from the issuer or counterparty are implicit in the clauses of the instrument.
- Derivatives and hedge accounting derivatives: In derivatives, credit risk is minimised through contractual netting agreements, where positive- and negative-value derivatives with the same counterparty are offset for their net balance. There may likewise be other kinds of guarantees, depending on counterparty solvency and the nature of the transaction.
- Financial assets designated at fair value through profit or loss and available-for-sale financial assets: Guarantees or credit enhancements obtained directly from the

issuer or counterparty are inherent in the structure of the instrument.

- Loans and receivables:
 - Loans and advances to credit institutions: These usually only have the counterparty's personal guarantee.
 - Loans and advances to customers: Most of these operations are backed by personal guarantees extended by the counterparty. There may also be collateral to secure loans and advances to customers (such as mortgages, cash guarantees, pledged securities and other collateral), or to obtain other credit enhancements (bonds, hedging, etc.).
 - Debt securities: Guarantees or credit enhancements obtained directly from the issuer or counterparty are inherent in the structure of the instrument.
- Financial guarantees, other contingent risks and drawable by third parties: These have the counterparty's personal guarantee.

3.3. Market risk

3.3.1. Scope and nature of the market risk measurement and reporting systems

Market risk originates in the possibility that there may be losses in the value of positions held due to movements in the market variables that affect the valuation of financial products and assets in trading activity.

The main risks generated may be classified into the following groups:

- Interest-rate risk: They arise as a result of exposure to the movement in the different interest-rate curves on which there is trading. Although the typical products generating sensitivity to movements in interest rates are money market products (deposits, futures on interest rates, call money swaps, etc.) and the traditional interest-rate derivatives (swaps, interest-rate options such as caps, floors, swaptions, etc.), practically all the financial products have some exposure to movements in interest rates due to the effect of the financial discount in valuing them.
- Equity Risk: Arises as a result of movements in the price of shares. This risk is generated in spot positions in shares or any derivative products whose underlying asset is a share or an equity index. Dividend risk is a sub-risk of equity risk, as an input of any equity option. Its variability may affect the

valuation of positions and thus it is a factor that generates risk on the books.

- Exchange-rate risk: It occurs due to a movement in the exchange rates of the currencies in which the position is held. As in the case of equity risk, this risk is generated in the spot foreign-currency positions, as well as any derivative product whose underlying is an exchange rate.
- In addition, the quanto effect (transactions where the underlying and the nominal of the transaction are denominated in different currencies) means that in certain transactions where the underlying is not a currency an exchange-rate risk is generated that has to be measured and monitored.
- Credit spread risk: Credit spread is an indicator of an issuer's credit quality. The spread risk takes place due to variations in the levels of spread in corporate or government issuers and affects both bond and credit derivative positions.
- Volatility risk: This occurs as a result of variations in the levels of implied volatility in the price of different market instruments in which derivatives are traded. This risk, unlike the others, is exclusively a component of derivative transactions and is defined as a risk of first-order convexity

that is generated in all the possible underlying transactions where there are products with an optionality that require a volatility input for their valuation.

The metrics developed to control and monitor market risk in BBVA Group are aligned with best practices in the market and are implemented consistently across all the local market risk units.

Measurement procedures are established in terms of the possible impact of negative market conditions on the trading book of the Group's Global Markets units, both under ordinary circumstances and in situations of heightened risk factors.

The standard metric used to measure market risk is Value at Risk (VaR), which indicates the maximum losses that may be incurred in the portfolios at a given confidence level (99%) and time horizon (one day).

Chapter 3.3.4 explains in more detail the risk measurement models used in BBVA Group, focused on internal models approved by the supervisor for BBVA S.A. and BBVA Bancomer for the purpose of calculating the capital for positions in the trading book. The two entities contribute around 70% of the market risk of the Group's trading book. For the rest of the geographic areas (South America and Compass), the calculation of capital for the risk positions in the trading book is carried out using the standard model.

Analysis of the entity's RWA structure demonstrates that 4% corresponds to Market Risk (including the foreign-exchange risk).

3.3.2. Differences in the trading book for the purposes of applying the solvency regulations and accounting criteria

According to the solvency regulation, the trading book shall be made up of all the positions in financial instruments and commodities that the credit institution holds for the purpose of trading or that act as hedging for other elements in this book.

With respect to this book, the rule also refers to the need to establish clearly defined policies and procedures.

For this purpose, regulatory trading book activities defined by BBVA Group include the positions managed by the Group's Trading units, for which market risk limits are set and then monitored daily. Moreover, they comply with the other requirements defined in the solvency regulations.

The trading book as an accounting concept is not confined to any business area, but rather follows the true reflection

criteria laid down in the accounting standards. Included in this category are all the financial assets and liabilities originated, acquired or issued with the aim of short-term redemption or repurchase, whether they are part of a jointly-managed portfolio of instruments for which there is evidence of recent action to obtain short-term gains, or derivative instruments that do not comply with the definition of a collateral contract and have not been designated as hedge accounting instruments. Hence, for example, all derivatives are booked as accounting trading book unless they are hedging derivatives, regardless of whether or not they are part of the Trading units' exposure or they come from other business areas.

3.3.3. Standardised approach

RWAs weighted for market risk under the standardised approach (excluding exchange-rate risk) account for 25% of the total of the standardised and advanced approaches.

the amounts in terms of RWAs and capital requirements by market risk calculated under the standardised approach as of December 31, 2017 and December 31, 2016 are presented below:

Table 59. EU MR1 – Market risk under the standardised approach
(Million Euros. 12-31-17)

	RWAs	Capital Requirements
Outright Products		
Interest Rate Risk	2,461	197
Equity Risk	197	16
Foreign Exchange Risk	4,579	366
Commodity Risk	9	1
Options		
Simplified approach		
Delta-plus method		
Scenario approach		
Securitisation	20	2
Correlation trading portfolio	142	11
Total	7,408	593

EU MR1 Market risk under the standardised approach
(Million Euros. 12-31-16)

	RWAs	Capital Requirements
Outright Products		
Interest Rate Risk	2,638	211
Equity Risk	234	19
Foreign Exchange Risk	4,041	323
Commodity Risk	118	9
Options		
Simplified approach		
Delta-plus method		
Scenario approach		
Securitisation	17	1
Correlation trading portfolio	63	5
Total	7,112	569

3.3.4. Internal models

3.3.4.1. Scope of application

For the purposes of calculating capital as approved by the supervisor, the scope of application of the internal market risk model extends to BBVA S.A. and BBVA Bancomer Trading Floors.

As explained in Note 7.4 of the Group's Consolidated Financial Statements, most of the items on the Group's consolidated balance sheet subject to market risk are positions whose principal metric used to measure their market risk is VaR.

This Note specifies the accounting headings of the consolidated balance sheets as of December 31, 2017 and 2016 in the geographic areas with an Internal Model where there is market risk in the trading activity subject to this measurement.

3.3.4.2. Characteristics of the models used

The measurement procedures are established in terms of the possible impact of negative market conditions, both under ordinary circumstances and in situations of tension, on the trading book of the Group's Global Markets units.

The standard metric used to measure market risk is Value at Risk (VaR), which indicates the maximum losses that may be incurred in the portfolios at a given confidence level (99%) and time horizon (one day).

This statistic is widely used in the market and has the advantage of summarizing in a single metric the risks inherent in trading activity, taking into account the relations between all of them, and providing the forecast of the losses that the trading book might incur as a result of price variations in equity markets, interest rates, exchange rates and credit. In addition, for certain positions, other risks also need to be considered, such as credit spread risk, basis risk, volatility and correlation risk.

With respect to the risk measurement models used in BBVA Group, the supervisor has authorised the use of the internal model for the calculation of capital for the risk positions in the trading book of BBVA, S.A. and BBVA Bancomer which, together, account for around 70% of the market risk of the Group's trading book.

BBVA uses a single model to calculate the regulatory requirements by risk, taking into account the correlation between the assets and thus recognizing the diversifying effect of the portfolios. The model used estimates the VaR in accordance with the "historical simulation" methodology, which involves estimating the losses and gains that would have been incurred in the current portfolio if the changing market conditions that occurred over a given period of

time were repeated. Based on this information, it infers the maximum foreseeable loss in the current portfolio with a given level of confidence.

Absolute and relative returns are used in simulating the potential variation of the risk factors, depending on the type of risk factor. Relative returns are used in the case of equity and foreign currency; while absolute returns are used in the case of spreads and interest rates.

The decision on the type of return to apply is made according to the risk factor metric subject to variation. The relative return is used in the case of price risk factors, while for interest-rate risk factors it is absolute returns.

The model has the advantage of accurately reflecting the historical distribution of the market variables and of not requiring any specific distribution assumption. The historical period used in this model is two years.

VaR figures are estimated following two methodologies:

- VaR without smoothing, which awards equal weight to the daily information for the previous two years. This is currently the official methodology for measuring market risks for the purpose of monitoring compliance with risk limits.
- VaR with smoothing, which weighs more recent market information more heavily. This model adjusts the historical information of each market variable to reflect the differences between historical volatility and current volatility. This metric is supplementary to the one above.

VaR with smoothing adapts itself more swiftly to the changes in financial market conditions, whereas VaR without smoothing is, in general, a more stable metric that will tend to exceed VaR with smoothing when the markets show less volatile trends, but be lower when they present upturns in uncertainty.

Furthermore, and following the guidelines established by Spanish and European regulators, BBVA incorporates additional VaR metrics to fulfill the regulatory requirements issued by the supervisor for the purpose of calculating capital for the trading book. Specifically, the new measures incorporated in the Group since December 2011 (which follow the guidelines set out by Basel 2.5) are as follows:

- VaR: In regulatory terms, the charge for VaR Stress is added to the charge for VaR and the sum of both (VaR and VaR Stress) is calculated. This quantifies the losses associated with movements in the risk factors inherent in market operations (interest rate, FX, RV, credit, etc.).

Both VaR and VaR Stress are rescaled by a regulatory multiplier set at three and by the square root of ten to calculate the capital charge.

- Specific Risk: Incremental Risk Capital (IRC). Quantification of non-performing risk and downgrade risk in the rating of some positions held in the portfolio, such as bonds and credit derivatives. The specific risk capital IRC is a charge exclusively for those geographical areas with an approved internal model (BBVA S.A. and Bancomer).

The capital charge is determined based on the associated losses (at 99.9% over a time horizon of 1 year under the assumption of constant risk) resulting from the rating migration and/or default of the asset's issuer. Also included is the price risk in sovereign positions for the indicated items.

The calculation methodology is based on the Monte Carlo simulation of the impact of defaults and rating transitions on the portfolio of positions subject to incremental risk capital. The model defining the transition and default process of a counterparty is based on the changes in a counterparty's credit quality. Under a Merton one-factor model, which underlies the Basel or Creditmetrics model, this credit quality will correspond to the value of the issuer's assets, depending on a systemic factor that is common to all the issuers, and an idiosyncratic factor specific to each.

All that is needed to simulate the rating transition and default process of the issuers is to simulate the systemic factor and idiosyncratic component. Once the underlying variable is available, the final rating can be obtained. The simulation of the individual credit quality of the issuers allows the losses by systemic risk and idiosyncratic risk to be obtained.

Transition matrices

The transition matrix used for calculation is estimated based on the external information of the rating transitions provided by the rating agencies. Specifically, the information provided by the Standard & Poors agency is used.

The appropriateness of using information on external transitions is justified by:

- The internal ratings for the Sovereign, Emerging Sovereign Country (ESC), Financial Institution (FI) and Corporate segments (which constitute the core positions subject to incremental risk capital) are aligned with the external ratings. By way of example, the internal rating system for financial institutions is based on an algorithm that uses external ratings.

- The rating agencies provide sufficient historical information to cover a complete economic cycle (rating transition information is available dating back to year 1981) and obtain a long-term transition matrix in the same way as the calculation of the regulatory capital for credit risk in the banking book long-term probabilities of default are required.

This historical depth is not available for the internal rating systems.

Although external data are used for determining the transitions between ratings, to establish the default, probabilities are used assigned by the BBVA master scale, which ensures consistency with the probabilities used for the calculations of capital in the Banking Book.

The transition matrix is recalibrated every year, based on information on transitions provided by Standard & Poor's. A procedure has been defined to readjust the transitions in accordance with the probability of default assigned by the master scale.

Liquidity horizons

The calculation of incremental risk capital used by BBVA explicitly includes the use of positions with a hypothesis of a constant level of risk and liquidity horizons of less than one year.

The establishment of liquidity horizons follows the guidelines/criteria established by Basel in its guidelines for computing capital for incremental risk.

First, a criterion of management capacity for positions has been used for positions through liquid instruments that can hedge their inherent risks. The main instrument for hedging the price risk for rating transitions and defaults is the Credit Default Swap (CDS). The existence of this hedging instrument serves as a justification for considering a short liquidity horizon.

However, in addition to considering the existence of a liquid CDS, a distinction has to be made according to the issuer's rating (this factor is also mentioned in the aforementioned guidelines). Specifically, between investment grade issuers or those with a rating equal to or above BBB-, and issuers below this limit.

According to these criteria, the issuers are mapped to standard liquidity horizons of 3, 6 or 12 months.

Correlation

The calculation methodology is based on a single-factor model, in which there is one factor common to all the

counterparties. The coefficient of the model is determined by the correlation curves established by Basel for companies, financial institutions and sovereigns based on the probability of default.

The use of the Basel correlation curve ensures consistency with the calculation of regulatory capital under the IRB approach for the positions on the banking book.

- **Specific Risk: Securitisations and Correlation Portfolios.** Capital charge for the securitisations and the correlation portfolio for potential losses associated with the rating level of a given credit structure (rating). Both are calculated using the standardised approach. The perimeter of the correlation portfolios is referred to First-to-default (FTD) type market operations and/or market CDO tranches, and only for positions with an active market and hedging capacity.

Validity tests are performed periodically on the risk measurement models used by the Group. They estimate the maximum loss that could have been incurred in the positions assessed with a given level of probability (backtesting), as well as measurements of the impact of extreme market events on the risk positions held (stress testing).

Backtesting is performed at the trading desk level as an additional control measure in order to carry out a more specific monitoring of the validity of the measurement models.

The current structure for managing market risk includes monitoring market risk limits, which consists of a system of limits based on Value at Risk (VaR), economic capital (based on VaR measurements) and VaR sub-limits, as well as stop-loss limits for each of the Group's business units. The global limits are approved by the Executive Committee on an annual basis, once they have been analysed by the GRMC and the Risk Committee. This limits structure is developed by identifying specific risks by type, trading activity and trading desk. The market risk unit maintains consistency between the limits. The control structure in place is supplemented by limits on loss and a system of alert signals to anticipate the effects of adverse situations in terms of risk and/or result.

The review of the quality of the inputs used by the evaluation processes is based on checking the data against other sources of information accepted as standard. These checks detect errors in the historical series such as repetitions, data outside the range, missing data, etc. As well as these periodic checks of the historical data loaded, the daily data that feed these series are subject to a data quality process to guarantee their integrity.

The choice of proxies is based on the correlation detected between the performance of the factor to be entered

and the proxy factor. A Simple Linear Regression model is used, selecting the proxy that best represents the determination coefficient (R²) within the whole period for which the performance of both series is available. Next, the performance of the factor on the necessary dates is reconstructed, using the beta parameter estimated in the simple linear regression.

3.3.4.2.1. Methodology and valuation and description of the independent price verification process

The fair value is the price that would be received for selling an asset or paid for transferring a liability in an orderly transaction between market participants. It is therefore a market-based measurement, and not specific to each entity.

The fair value is reached without making any deduction in transaction costs that might be incurred due to sale or disposal by other means.

The process of determining fair value established in the Group ensures that assets and liabilities are valued correctly. At level of geographic areas, BBVA has established a structure of New Product Committees responsible for validating and approving new products or classes of assets and liabilities before their contracting. The committee members are the local areas, independent of the business, who are responsible for their valuation (see Note 7 of the Group's Consolidated Annual Report).

These areas are responsible for ensuring as a prior step to approval that the technical and human capacities are in place, and that sufficient sources of information are available to value the assets and liabilities, in accordance with the criteria established by the Global Valuation Area and using models validated and approved by the Risk Analytics Area, which answers to Global Risk Management.

In addition, for assets and liabilities in which significant elements of uncertainty are detected in the inputs or parameters of the models used, which may affect their valuation, criteria are established to measure this uncertainty and limits are set on activity based on them. Finally, valuations obtained in this way are, as far as possible, checked against other sources, such as the valuations obtained by the business teams or other market participants.

In the initial entry, the best evidence of fair value is the list price on an active market. When these prices are not available, recent transactions on the same instrument will be consulted or the valuation will be made using mathematical measurement models that are sufficiently tried and trusted by the international financial community. In subsequent valuations, fair value will be obtained by one of the following methods:

- Level 1: Measurement using observable quoted prices for the financial instrument in question, referring to market assets (as defined by the Group's internal policies), secured from independent sources.
- Level 2: Measurement that applies techniques whose significant variables are observable market data.
- Level 3: Measurement that applies techniques that use significant variables not obtained from market observable data. Model selection and validation was undertaken by control areas outside the market units.

Not all the financial assets and liabilities are accounted at fair value; when it is not possible to reliably estimate a capital instrument's fair value, it will be valued at its cost.

(See Note 8 of the Group's Consolidated Financial Statements for more information)

3.3.4.2.2. Market risk in 2017

In 2017, the average VaR was €27m, lower than the levels in 2016, with a maximum level for the year on January 11 of €34m.

The following values (maximum, minimum, average and at year end within the statement period) are given based on the different model types used for calculating the capital requirement:

Table 60. EU MR3 – IMA values for trading portfolios (Million Euros)

IMA values for trading portfolios (2017)		
VaR (10 day 99%)		
1	Maximum value	75
2	Average value	55
3	Minimum value	41
4	Period value	57
SVaR (10 day 99%)		
5	Maximum value	180
6	Average value	116
7	Minimum value	80
8	Period value	127
Incremental Risk Charge (99.9%)		
9	Maximum value	165
10	Average value	116
11	Minimum value	77
12	Period value	92

Below is the VaR without smoothing by risk factor for the Group:

Chart 20: Trading Book. VaR without smoothing



Table 61. Trading Book. VaR without smoothing by risk factors (Million Euros)

VaR by risk factors	Interest-rate and spread risk	Exchange- rate risk	Equity risk	Vega / correlation risk	Diversification effect ^(*)	Total
December 2017						
Average VaR for the period	25	10	3	13	(23)	27
Maximum VaR for the period	27	11	2	12	(19)	34
Minimum VaR for the period	23	7	4	14	(26)	22
VaR at the end of the period	23	7	4	14	(26)	22
December 2016						
Average VaR for the period	28	10	4	11	(23)	29
Maximum VaR for the period	30	16	4	11	(23)	38
Minimum VaR for the period	21	10	1	11	(20)	23
VaR at the end of the period	29	7	2	12	(24)	26

* The diversification effect is the difference between the sum of the risk factors measured individually and the total VaR figure that reflects the implicit correlation between all the variables and scenarios used in the measurement

By type of market risk assumed by the Group's trading book, the main risk factor in the Group continues to be the one linked to interest rates, with a weight of 48% of the total at the end of 2017 (this figure includes the spread risk), with the relative weight dropping compared to the close of 2016

(58%). Foreign exchange risk accounts for 14%, increasing this proportion slightly compared with December 2016 (13%), while equity risk and volatility and correlation risk have increased more, with a weight of 38% as at end of 2017 (vs. 29% at the end of 2016).

In accordance with article 455 e) of the CRR, corresponding to the breakdown of information on internal market risk models, the elements comprising the shareholders' equity

requirements referred to in articles 364 and 365 of the CRR are presented below.

Table 62. EU MR2-A – Market risk under the IMA (Million Euros. 12-31-17)

	RWAs	Capital Requirements
VaR	2,232	179
Previous day's VaR	716	57
Average of the daily VaR on each of the preceding sixty business days (VaRavg) x multiplication factor	2,232	179
SVaR	5,138	411
Latest SVaR	1,590	127
Average of the SVaR during the preceding sixty business days (sVaRavg) x multiplication factor (mc)	5,138	411
Incremental risk charge - IRC	1,240	99
Most recent IRC value	1,147	92
Average of the IRC number over the preceding 12 weeks	1,240	99
Comprehensive Risk Measure- CRM	-	-
Most recent risk number for the correlation trading portfolio over the preceding 12 weeks	-	-
Average of the risk number for the correlation trading portfolio over the preceding 12 weeks	-	-
8% of the own funds requirement in SA on most recent risk number for the correlation trading portfolio	-	-
Others	-	-
Total	8,611	689

EU MR2-A – Market risk under the IMA (Million Euros. 12-31-16)

	RWAs	Capital Requirements
VaR	3,006	240
Previous day's VaR	1,046	84
Average of the daily VaR on each of the preceding sixty business days (VaRavg) x multiplication factor	3,006	240
SVaR	4,412	353
Latest SVaR	1,434	115
Average of the SVaR during the preceding sixty business days (sVaRavg) x multiplication factor (mc)	4,412	353
Incremental risk charge - IRC	1,841	147
Most recent IRC value	1,551	124
Average of the IRC number over the preceding 12 weeks	1,841	147
Comprehensive Risk Measure- CRM	-	-
Most recent risk number for the correlation trading portfolio over the preceding 12 weeks	-	-
Average of the risk number for the correlation trading portfolio over the preceding 12 weeks	-	-
8% of the own funds requirement in SA on most recent risk number for the correlation trading portfolio	-	-
Others	-	-
Total	9,258	741

Below are the main changes in the market RWAs, calculated using the method based on internal models:

Table 63. EU MR2-B – RWA flow statements of market risk exposures under the IMA (Million Euros)

RWA flow statements of market risk exposure under IMA	VaR	SVaR	IRC	CRM	Other	Total RWAs	Total Capital Requirements
RWAs as of December 31, 2016	3,006	4,412	1,841	-	-	9,258	741
Movement in risk levels	(695)	813	(581)	-	-	(462)	(37)
Model updates/changes	-	-	-	-	-	-	-
Methodology and policy	-	-	-	-	-	-	-
Acquisitions and disposals	-	-	-	-	-	-	-
Foreign Exchange movements	(79)	(87)	(20)	-	-	(186)	(15)
Other	-	-	-	-	-	-	-
RWAs as of December 31, 2017	2,232	5,138	1,240	-	-	8,611	689

The variation is due to changes in market positions, mainly caused by volatility and correlations.

3.3.4.2.3. Stress testing

All the tasks associated with stress, methodologies, scenarios of market variables or reports are undertaken in coordination with the Group's Risk Areas.

Several different stress-test exercises are performed on BBVA Group's trading portfolios. Both local and global historical scenarios are used, which replicate the behavior of a past extreme event, for example, the collapse of Lehman Brothers or the "Tequila crisis". These stress exercises are supplemented with simulated scenarios which aim to generate scenarios that have a significant impact on the different portfolios, but without being restricted to a specific historical scenario.

Lastly, for certain portfolios or positions, fixed stress test exercises are also prepared that have a significant impact on the market variables that affect those positions.

Historical scenarios

The baseline historical stress scenario in BBVA Group is that of Lehman Brothers, whose sudden collapse in September 2008 had a significant impact on the behavior of financial markets at a global level. The following are the most relevant effects of this historical scenario:

- 1) Credit shock: reflected mainly in the increase in credit spreads and downgrades of credit ratings.
- 2) Increased volatility in most financial markets (giving rise to much variation in the prices of the different assets (currencies, equity, debt)).
- 3) Liquidity shock in the financial systems, reflected in major fluctuations in interbank curves, particularly in the shortest sections of the euro and dollar curves.

Table 64. Trading Book. Impact on earnings in Lehman scenario (Million Euros)

Impact on earnings in Lehman scenario		
	12-31-17	12-31-16
GM Europe, NY & Asia	(38)	(31)
GM Bancomer	(5)	(64)
GM Argentina	(6)	(3)
GM Chile	(3)	(6)
GM Colombia	(3)	(1)
GM Peru	(2)	(4)
GM Venezuela	(0)	(0)

Simulated scenarios

Unlike the historical scenarios, which are fixed and, thus, do not adapt to the composition of portfolio risks at any given time, the scenario used to perform the economic stress exercises is based on the resampling method. This methodology uses dynamic scenarios that are recalculated regularly according to the main risks held in the trading portfolios. A simulation exercise is carried out in a data window that is sufficiently extensive to include different periods of stress (data are taken from January 1, 2008 until today), using a resampling of the historical observations. This generates a distribution of losses and gains that allows an analysis of the most extreme events occurring within the selected historical window.

The advantage of this methodology is that the stress period is not pre-established, but rather a function of the portfolio held at any given time; and the large number of simulations (10,000) means that the expected shortfall analysis can include richer information than that available in scenarios included in the VaR calculation.

The main characteristics of this methodology are the following:

- a) The simulations generated respect the data correlation structure.
- b) It provides flexibility in terms of including new risk factors.
- c) It enables a great deal of variability to be introduced (which is desirable for considering extreme events)

The impact of the stress tests by simulated scenarios (Stress VaR 95% at 20 days, Expected Shortfall 95% at 20 days and Stress VaR 99% at 1 day) is shown below.

Table 65. Trading Book. Stress resampling (Million Euros)

	Europe	Bancomer	Peru	Venezuela	Argentina	Colombia	Chile	Turquía
Expected Shortfall	(75)	(29)	(8)	(0)	(8)	(8)	(9)	(1)
2017	Stress VaR 95 20 D		Expected Shortfall 95 20 D		Stress Period		Stress VaR 1D 99% Resampling	
TOTAL								
GM Europe, NY & Asia	(52)		(75)		02/01/2008 - 02/12/2009		(18)	
GM Bancomer	(21)		(29)		12/09/2008 - 09/09/2010		(9)	

3.3.4.2.4. Backtesting

The Group’s market risk measurement model needs to have a backtesting or self-validation program that assures that the risk measurements being made are appropriate.

The internal market risk model is validated on a regular basis by backtesting, in both BBVA S.A. and Bancomer.

The purpose of backtesting is to validate the quality and accuracy of the internal model used by BBVA Group to estimate the maximum daily loss for a portfolio, for a 99% confidence level and a time horizon of 250 days, by comparing the Group’s results and the risk measures generated by the model.

These tests confirmed that the internal market risk model used by BBVA S.A. and Bancomer is adequate and accurate.

Two types of backtesting were performed in 2017:

- a. “Hypothetical” backtesting: the daily VaR is compared with the results obtained, not taking into account the intraday results or the changes in the portfolio positions. This validates the appropriateness of the market risk metrics for the end-of-day position.
- b. “Real” backtesting: the daily VaR is compared with the total results, including intraday transactions, but discounting the possible minimum charges or fees involved. This type of backtesting incorporates the intraday risk in the portfolios.

In addition, each of these two types of backtesting was performed at risk factor or business type level, thus providing a more in-depth comparison of results versus risk measures.

Chart 21: Trading Book. Validation of the Market Risk Measurement model for BBVA S.A. Hypothetical backtesting (EU MR4)

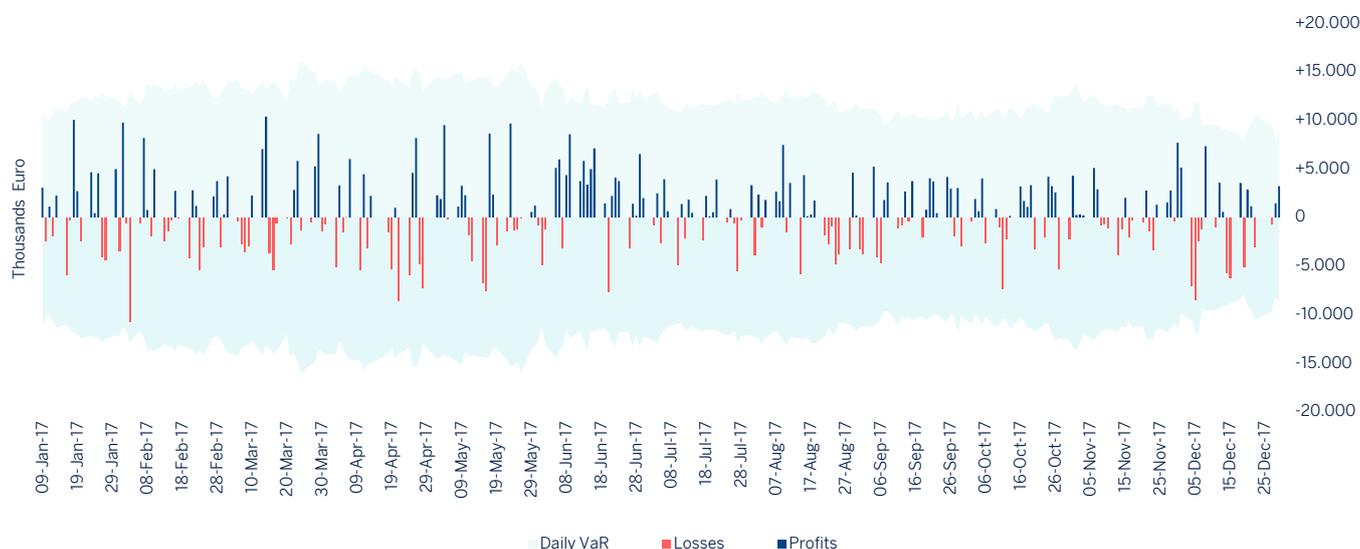


Chart 22: Trading Book. Validation of the Market Risk Measurement model for BBVA S.A. Real backtesting (EU MR4)

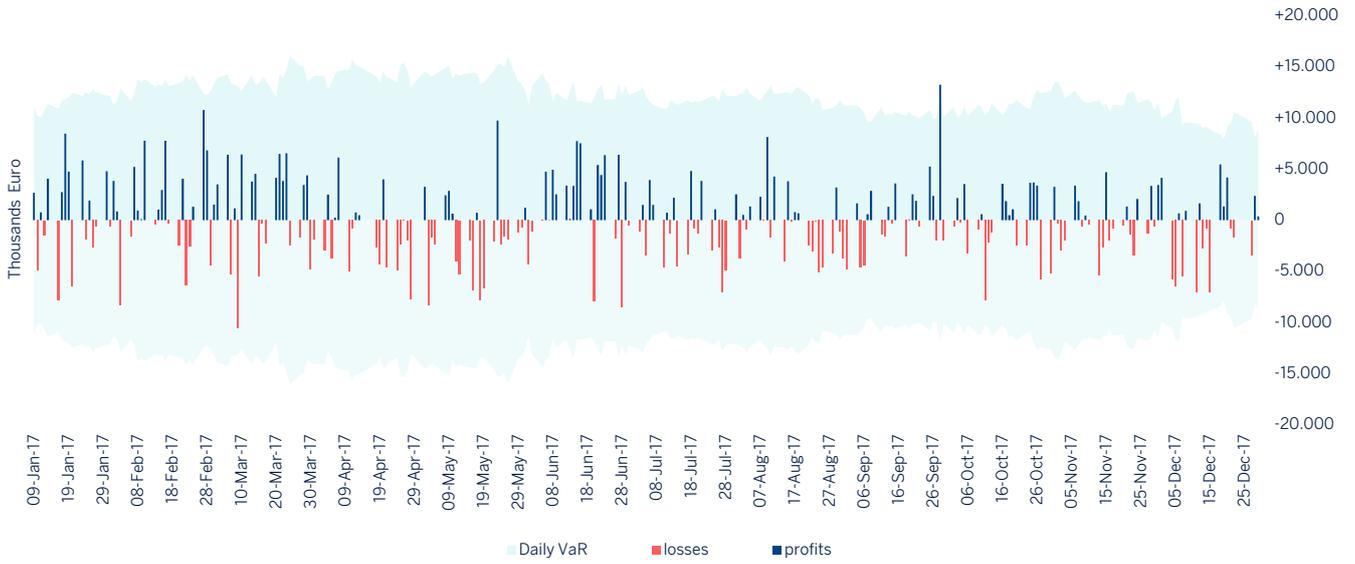


Chart 23: Trading Book. Validation of the Market Risk Measurement model for BBVA Bancomer. Hypothetical backtesting (EU MR4)

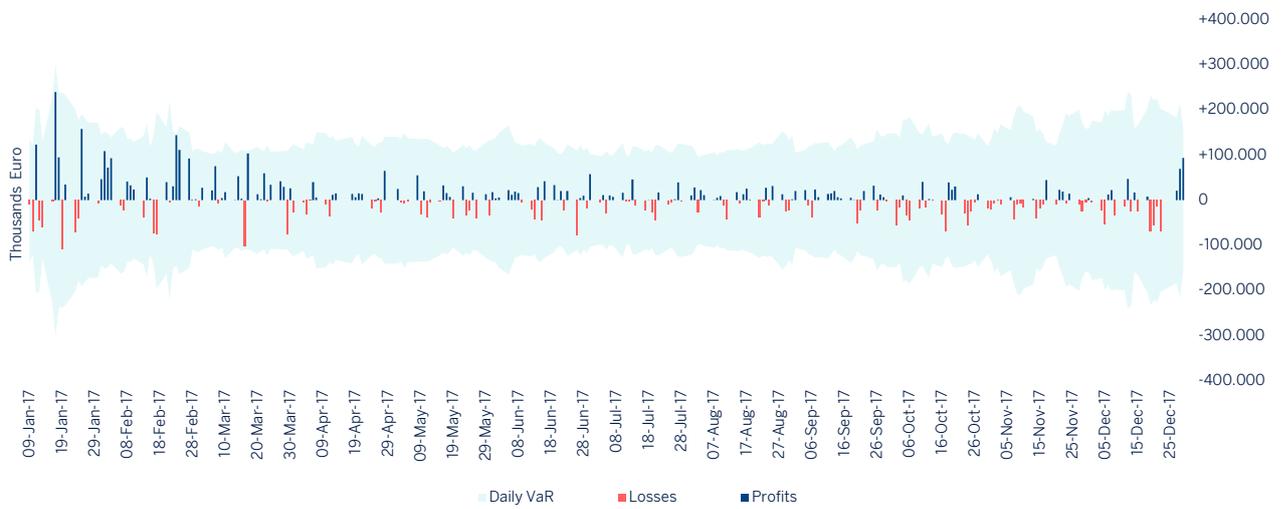
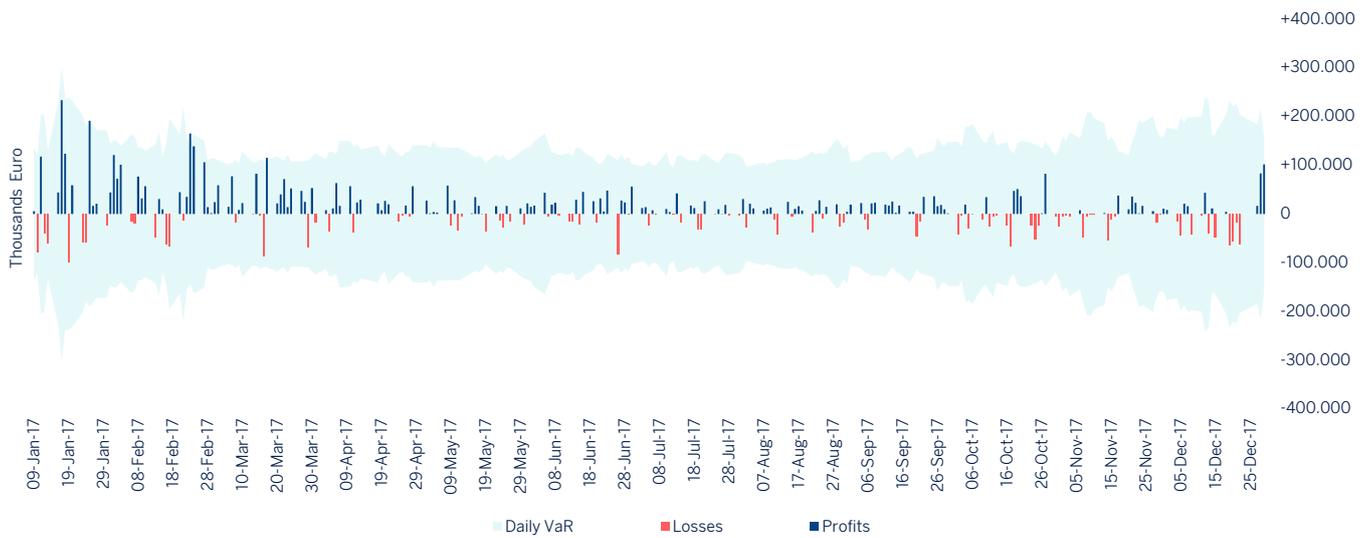


Chart 24: Trading Book. Validation of the Market Risk Measurement model for BBVA Bancomer. Real backtesting (EU MR4)



3.3.4.3. Characteristics of the risk management system

The Group has a risk management system in place which is appropriate for the volume of risks managed, complying with the functions set out in the Corporate Policy on Market Risks in Market Activities.

The risk units must have:

- A suitable organisation (means, resources and experience) in line with the nature and complexity of the business.
- Segregation of functions and independence in decision-making.
- Performance under integrity and good governance principles, driving the best practices in the industry and complying with the rules, both internal (policies, procedures) and external (regulation, supervision, guidelines).
- The existence of channels for communication with the relevant corporate bodies at local level according to their corporate governance system, as well as with the Corporate Area.
- All market risks existing in the business units that carry out their activity in markets must be adequately identified, measured and assessed, and procedures must be in place for their control and mitigation.
- The Global Market Risk Unit (GMRU), as the unit responsible for managing market risk at Group level, must promote the use of objective and uniform metrics for measuring the different types of risks.

3.4. Structural risk in the equity portfolio

3.4.1. Scope and nature of the structural risk in the equity portfolio measurement and reporting systems

The BBVA Group's exposure to structural risk in the equity portfolio basically results from the holdings in industrial and financial companies, with medium/long-term investment horizons. It includes the holdings consolidated in the Group, although their variations in value have no immediate effect on equity in this case.

This exposure is adjusted to the net positions held in derivatives on their underlying assets, which are used to modulate portfolio sensitivity to potential price variations.

The GRM corporate area acts as an independent unit that is responsible for monitoring and analyzing risks, promoting the integration of risk metrics into management and providing tools that can anticipate potential deviations from targets.

It also monitors the level of compliance with the limits set by the Executive Committee. It reports on these levels regularly to the Global Risk Management Committee (GRMC), the Board's Risk Committee and the Executive Committee, particularly in the case of overruns of the limits set.

The mechanisms of risk control and limitation hinge on the key aspects of exposure, earnings and economic capital. The structural equity risk management metrics designed by GRM according to the corporate model contribute to effective risk monitoring by estimating the sensitivity figures and the capital necessary to cover possible unexpected losses due to the variations in the value of the companies making up the Group's equity portfolio, at a confidence level that corresponds to the institution's target rating, and taking into account the liquidity of the positions and the statistical behavior of the assets under consideration.

To carry out a more in-depth analysis, stress tests and sensitivity analyses are carried out from time to time against different simulated scenarios, using both past crisis situations and forecasts by BBVA Research as the base. This checks that the risks are limited and that the tolerance levels set for the Group are not endangered.

On a quarterly basis, backtesting is carried out on the risk measurement model used.

3.4.2. Differentiation between portfolios held for sale and those held for strategic purposes

3.4.2.1. Portfolios held for sale

The portfolio held for sale is reflected in accounting terms by the entry entitled available-for-sale assets. In the case of capital instruments, this portfolio will include the capital instruments of institutions that are not strategic, which are not classified as the Group's subsidiaries, associates, or jointly controlled businesses, and that have not been included in the fair value through profit or loss category.

The financial instruments contained in the available-for-sale financial assets portfolio are valued at their fair value both in their initial entry and on subsequent valuations.

The changes in value are recorded in equity unless objective evidence exists that the fall in value is due to asset impairment, in which case the amounts recorded will be written-off from equity and moved directly to the income statement.

3.4.2.2. Portfolios held for strategic purposes

The portfolio held for strategic purposes is included for accounting purposes under the heading of available-for-sale financial assets. An investment in capital instruments is considered strategic when it has been made with the intent of setting up or maintaining a long-term operating relationship with the subsidiary, although there is no significant influence on it, if at least one of the following situations is in place:

- Representation on the Board of Directors or equivalent management body in the subsidiary.
- Participation in the policy setting process, including those related to dividends and other payouts.
- The existence of significant transactions between the investing institution and the subsidiary.
- The exchange of senior management staff.
- The supply of expert information of an essential nature.

3.4.3. Book value and exposure of equity investments and capital instruments contained in above portfolios

The accompanying table shows the book value, exposure and RWAs of held-for-sale portfolios and portfolios held for strategic purposes:

Table 66. Breakdown of book value, EAD and RWAs of equity investments and capital instruments (Million Euros)

	Equity investments and capital instruments ⁽¹⁾							
	2017				2016			
	Book value	OE	EAD	RWAs	Book value	OE	EAD	RWAs
Portfolio available for sale	3,084	3,084	3,084	5,779	3,885	3,885	3,885	6,488
Portfolio held for strategic purposes	4,715	4,715	4,715	10,996	4,327	4,327	4,327	10,151
Total	7,798	7,798	7,798	16,775	8,213	8,213	8,213	16,639

⁽¹⁾ The 'Other financial assets with changes in P&L' portfolio has no balance.

The accompanying table shows the types, nature and amounts of the original exposures in equity investments listed or unlisted on a stock market, with an item differentiating

sufficiently diversified portfolios and other unlisted instruments:

Table 67. Exposure in equity investments and capital instruments (Million Euros)

Item	Nature of Exposure ⁽¹⁾			
	2017		2016	
	Non-derivatives	Derivatives	Non-derivatives	Derivatives
Exchange-traded instruments	2,403	428	3,606	144
Non-exchange traded instruments	4,967	-	4,401	62
Included in sufficiently diversified portfolios	4,967	-	4,401	62
Other instruments	-	-	-	-
Total	7,370	428	8,006	207

⁽¹⁾ Depending on their nature, equity instruments not included in Trading Book Activity will be separated into derivatives and non-derivatives. The amount shown refers to original exposure, i.e. gross exposure of value corrections through asset impairment and provisions, before applying risk mitigation techniques.

3.4.4. Risk-weighted assets of equity investments and capital instruments

Below is a breakdown of the RWAs by applicable method corresponding to equity investments and capital instruments as of December 31, 2017 and December 31, 2016:

Table 68. Breakdown of RWAs, equity investments and capital instruments by applicable approach (Million Euros)

Concept	RWA 's (Million Euros)				Total
	Internal Models	Simple method	PD/LGD method		
12/31/2017	2,261	924	2,594		5,779
Portfolio available for sale					
Portfolio held for strategic purposes	-	8,637	2,359		10,996
12/31/2016	961	973	4,554		6,488
Portfolio available for sale					
Portfolio held for strategic purposes	-	9,808	342		10,151

Described below are the trend and main changes in capital use for the positions subject to Equity Credit Risk as of December 31, 2017:

Table 69. Variation in RWAs for Equity Risk (Million Euros)

Equity Risk	
RWAs as of December 31, 2016	16,639
Asset size	1,789
Effects	
Acquisitions and disposals	(1,267)
Foreign exchange movements	(386)
Other	-
RWAs as of December 31, 2017	16,775

In 2017 the remaining stake in CNCB was sold, meaning the release of around €1.3 billion. In addition, investments in the subsidiaries Testa and Metrovacesa have been increased.

3.4.5. Profit and loss and adjustments for valuation of equity investments and capital instruments

Below is a breakdown as of December 31, 2017 and December 31, 2016 of the gains and losses from the sale and settlement of shares and equity instruments, and by type of portfolio applicable, as well as the valuation adjustments for the latent revaluation of shares and equity instruments.

Table 70. Realized profit and loss from sales and settlements of equity investments and capital instruments (Million Euros)

	2017			2016		
	Losses	Gains	Net	Losses	Gains	Net
Portfolio available for sale	17	362	345	24	254	230
Portfolio held for strategic purposes	32	35	3	58	111	53

Table 71. Valuation adjustments for latent revaluation of equity investments and capital instruments (Million Euros)

Valuation adjustments for latent revaluation	
AFS	
Balance Dec 2016	(680)
Transactions	765
Balance Dec 2017	85

The movement, as specified in section 2.2 of this document, reflects the latent gains registered in the earnings from the Group's stake in Telefónica.

3.5. Structural exchange-rate risk

3.5.1. Scope and nature of the exchange-rate risk measurement and reporting systems

In BBVA Group, structural exchange-rate risk arises mainly from the consolidation of holdings in subsidiaries with functional currencies other than the euro. Its management is centralised in order to optimise the joint handling of permanent foreign currency exposures, taking into account the diversification.

The GRM corporate area acts as an independent unit that is responsible for monitoring and analyzing risks, promoting the integration of risk metrics into management and providing tools that can anticipate potential deviations from targets.

It also monitors the level of compliance of established risk limits, and reports regularly to the Global Risk Management

Committee (GRMC), the Board of Directors' Risk Committee and the Executive Committee, particularly in the case of deviation or tension in the levels of risk assumed.

The corporate Balance Sheet Management unit (Finance), through ALCO, designs and executes the hedging strategies with the main purpose of controlling the potential negative effects of exchange-rate fluctuations on capital ratios, as well as assuring the equivalent value in euros of the foreign-currency earnings of the Group's subsidiaries, considering the transactions according to market expectations and their costs.

The risk monitoring metrics included in the system of limits are integrated into management and supplemented with additional assessment indicators. Within the corporate scope, they are based on probabilistic metrics that measure the

maximum deviation in capital, CET1 (“Common Equity Tier 1”) ratio, and attributable profit. Probabilistic metrics enable an estimation of the overall impact of the exposure on the various currencies, considering the broad variability in listed currencies and their correlations.

The suitability of these risk assessment metrics is reviewed on a regular basis through backtesting exercises. A structural exchange-rate risk control is supplemented with an analysis of scenarios and stress with a view to proactively identifying possible future threats to the future compliance of risk appetite levels to enable the adoption, as the case may be, of the pertinent preventive actions. The scenarios are based on historical and risk model-simulated situations, and the risk scenarios provided by BBVA Research.

The level of exposure to structural exchange-rate risk in the Group has remained relatively stable since the close of 2016. The hedging policy aims to maintain the sensitivity of

the capital ratio and the Group’s earnings to changes in the exchange rates of emerging currencies, and is focused mainly on the Mexican peso and Turkish lira. The risk mitigation level of the capital adequacy ratio by the carrying amount of BBVA Group’s holdings in these currencies has remained at around 70%, and the hedging for management purposes of emerging-currency earnings amounted to 61%, focused on the Mexican peso and Turkish lira. At the close of the year, the sensitivity of the CET1 ratio to a 1% change in the euro’s exchange rate against each foreign currency is: US dollar: +1.2 bps; Mexican peso -0.1 bps; Turkish lira -0.1 bps; remaining currencies: -0.3 bps.

The RWAs of structural exchange rate risk as of December 2016 were €4,041 thousand, compared with €4,579 thousand as at end of 2017. The variations are due to the trend in structural positions and increased hedging on those positions.

3.6. Interest-Rate Risk

3.6.1 Scope and nature of the interest-rate risk measurement and reporting systems

The aim of managing balance-sheet interest rate risk is to maintain BBVA Group’s exposure to variations in interest rates at levels in line with its strategy and target risk profile.

Movements in interest rates lead to changes in a bank’s net interest income and book value, which constitute a key source of asset and liability interest-rate risk.

The extent of these impacts will depend on the bank’s exposure to changes in interest rates. This exposure is mainly the result of the time difference between the different maturity and repricing terms of the assets and liabilities on the banking book and the off-balance-sheet positions.

A financial institution’s exposure to adverse changes in market rates is a risk inherent in the banking business, while at the same time representing an opportunity to generate value. That is why the structural interest rate risk should be managed effectively and have a reasonable relation both to the bank’s capital base and the expected economic result. This function is handled by the Global ALM unit, within the Financial Management area. Through the Asset and Liability Committee (ALCO) it aims to guarantee the generation of recurrent earnings and preserve the entity’s solvency.

In pursuance of this, the ALCO develops strategies based on its market expectations, within the risk profile defined by

BBVA Group’s management bodies and balance the expected results and the level of risk assumed.

BBVA has a transfer pricing system, which centralises the Bank’s interest-rate risk on ALCO’s books and is designed to facilitate proper balance-sheet risk management.

The corporate GRM area is responsible for controlling and monitoring structural interest-rate risk, acting as an independent unit to guarantee that the risk management and control functions are properly segregated. This policy is in line with the Basel Committee on Banking Supervision recommendations. It constructs the structural interest-rate risk measurements used by the Group’s management, as well as designing models and measurement systems and developing monitoring, information and control systems. At the same time, the Global Risk Management Committee (GRMC) carries out the function of risk control and analysis reporting to the main governing bodies, such as the Executive Committee and the Board of Director’s Risk Committee.

BBVA’s structural interest-rate risk management procedure has a sophisticated set of metrics and tools that enable its risk profile to be monitored precisely. The model is based on a series of deeply analysed assumptions designed to characterise the balance sheet more accurately. Interest-rate risk measurement includes probabilistic metrics as well as calculations of the sensitivity to a parallel shift of +/- 100 basis points in the market interest-rate curves.

There is regular measurement of the Bank's banking book income at risk (IaR) and economic capital, defined as the maximum adverse deviations in net interest income and economic value, respectively, for a particular confidence level and time horizon.

These deviations are obtained by applying a simulation model of interest-rate curves that takes into account other sources of risks apart from directional movements, such as changes in the slope and curvature, and also the diversification between currencies and business units. The model is subject to regular internal validation, which includes backtesting.

The risk measurement model is supplemented by analysis of specific scenarios and stress tests. Stress tests have taken on particular importance in recent years. The analysis of extreme scenarios has been enhanced for this purpose in the event of a possible breakthrough in both current interest-rate levels and historical correlations and volatility. At the same time, the evaluation of scenarios forecast by the Economic Research Department has been maintained.

3.6.2 Nature of interest rate risk and key hypotheses

The Group's exposure to variations in market interest rates is one of the main financial risks linked to the pursuit of its banking operations.

Repricing risk, which stems from the difference between the periods for reviewing interest rates or the maturity of investment transactions vis-à-vis their financing, constitutes the basic interest-rate risk to be considered. Nonetheless, other risks such as the exposure to changes in the slope and shape of interest rate curves and the risk of optionality present in certain banking transactions are also taken into consideration by risk control mechanisms.

The sensitivity measurements of the Group's net interest income and economic value in the face of variations in market interest rates are supplemented with forecast and stress scenarios and risk measurements using curve simulation processes, thereby allowing an assessment of the impact of changes on the slope, curvature and parallel movements of varying magnitude.

Especially important in the measurement of structural interest rate risk, which is carried out every month, is the establishment of hypotheses on the changes and performance of certain items on the balance sheet, especially those involving products with no explicit or contractual due date.

The most significant of these hypotheses are those established on current and savings accounts, since they

largely condition risk levels given the volume they represent within the liabilities of the Group's financial institutions.

A prior step to the study of these liabilities necessarily involves "account segmentation." To do so, the balances on the balance sheet are broken down by products, analysed separately and subsequently grouped according to their common features, especially with regard to the type of customer and the criteria on the remuneration of each account, independently of the accounting standards on grouping.

A first stage involves analyzing the relationship between the trends in market interest rates and the interest rates of those accounts with no contractual due date. This relationship is established by the models which allow a determination of what the percentage impact of the variations in market interest rates is on the account's remuneration and with what delay it occurs, for each type of account and customer and according to the interest-rate levels.

Subsequently, an analysis is made of the changes over time of the balances in each category in order to establish their overall trend against the seasonal variations in the balance. It is assumed that these seasonal variations mature in the very short term, whereas the trend in the balance is assigned a long-term maturity. This prevents oscillations in the level of risks caused by momentary variations in balances, thus favoring the stability of balance-sheet management. This breakdown of amounts is made by the regressions that best adjust historical changes to the balance over time.

Group companies have opted for different procedures to determine the maturity of transactional liabilities, taking into account the varying nature of markets and the availability of historical data. In the corporate model, a descriptive analysis of the data is used to calculate the average contractual period of the accounts and the conditioned probability of maturity for the life cycle of the product. A theoretical distribution of maturities of the trend balance is then estimated for each of the products, based on the average life of the stock and the conditioned probability.

A further aspect to be considered in the model's hypotheses is the analysis of the prepayments (implicit optionality) associated with certain positions, especially with the loan-book, mortgage portfolios and customer deposits. Changes in market interest rates, together with other variables, may create incentives for the Bank's customers to cancel loans or deposits early, thus modifying the future behavior of the balances on the balance sheet with respect to forecasts, in accordance with the contractual calendar of maturities.

The analysis of historical information relating to prepayments, and to other variables such as interest rates, allows an estimate of future repayments and their behavior linked to these variables.

3.6.3 Variations in interest rates

The following tables present the average levels of interest-rate risk in terms of the sensitivity of net interest income and

economic value for the Group's main financial institutions in 2017.

Table 72. Variations in interest rates. Impact on net interest income and economic value

Interest rate sensitivity analyses at December 2017	Impact on net interest income ^(*)		Impact on economic value ^(**)	
	Increase of 100 basis points	Decrease of 100 basis points	Increase of 100 basis points	Decrease of 100 basis points
Europe (***)	+(10% - 15%)	-(5% - 10%)	+(0% - 5%)	-(0% - 5%)
Mexico	+(0% - 5%)	-(0% - 5%)	-(0% - 5%)	+(0% - 5%)
USA	+(5% - 10%)	-(5% - 10%)	-(0% - 5%)	-(0% - 5%)
Turkey	-(0% - 5%)	+(0% - 5%)	-(0% - 5%)	+(0% - 5%)
South America	+(0% - 5%)	-(0% - 5%)	-(0% - 5%)	+(0% - 5%)
BBVA Group	+(0% - 5%)	-(0% - 5%)	+(0% - 5%)	-(0% - 5%)

(*) Percentage of the projected "1 year" interest margin of each unit

(**) Percentage of Core Capital per unit

(***) In Europe it is considered that rate will move further downward to levels more negative than the current ones

The BBVA Group's balance sheet has negative exposure to a fall in interest rates caused primarily by the euro and USD balance sheets. However, in Europe, the decline in rates is

limited as a result of the current interest rate level, which is very close to or even below zero, thus preventing the occurrence of extremely adverse scenarios.

3.7. Liquidity Risk

3.7.1. Liquidity and Funding Strategy and Planning

BBVA Group is a multinational financial institution whose business is focused mainly on retail and commercial banking activities. In addition to the retail business model, which forms the core of its business, the Group engages in corporate and investment banking, through the global CIB (Corporate & Investment Banking) division.

Liquidity and Funding planning is drawn up as part of the strategic processes for the Group's budgetary and business planning, to ensure recurring growth of the banking business with suitable maturities and costs over a wide and diverse range of instruments.

The Group's Funding and Liquidity strategy is based on the following pillars:

- The principle of the funding self-sufficiency of its subsidiaries, meaning that each of the Liquidity Management Units (LMUs) must cover its funding needs independently on the markets where it operates. This avoids possible contagion due to a crisis affecting one or more of the Group's LMUs.

- Stable customer deposits as the main source of funding in all the LMUs, in accordance with the Group's business model.
- Diversification of the sources of wholesale funding, in terms of maturity, market, instruments, counterparties and currencies, with recurring access to the markets.
- Compliance with regulatory requirements, ensuring the availability of ample liquidity buffers, as well as sufficient instruments as required by regulations with the capacity to absorb losses.
- Compliance with the internal Liquidity Risk and Funding metrics, while adhering to the Risk Appetite level established for each LMU at any time.

Liquidity and funding risk management aims to ensure that in the short term a bank does not have any difficulties in meeting its payment commitments in due time and form, and that it does not have to make use of funding under burdensome terms, or conditions that deteriorate its image or reputation.

In the medium term the aim is to ensure that the Group's financing structure is ideal and that it is moving in the right direction with respect to the economic situation, the markets and regulatory changes.

This management of structural and liquidity funding is based on the principle of financial self-sufficiency of the entities that make it up. This approach helps prevent and limit liquidity risk by reducing the Group's vulnerability during periods of high risk. This decentralised management prevents possible contagion from a crisis affecting only one or a few Group entities, which must act independently to meet their liquidity requirements in the markets where they operate.

As one aspect of this strategy, BBVA Group is organised into twelve LMUs composed of the parent and the banking subsidiaries in each geographical area, plus their dependent branches.

In addition, the policy for managing liquidity and funding risk is also based on the model's robustness and on the planning and integration of risk management into the budgeting process of each LMU, according to the appetite for funding risk it decides to assume in its business.

3.7.2. Governance and monitoring

The responsibility for Liquidity and Funding management in normal business activity lies with the Finance area as a first line of defense in managing the risks inherent to this activity, in accordance with the principles established by the European Banking Authority EBA and in line with the most demanding standards, policies, procedures and controls in the framework established by the governing bodies. The Finance department, through the Balance-Sheet Management area, plans and executes the funding of the structural long-term gap of each LMU and proposes to the Assets and Liabilities Committee (ALCO) the actions to be taken on this matter, in accordance with the policies and limits established by the Executive Committee (EC).

The corporate Global Risk Management (GRM) area is as a second line of defense responsible for ensuring that liquidity and funding risk in the Group is managed according to the strategy approved by the Board of Directors. It is also responsible for identifying, measuring, monitoring and controlling this risk, reporting to the proper governing bodies, and providing the Group's vision from the risk perspective.

To carry out this work adequately, the risk function in the Group has been set up as a single, global function that is independent of the management areas. This guarantees the separation of functions between the Liquidity and Funding Risk management area (Balance-Sheet Management) and the area that measures and controls risk (GRM-Structural Risks).

In addition, the Group has an Internal Risk Control unit that conducts an independent review of Liquidity and Funding Risk control and management, independently of the functions performed in this area by Internal Audit.

As a third line of defense in the Group's internal control model, Internal Audit is in charge of reviewing specific controls and processes in accordance with an annual work plan.

Accounting and Supervisors (A&S), in its regulatory liquidity reporting function, coordinates the processes necessary to meet any requirements that may be generated at corporate and regulatory level, with the areas responsible for this reporting in each LMU, thereby ensuring the integrity of the information supplied.

As the core management element, the Group's liquidity and funding risk objectives are determined through the Liquidity Coverage Ratio (LCR) and through the Loan-to-Stable Customer Deposits (LtSCD) ratio.

The LCR ratio is a regulatory metric that aims to guarantee the resilience of entities in a scenario of liquidity tension within a time horizon of 30 days. Within its risk appetite framework and system of limits and alerts, BBVA has established a required LCR compliance level for the entire Group and for each individual LMU. The required internal levels aim to comply efficiently and sufficiently in advance with the implementation of the 2018 regulatory requirement at a level above 100%.

The LtSCD ratio measures the relationship between net lending and stable customer funds. The aim is to preserve a stable funding structure in the medium term for each LMU making up BBVA Group, taking into account that maintaining an adequate volume of stable customer funds is key to achieving a sound liquidity profile. These stable resources in each LMU are calculated by analyzing the performance of the balances in the different customer segments identified as eligible to provide stability to the funding structure; prioritizing customer loyalty and applying greater haircuts to the funding lines for less stable customers. In order to establish the target (maximum) levels of LtSCD in each LMU and provide an optimal funding structure reference in terms of risk appetite, the corporate Structural Risks unit of GRM identifies and assesses the economic and financial variables that condition the funding structures in the different geographical areas.

The second core element in liquidity and funding risk management aims to achieve a proper diversification of the funding structure, avoiding excessive reliance on short-term funding by establishing a maximum level for the short-term funds raised, including both wholesale funding and customer funds. The residual maturity profile of long-term wholesale funding has no significant concentrations, which matches

the schedule of planned issues to the best possible financial conditions of markets, as shown in the chart below. Finally, concentration risk is monitored at LMU level, with the aim of ensuring a correct diversification of both the counterparty and type of instrument.

The third core element is promoting the short-term resistance of the liquidity risk profile, guaranteeing that each UGL has sufficient collateral to deal with the risk of the close of wholesale markets. Basic capacity is the short-term liquidity risk management and control metric that is defined as the relationship between the available explicit assets and the maturities of wholesale liabilities and volatile funds, at different terms, with special relevance being given to 30-day maturities.

Stress tests are carried out as a fundamental element of the liquidity and funding risk monitoring scheme. They enable deviations from the liquidity targets and limits set in the appetite to be anticipated, and establish tolerance ranges in the different management areas. They also play a major role in the design of the Liquidity Contingency Plan and the definition of specific measures to be adopted to rectify the risk profile if necessary.

For each scenario, it is checked whether the LMU has a sufficient stock of liquid assets to guarantee its capacity to meet the liquidity commitments/outflows in the different periods analysed. The analysis considers four scenarios: one central and three crisis-related (systemic crisis; unexpected internal crisis with a considerable rating downgrade and/or affecting the ability to issue in wholesale markets and the perception of business risk by the banking intermediaries and the Entity's customers; and a mixed scenario, as a combination of the two aforementioned scenarios). Each scenario considers the following factors: existing market liquidity, customer behavior and sources of funding, the impact of rating downgrades, market values of liquid assets and collateral, and the interaction between liquidity requirements and the development of the LMU's asset quality.

Together with the results of the stress tests and the risk metrics, the early warning indicators play an important role within the corporate model and the Liquidity Contingency Plan. They are mainly indicators of the funding structure, in relation to asset encumbrance, counterparty concentration, flights of customer deposits, unexpected use of credit facilities, and of the market, which help anticipate possible risks and capture market expectations.

In order to implement this principle of anticipation, limits are set on an annual basis for the main management metrics that form part of the budgeting process for liquidity balance and finance. This framework of limits contributes to the planning of the joint future performance of:

- The loan book, considering the types of assets and their degree of liquidity, a well as their validity as collateral in collateralised funding.
- Stable customer funds, based on the application of a methodology for establishing which segments and customer balances are considered to be stable or volatile funds based on the principle of sustainability and recurrence of these funds.
- Projection of the credit gap, in order to require a degree of self-funding that is defined in terms of the difference between the loan-book and stable customer funds.
- Incorporating the planning of securities portfolios into the banking book, which include both fixed-interest and equity securities, and are classified as available-for-sale or held-to-maturity portfolios, and additionally on trading portfolios.
- The structural gap projection, as a result of assessing the funding needs generated both from the credit gap and by the securities portfolio in the banking book, together with the rest of on-balance-sheet wholesale funding needs, excluding trading portfolios. This gap therefore needs to be funded with customer funds that are not considered stable or on wholesale markets.

As a result of these funding needs, BBVA Group plans the target wholesale funding structure according to the tolerance set in each LMU target.

Thus, once the structural gap has been identified and after resorting to wholesale markets, the amount and composition of wholesale structural funding is established in subsequent years, in order to maintain a diversified funding mix and guarantee that there is not a high reliance on short-term funding (short-term wholesale funding plus volatile customer funds).

In practice, the execution of the principles of planning and self-funding at the different LMUs results in the Group's main source of funding being customer deposits, which consist mainly of demand deposits, savings deposits and time deposits.

As sources of funding, customer deposits are complemented by access to the interbank market and the domestic and international capital markets in order to address additional liquidity requirements, implementing domestic and international programs for the issuance of commercial paper and medium and long-term debt.

The process of analysis and assessment of the liquidity and funding situation and of the inherent risks is a process carried out on an ongoing basis in BBVA Group, with the participation of all the Group areas involved in liquidity and

funding risk management. This process is carried out at both local and corporate level. It is incorporated into the decision-making process for liquidity and funding management, with integration between the risk appetite strategy and establishment and the planning process, the funding plan and the limits scheme.

A statement of the level of appropriateness of the liquidity risk management mechanisms is included as part of the Internal Liquidity Adequacy Assessment Process (ILAAP) approved by the Board of Directors in April 2017:

“To sum up, the internal assessment exercise conducted as part of this process reveals that the liquidity and funding management model is robust, with a medium-low liquidity risk profile, and shows no significant weaknesses that may entail the need for additional measures or liquid funds in addition to those currently available or planned.”

3.7.3. Liquidity and funding performance in 2017

During 2017, BBVA Group has maintained a robust and dynamic funding structure with a clearly retail nature, where customer resources represent the main source of funding.

Thus, the performance of the indicators show that the robustness of the funding structure remained steady during 2017, in the sense that all LMUs held self-funding levels with stable customer resources above the requirements.

Table 73. Loan to Stable Customer Deposits (LtSCD)

	LtSCD by LMU	
	December 2017	December 2016
Group (Weighted average)	110%	113%
Eurozone	108%	113%
Bancomer	109%	113%
Compass	109%	108%
Garanti	122%	124%
Other LMUs	108%	107%

With respect to LCR, the Group has maintained a liquidity buffer at both consolidated and individual level in 2017. This has maintained the ratio easily above 100%, with the consolidated ratio as of December 2017 standing at 128%.

Although this requirement is only established at Group level and banks in the Eurozone, the minimum level required is easily exceeded in all the subsidiaries. It should be noted that the construction of the Consolidated LCR does not assume the transfer of liquidity between the subsidiaries, so no excess of liquidity is transferred from these entities abroad to the consolidated ratio. If the impact of these highly liquid assets is considered to be excluded, the LCR would be 149%, or 21% above the required level.

Table 74. Table 74.LCR main LMU

	LCR main LMU December 2017
Group (Weighted average)	128%
Eurozone ⁽¹⁾	151%
Bancomer	148%
Compass ⁽²⁾	144%
Garanti	134%

⁽¹⁾ Perimeter: Spain, Portugal and rest of Eurasia

⁽²⁾ Calculated according local regulation (Fed Modified LCR)

In addition, the stress tests conducted on a regular basis reveal that BBVA maintains a sufficient buffer of liquid assets (stress buffer) to deal with the estimated liquidity outflows in a scenario resulting from the combination of a systemic crisis and an unexpected internal crisis, during a period of longer than 3 months in general for the different LMUs, including in the scenario a significant downgrade of the Bank's rating by up to three notches.

Below is a matrix of residual maturities by contractual periods based on the supervisory prudential information as of December 31, 2017:

Table 75. Liquidity inflows. Residual maturities by contractual periods (Million Euros. 12-31-17)

	Demand	Up to 1 Month	1 to 3 Months	3 to 6 Months	6 to 9 Months	9 to 12 Months	1 to 2 Years	2 to 3 Years	3 to 5 Years	Over 5 Years	Total
ASSETS											
Cash, cash balances at central banks and other demand deposits	8,179	31,029	-	-	-	-	-	-	-	-	39,208
Deposits in credit entities	252	4,391	181	169	120	122	116	112	157	1,868	7,488
Deposits in other financial institutions	1	939	758	796	628	447	1,029	681	806	1,975	8,060
Reverse repo, securities borrowing and margin lending	18,979	2,689	1,921	541	426	815	30	727	226	-	26,354
Loans and Advances	267	21,203	26,323	23,606	15,380	17,516	43,973	35,383	50,809	123,568	358,028
Securities' portfolio settlement	1	1,579	4,159	4,423	2,380	13,391	5,789	11,289	12,070	44,666	99,747

Table 76. Liquidity outflows. Residual maturities by contractual periods (Million Euros. 12-31-17)

	Demand	Up to 1 Month	1 to 3 Months	3 to 6 Months	6 to 9 Months	9 to 12 Months	1 to 2 Years	2 to 3 Years	3 to 5 Years	Over 5 Years	Total
LIABILITIES											
Wholesale funding	-	3,648	4,209	4,238	1,227	2,456	5,772	6,432	18,391	30,162	76,535
Deposits in financial institutions	6,831	5,863	1,082	2,335	392	1,714	930	765	171	1,429	21,512
Deposits in other financial institutions	10,700	4,827	3,290	1,959	554	1,328	963	286	355	1,045	25,307
Customer deposits	233,068	45,171	18,616	11,428	8,711	10,368	7,607	2,612	1,833	2,034	341,448
Security pledge funding	-	35,502	2,284	1,405	396	973	64	23,009	338	1,697	65,668
Derivatives (net)	-	(18)	(110)	(116)	(135)	(117)	(336)	(91)	(106)	(419)	(1,448)

The funding structure is clearly stable, with the loan portfolio mostly funded from customer deposits. The demand section of outflows primarily contains current accounts in the retail customer base, whose behavior is highly stable and for which, according to internal methods, the average maturity is estimated at around three years.

In the Euro LMU, there is a solid liquidity and funding situation, where activity has continued to generate liquidity through a narrowing of the Credit Gap and a reduction of the fixed-income portfolios. In addition, in 2017, the Euro LMU has issued €7,100 million, providing long-term funding under favorable price conditions.

In Mexico, the liquidity position continues to be sound and the dependence on wholesale funding is relatively low and linked to the fixed-income portfolios. In 2017, BBVA Bancomer issued a total of MXN 7 billion on the local market at maturities of 3 and 5 years.

In the United States, the control of the cost of deposits has led to a slight increase in the credit gap. At end of 2017, BBVA Compass has successfully issued senior debt with a maturity of 5 years for USD 750 million.

The liquidity situation in Turkey is comfortable, with a moderate increase in the credit gap as a result of the growth of lending spurred by the government's Credit Guarantee Fund

program. In 2017 Garanti Bank issued USD 2 billion in foreign currency and €1.7 billion in local currency. The syndicated loans were also renewed in the second and fourth quarter, with a new 2-year tranche.

The liquidity position in the rest of the subsidiaries has remained in a comfort zone, holding a solid position of liquidity in all jurisdictions where which the Group operates. Access to capital markets by these subsidiaries has continued with recurring issuance on the local market.

In this context of improved access to the market, BBVA has maintained its objectives of, on the one hand, strengthening the funding structure of the Group's various franchises based on growing its self-funding from stable customer funds, and on the other, guaranteeing a sufficient buffer of fully available

liquid assets, diversifying the different sources of funding and optimizing the generation of collateral to deal with situations of tension in the markets.

3.7.4. Liquidity prospects

BBVA Group is entering 2018 with a comfortable liquidity status across its entire global footprint. The financing structure slanting toward the long term and proven access capacity to capital markets enables to comfortably meet the moderate volume of maturities expected for the upcoming quarters.

The following is a breakdown of maturities of wholesale issues of the most significant units of the Group by the nature of the issues.

Table 77. Maturity of wholesale issuance of Balance Euro by nature (Million Euros. 12-31-17)

Type of issues	2018	2019	2020	After 2020	Total
Senior debt	2,755	1,300	1,034	8,615	13,704
Mortgage-covered bonds	831	380	2,264	12,591	16,066
Public-covered bonds	150	-	-	500	650
Regulatory capital instruments ⁽¹⁾	1,834	3,120	1,500	4,408	10,862
Other long term financial instruments	-	-	-	-	-
Total	5,570	4,800	4,798	26,114	41,282

⁽¹⁾ Regulatory capital instruments are classified in this table by terms according to their contractual maturity

Table 78. Maturity of wholesale issuance of Bancomer by nature (Million Euros. 12-31-17)

Type of issues	2018	2019	2020	After 2020	Total
Senior debt	211	169	537	1,350	2,267
Mortgage-covered bonds	-	-	-	-	-
Public-covered bonds	-	-	-	-	-
Regulatory capital instruments ⁽¹⁾	-	-	-	3,294	3,294
Other long term financial instruments	-	-	-	-	-
Total	211	169	537	4,644	5,561

⁽¹⁾ Regulatory capital instruments are classified in this table by terms according to their contractual maturity

Table 79. Maturity of wholesale issuance of Compass by nature (Million Euros. 12-31-17)

Type of issues	2018	2019	2020	After 2020	Total
Senior debt	-	500	-	625	1,126
Mortgage-covered bonds	-	-	-	-	-
Public-covered bonds	-	-	-	-	-
Regulatory capital instruments ⁽¹⁾	-	-	190	660	850
Other long term financial instruments	-	-	-	-	-
Total	-	500	190	1,286	1,976

⁽¹⁾ Regulatory capital instruments are classified in this table by terms according to their contractual maturity

Table 80. Maturity of wholesale issuance of Garanti by nature (Million Euros. 12-31-17)

Type of issues	2018	2019	2020	After 2020	Total
Senior debt	358	1,130	-	1,538	3,025
Mortgage-covered bonds	-	-	-	370	370
Public-covered bonds	-	-	-	-	-
Regulatory capital instruments ⁽¹⁾	-	-	-	625	625
Other long term financial instruments	96	350	63	2,653	3,162
Total	454	1,480	63	5,186	7,182

⁽¹⁾ Regulatory capital instruments are classified in this table by terms according to their contractual maturity

Table 81. Maturity of wholesale issuance of South America by nature (Million Euros. 12-31-17)

Type of issues	2018	2019	2020	After 2020	Total
Senior debt	979	1,160	810	2,882	5,831
Mortgage-covered bonds	-	-	-	-	-
Public-covered bonds	-	-	-	-	-
Regulatory capital instruments ⁽¹⁾	64	-	-	1,681	1,745
Other long term financial instruments	-	-	-	-	-
Total	1,043	1,160	810	4,563	7,576

⁽¹⁾ Regulatory capital instruments are classified in this table by terms according to their contractual maturity

For 2018, the main goals of BBVA Group's funding strategy is to maintain the strength of the funding structure and the diversification of the different sources of funding, ensuring the availability of sufficient levels of collateral, both for complying with regulatory ratios and for the rest of the internal metrics for monitoring liquidity risk, including stress scenarios.

3.7.5. LCR disclosure

The table below shows the consolidated LCR disclosure as of December 31, 2017, pursuant to Article 435 of Regulation

(EU) No. 575/2013. These figures are calculated as simple averages of observations made at the end of each month over the twelve months previous to each quarter, starting in September 2016. No transfer of liquidity is assumed between subsidiaries, and therefore no excess liquidity is transferred from the entities abroad to the consolidated figures displayed in the following table:

Table 82. EU LIQ1: LCR disclosure template (Million Euros. 12-31-17)

	Total unweighted value (average)				Total weighted value (average)			
	March	June	September	December	March	June	September	December
End of the quarter	03-31-17	06-30-17	09-30-17	12-31-17	03-31-17	06-30-17	09-30-17	12-31-17
Number of data points used in the calculation of averages	7	10	12	12	7	10	12	12
HIGH-QUALITY LIQUID ASSETS								
Total high-quality liquid assets (HQLA)					92,805	92,118	91,634	91,004
CASH-OUTFLOWS								
Retail deposits and deposits from small business customers, of which:	199,534	200,544	201,114	201,890	15,057	15,095	15,074	15,037
Stable deposits	126,439	127,478	128,478	129,873	6,322	6,374	6,424	6,494
Less stable deposits	73,095	73,066	72,636	72,017	8,735	8,721	8,650	8,544
Unsecured wholesale funding	121,539	121,696	122,470	123,413	55,294	54,904	54,546	54,373
Operational deposits (all counterparties) and deposits in networks of cooperative banks	45,420	45,537	47,257	48,576	10,162	10,167	10,555	10,810
Non-operational deposits (all counterparties)	73,974	74,157	73,321	72,787	42,987	42,735	42,099	41,513
Unsecured debt	2,145	2,002	1,892	2,050	2,145	2,002	1,892	2,050
Secured wholesale funding					4,712	4,347	3,943	3,598
Additional requirements	129,312	126,972	123,417	118,960	24,343	22,850	21,746	19,819
Outflows related to derivative exposures and other collateral requirements ⁽¹⁾	13,929	12,535	11,739	10,253	13,813	12,418	11,627	10,145
Outflows related to loss of funding on debt products	763	760	653	432	763	760	653	432
Credit and liquidity facilities	114,620	113,677	111,025	108,275	9,767	9,672	9,466	9,242
Other contractual funding obligations	10,754	10,580	10,442	10,343	2,049	2,079	2,007	1,936
Other contingent funding obligations	1,519	1,542	1,518	1,565	1,519	1,542	1,518	1,565
TOTAL CASH OUTFLOWS					102,974	100,817	98,834	96,328
CASH - INFLOWS								
Secured lending (e.g. reverse repos)	12,072	11,653	11,123	11,183	251	256	313	404
Inflows from fully performing exposures	28,566	28,349	27,791	27,418	16,898	16,777	16,338	16,257
Other cash inflows	9,542	8,232	7,670	6,294	9,542	8,232	7,670	6,294
(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) (Excess inflows from a related specialised credit institutions)								
TOTAL CASH INFLOWS	50,180	48,234	46,584	44,895	26,691	25,265	24,321	22,955
Fully exempt inflows								
Inflows subject to 90% cap								
Inflows subject to 75% cap	50,181	48,234	46,584	44,896	26,690	25,265	24,321	22,955
TOTAL ADJUSTED VALUE								
LIQUIDITY BUFFER					92,805	92,118	91,634	91,004
TOTAL NET CASH OUTFLOWS					76,282	75,553	74,513	73,373
LIQUIDITY COVERAGE RATIO (%)					122	122	123	124

⁽¹⁾ Includes the value of collaterals that the entity should contribute in case of a credit downgrade in accordance to article 439. d) of CRR

Establishing an independent control framework for the Euro, Compass, Mexico and Turkey LMUs complies with the corporate Liquidity and Funding requirements for the four main currencies in which BBVA Group operates: the Euro, Dollar, Mexican Peso and Turkish Lira.

Except for the dollar, the significant currencies at Group level are managed in their entirety by the entities resident in the jurisdictions of each, covering their funding needs in the local markets in which they operate.

There are specific regulatory requirements for the LMUs that operate in dollarised economies (Argentina, Peru, Bancomer and Turkey) that limit the level of risk of each subsidiary. Moreover, in all of them the dollar LCR is over 100%.

With respect to the sustainability of wholesale funding as a source of funding depends on the level of diversification. Specifically, to ensure an appropriate level of diversification of counterparties, specific concentration thresholds are established to be adhered to at all times by each LMU. As of December 31, 2017, excepting exposures to central counterparty entities and the ECB TLTROII (Targeted Longer-Term Refinancing Operations) on the euro balance-sheet, BBVA Group does not have counterparties with balances greater than 1% of the Group's total liabilities, and the weight of the 10 biggest counterparties by balance account for 5% in all.

3.7.6. Assets committed in finance transactions

With respect to the management of encumbered liquid assets³, all the LMUs maintain suitable positions that not only cover the minimum survival periods established for stress scenarios, but also in relation to non-collateralised wholesale liabilities, which are ultimately those most affected by the encumbered asset ratio.

All the Group's LMUs have implemented procedures and controls to ensure that the risks associated with the management of guarantees and the charge on assets are correctly identified, controlled and managed in compliance with the Corporate Liquidity and Funding Risk Policy, particularly: i) a system for monitoring and control of the asset encumbrance risk indicators; ii) regular assessment of stress scenarios as a result of the risk levels reached; and iii) a contingency plan with measures for action according to the level of criticality and immediacy of the situation

The impact on the business model of the level of asset encumbrance, as well as its importance for the Group's funding model, is limited; because the funding is based on

stable customer deposits, reducing dependence of short-term funding, and because a robust funding structure is maintained, with a moderate level of encumbered assets.

The ratio of encumbered assets over the total assets for the three main LMUs as of December 31, 2017 is:

Table 83. Committed assets over total assets rate.

	December 2017
BBVA Group	19%
LMU Euro	24%
LMU Mexico	15%
LMU Compass	12%
LMU Garanti	13%

BBVA Group has mainly the following sources of pledges:

- Covered bonds:

The issue of covered bonds constitutes one of the main sources of finance guaranteed with a high level of protection for the holders. The issues are backed by assets on the balance sheet that may be pooled and that have a joint guarantee from the Entity, which will back the issue if the underlying assets cannot meet the payments. The products through which this type of finance is implemented are mortgage-covered bonds, public-covered bonds and internationalisation bonds.
- Assets sold under repurchase agreements:

The collateralised finance transactions through repurchase agreements form part of short-term funding sources. These transactions play an important role among the Group's encumbered assets.
- Assets pledged with central banks:

The role of central banks as last-resort liquidity providers is also one of the basic contingent funding resources in the event of stress on finance markets. In this regard, in accordance with the principles established for management of collateral, the Group's strategy consists of maintaining broad credit facilities with the central banks concerned by pledging assets as collateral in geographical areas where these instruments are used as part of monetary policy. The impact of this source of funding is very low in BBVA Group.
- Management of collateral agreements

The use of collateral constitutes one of the most effective techniques for mitigating exposure to the credit risk resulting from derivative transactions or operational procedures with repos or securities loans. The assets currently used as collateral are: cash, fixed-income and letters of credit.

3. An asset is considered encumbered if it is subject to any form of agreement with the aim of ensuring, collateralizing or improving the credit quality of a transaction, and may not be freely withdrawn.

In any event, an asset's consideration as encumbered is not based on an explicit legal definition, such as the transfer of title, but rather on an economic criterion, so any asset which is subject to some restriction for being used or replaced by another asset is considered encumbered.

The projects subject to overcollateralisation are:

■ Mortgage-covered bonds.

These are mortgage bonds issued with first-rank mortgage loan collateral constituted in favor of the bank. In the case of BBVA S.A., which accounts for more than 95% of the issuance of mortgage-covered bonds in the Group, the bonds have to be overcollateralised at 125% of their nominal value, and the amount of loans that back them may not be more than 80% of the value of the collateral. The other geographic areas that issue these types of product (to a residual extent) are Garanti Bank and BBVA Chile S.A.

■ Public-covered bonds.

Public-covered bonds are similar to mortgage-covered bonds. They are backed by loans and credit granted by the issuer to central and regional governments, local authorities and autonomous bodies that answer to them, as well as other public-sector entities in the European Economic Area. In this case, the issues have to be overcollateralised at 143% of their nominal value. BBVA S.A. accounts for 100% of this type of issuance.

■ Internationalisation bonds.

These are securities guaranteed by loans and credit linked to the finance of contracts for the export of goods and services or the internationalisation of companies. The level of overcollateralisation is the same as for public-covered bonds. BBVA S.A. accounts for 100% of this type of issuance. The weight of these issues is extremely residual.

Within the Group there are units responsible for the execution, monitoring and control of issues of this type, as well as the calculation of the capacity for additional issuance, with the aim of ensuring that the Entity is not over-issued and complies with the established limits of the Encumbered Asset Ratio.

The following table shows assets contributed as collateral (loans) underlying the issue of mortgage-covered bonds, public-covered bonds and internationalisation bonds, as well as the total issued and excess capacity of issue as of December 31, 2017:

Table 84. Mortgage-covered bonds. (Million Euros. 12-31-17)

Withheld	4,088
Withheld applied	4,000
Withheld not applied	88
Issued to Market	16,065
TOTAL MORTGAGE-COVERED BONDS ISSUED	20,153
ELIGIBLE COLLATERAL TO CONSIDER	46,306
Maximum to issue	37,045
CAPACITY TO ISSUE	16,891

Table 85. Public-covered bonds (Million Euros. 12-31-17)

Withheld	9,040
Withheld applied	8,140
Withheld not applied	900
Issued to Market	650
TOTAL PUBLIC-COVERED BONDS ISSUED	9,690
ELIGIBLE COLLATERAL TO CONSIDER	16,395
Maximum to issue	11,477
CAPACITY TO ISSUE	1,787

Table 86. Internationalization-covered bonds. (Million Euros. 12-31-17)

Withheld	1,500
Withheld applied	750
Withheld not applied	750
Issued to Market	-
TOTAL INTERNATIONALIZATION-COVERED BONDS ISSUED	1,500
ELIGIBLE COLLATERAL TO CONSIDER	3,002
Maximum to issue	2,101
CAPACITY TO ISSUE	601

As of December 31, 2017, the assets committed (provided as collateral or security with respect to certain liabilities) and those unencumbered are as follows:

The collateral received that, as of December 31, 2017, are committed (provided as collateral or security with respect to certain liabilities) and those unencumbered are shown below. It should be noted that the value used for the purpose of this disclosure is the carrying amount and fair value, for both the assets on the balance sheet and the encumbered and unencumbered guarantees received. The balances are calculated as annual medians using as a sample the four quarters of the last year.

Table 87. Encumbered and unencumbered Assets (Million Euros. 12-31-17)

	Carrying value of encumbered assets	Fair value of encumbered assets	Carrying value of unencumbered assets	Fair value of unencumbered assets
Institution's assets	116,433		563,742	
Equity instruments	1,916		6,637	
Debt securities	30,600	31,220	70,453	69,833
Of which: covered bonds	3	3	875	863
Of which: ABSs	19	19	1,035	937
Of which: issued by general governments	25,023	25,617	54,522	53,928
Of which: issued by financial corporations	4,134	4,172	9,988	9,950
Of which: issued by non- financial corporations	1,444	1,432	2,655	2,668
Other assets	83,964		489,509	

Table 88. Collateral received (Million Euros. 12-31-17)

	Fair value of encumbered collateral received or own debt securities issued	Fair value of collateral received or own debt securities issued available for encumbrance
Collateral received	20,060	7,960
Loans on demand	-	-
Equity instruments	155	39
Debt securities	19,777	7,832
Of which: covered bonds	168	163
Of which: ABSs	-	-
Of which: issued by general governments	18,566	5,555
Of which: issued by financial corporations	982	2,245
Of which: issued by non- financial corporations	229	65
Loans and advances other than loans on demand	131	11
Other collateral received	-	-
Own debt securities issued other than own mortgage-covered bonds or ABSs	5	83
Own mortgage-covered bonds and ABSs issued and not yet pledged		12,942
TOTAL ASSETS, COLLATERAL RECEIVED AND OWN DEBT SECURITIES ISSUED	137,723	

The sources of pledges as of December 31, 2017 are as follows:

Table 89. Sources of encumbrance (Million Euros. 12-31-17)

	Matching liabilities, contingent liabilities or securities lent	Assets, collateral received and own securities issued other than mortgage-covered bonds, public-covered bonds and ABSs encumbered
Carrying amount of selected financial liabilities	121,422	136,391
Derivatives	12,173	10,567
Repos and other collateralized deposits	86,928	98,839
Debt securities	22,365	27,238
Other sources of encumbrance	540	1,414

The assets without an associated liability reflected in Table C correspond mainly to pledges issued by VISA guarantee and pledges for operating in certain markets. The collateral

received off the balance sheet is mostly reverse repurchase agreements, of which more than 90% are sovereign securities.

3.8. Operational risk

3.8.1. Operational Risk definition

BBVA accepts the definition of Operational Risk proposed by the Bank for International Settlements (BIS) in Basel: *“Operational Risk is risk that may lead to losses caused by human errors, inadequate or faulty internal processes, system failures or external events, including external fraud, natural disasters, and defective service provided by third parties.”* This definition excludes the strategic and/or business risk and the reputational risk (which is managed separately within BBVA Group).

The definition of Operational Risk in BBVA Group includes the following risk types:

- Legal risk: Possibility of being sanctioned, fined or obliged to pay punitive damages as a result of supervisory actions or private agreements between the parties.
- Regulatory compliance linked to compliance issues⁴.
- Risk of external fraud: Risk as a result of the commission of crimes by third persons, whether customers or not.
- Risk of internal fraud: Risk from illegal actions, commission of crimes, disloyalty, abuse of trust, etc., acts of willful misconduct or for gain by members of the entity’s internal staff, as well as the performance of other unauthorised activities.
- Technological risk: Risk arising from faults in the design or implementation of information systems, problems or delays generated in the execution of specific automatic processes, faulty operation of the Host systems or communications (line outages), information losses in backup devices or applications and developments for not responding to user specifications, shortcomings in the security in data processing buildings and in the security of technological infrastructure, etc.
- Supplier risk: Risk originated by shortcomings in the service provided by vendors and subcontracted companies (independent businesses or those whose management is not controlled by the Group).
- Fiduciary risk: As regards the administration of third-party assets - including when it acts as trustee - BBVA Group is exposed to a fiduciary risk arising from its condition of

investment manager for customers and when it provides consultancy services in investment matters. In both cases, with respect to the management of investments on behalf of third parties, it is the customer who takes on the market and credit risks, while the manager or administrator assumes the fiduciary duty of managing in the best interest of the customer. Non-compliance of the fiduciary duty could lead to losses for the Group. Moreover, the distribution of the investment products can lead to a fiduciary risk for the bank.

Operational risk is inherent to all banking activities, products, systems and processes. Its origins could be highly diverse (processes, internal and external fraud, technology, human resources, commercial practices, disasters and suppliers). Operational risk management is integrated into BBVA Group’s global risk management structure.

3.8.2. Operational Risk methodology

The Group has in place an integrated internal control and operational risk methodology.

This methodology identifies risks in organisational areas, generates analyses that prioritise risks according to the estimated residual risk (after incorporating control effects), links risks to processes and establishes an objective risk level for each risk type to identify and manage gaps by comparing it with the residual risk level.

Through its GRM unit Non-Financial Risks establishes the criteria applicable for determining BBVA Group companies in which to implement the operational risk monitoring and management/mitigation tools described in section 3.8.5.2. These criteria are based on both quantitative and qualitative aspects.

The scope of application of the Operational Risk management model revolves around the following elements:

- Company.
- Process: in general, OR originates in the different activities/processes carried out in the Group.
- Business line: because the type of the different operational risks to which the Group is exposed, and their impact, is

4. For BBVA, Risk Compliance is defined as the regulatory and/or reputational risk linked to Compliance Issues. The scope of such issues can vary in time depending on environment (especially regulatory) and business developments. Notwithstanding this, based on the foregoing other matters can be introduced. Whatever the case, the following will be understood as included within the aforementioned issues:

- Conduct on the Markets.
- Treatment of Conflicts of Interest.
- Anti-Money Laundering and Combating Terrorist Financing (AML-CTF).
- Personal Data Protection.

substantially different for each line of business, considering this element is fundamental for effective management of OR.

3.8.3. Model based on 3 lines of defense

Based on best operational risk management practices, BBVA Group has established and maintains an internal control model organised around three lines of defense (3LoD), as well as a governance scheme called Corporate Assurance. The Group's internal control model has two components.

1. The first one is the model based on three lines of defense, which guarantees compliance with the most advanced internal control standards and is organised as follows:

- The Group's business units constitute the first line of defense. They are responsible for managing current and emerging risks and implementing control procedures. It is also responsible for reporting to its business/support unit.
- The second line of defense is made up of the units specializing in control, the main ones being: Compliance, Accounting & Supervisors (Internal Financial Control), Global Risk Management (Internal Risk Control) and Engineering (specifically, Internal Operations Control and IT Control). This line collaborates in identifying current and emerging risks, defines the control policies within the scope of its cross-sector specialty, ensures that they are implemented correctly, and provides training and advice to the first line. In addition, one of its main functions is to monitor and question the control activity carried out by the first line of defense.

The control activity of the first and second line of defense is coordinated by the Internal Risk Control Unit, which will also be responsible for providing these units with a common internal control methodology.

- The third line of defense is made up of the Internal Audit unit, for which the Group assumes the guidelines of the Basel Committee on Banking Supervision and of the Institute of Internal Auditors. Its function is that of an independent and objective assurance and consulting activity designed to add value and improve the Organisation's operations. The duties and lines of work of this unit are described below.
2. The second component is the Corporate Assurance scheme, which has the role of providing a comprehensive and standardised approach to the Board of Directors and the management bodies on the Group's internal control situation. This provides timely information on the main control weaknesses that may arise in the different assurance processes and makes it possible to prioritise

their solution and monitor the implementation of measures for mitigating them more effectively.

To perform its duties, the model is provided with an orderly mechanism for reporting to management. This mechanism involves a number of committees that meet every four months, in which members of the senior management of the Group and its subsidiaries take part. The committees seek to understand control issues and make decisions that will have a significant impact on the objectives of the various units, both at the local level and for the consolidated Group.

Chart 25: Operational risk management framework: Three lines of defense



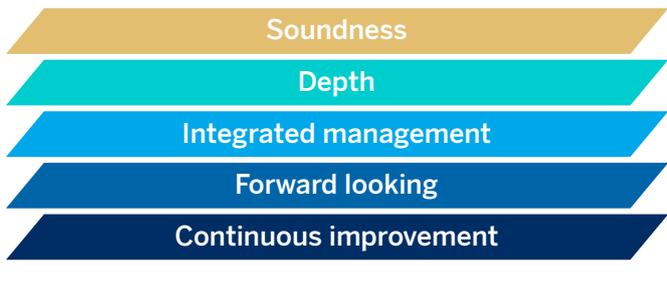
3.8.4. Principles of BBVA's Operational Risk management model

Operational Risk management in BBVA Group must include at least the following:

- Be aligned with the Risk Appetite Framework.
- Anticipate the potential operational risks to which the Group would be exposed as a result of new or modified products, activities, processes or systems or outsourcing decisions and establish procedures to enable their evaluation and reasonable mitigation prior to their implementation.
- Establish methodologies and procedures to enable a regular reassessment of the relevant operational risks to which the Group is exposed in order to adopt appropriate mitigation measures in each case, once the identified risk and the cost of mitigation (cost/benefit analysis) have been considered, while preserving the Group's solvency at all times.

- Identify the causes of the operational losses sustained by the Group and establish measures to reduce them. Procedures must therefore be in place to enable the capture and analysis of the operational events that cause those losses.
- Analyse the events that have caused operational risk losses in other institutions in the financial sector and promote, where appropriate, the implementation of the measures needed to prevent them from occurring in the Group.
- Identify, analyse and quantify events with a low probability of occurrence and high impact which, due to their exceptional nature, may possibly not be included in the losses database or, if they are, have unrepresentative impacts, in order to ensure their mitigation.
- Have effective governance in place in which the functions and responsibilities of the Areas and Bodies involved in OR management are clearly defined.

Table 90. Characteristics of the Operational Risk management model



These principles reflect BBVA Group’s vision of OR, which is based on the premise that the events that occur as a result of OR have an ultimate cause that should always be identified. The control of the causes significantly reduces the impact of

the events. The OR management tools provide information on the origin of OR and assist in its mitigation.

Irrespective of the adoption of all possible measures and controls to prevent or reduce both the frequency and severity of OR events, BBVA ensures that it has sufficient capital at all times to cover the expected or unexpected losses that may arise.

GRM Non-Financial Risks proposes the general policies that guide management and enable control of the Group’s operational risk.

These principles aim to reasonably ensure (cost-benefit analysis) that the relevant operational risks to which the Group is exposed in carrying out its activities are identified, assessed and managed consistently with the Risk Appetite Framework, thus preserving the Group’s solvency.

The OR is managed in BBVA Group from two different and complementary viewpoints:

- The “ex-ante” point of view entails identifying, assessing and prioritizing potential operational risks to enable their mitigation.

From this standpoint, OR is managed in a proactive and preventive way by the Areas and Units exposed. This management is integrated into the day-to-day decision-making process and is focused on the analysis of the causes of OR to enable its mitigation.

- The “ex-post” point of view entails assessing the exposure to OR and measuring its consequences, i.e. the historical cost of the events that have occurred. From this perspective, OR management uses tools associated with the consequences of OR not only to complement OR management, but also to feed the calculation of capital use for those Group areas that operate under advanced OR measurement approaches.

3.8.4.1. Operational Risk admission process

Although strictly speaking there is no true OR admission process, such as the one carried out, for example, in Credit Risk, BBVA Group considers that the assimilation presented in this section is useful for controlling this risk and contributes to its mitigation. The aim of this process is to: anticipate the potential operational risks to which the Group may be exposed as a result of the emergence or modification of new products, activities, processes or systems and outsourcing decisions and ensure that they are implemented only after adopting suitable mitigation measures in each case.

The Group has a specific governance model for OR admission embodied in different Committees that are admission vehicles in the different areas in which the emergence of OR is concentrated: new businesses, new products, systems, outsourcing decisions, etc.

3.8.4.2. Operational Risk monitoring and management/ mitigation tools

3.8.4.2.1. Risk and Control Self-Assessment

An appropriate management of OR requires the establishment of methodologies and procedures to identify, assess and follow this risk type, in order to implement suitable mitigation measures in each case.

This will be done by comparing the level of risk assumed and the cost of mitigation.

BBVA Group's OR management methodology has the following phases:

- Establishment of the model's perimeter, identifying the companies and activities that may give rise to significant OR. These companies and activities are associated with their processes using the taxonomy established by the Group. The processes are the starting point for identifying the OR factors.
- Identification of potential and real OR factors based on the review of the processes, applying self-assessment techniques that are completed and checked against other relevant information.
- Prioritisation of the OR factors through the calculation of the inherent risk: estimation of the exposure to risk in an adverse and conservative environment without considering the existence of possible controls. Prioritisation is used to separate the critical factors from the non-critical ones by applying cut-off points.
- For critical risks, the controls that contribute to their reduction are identified, documented and tested, and based on their effectiveness the residual risk (which incorporates the reducing effect of the controls, where applicable) is calculated.

- A specific target is set for each critical risk that constitutes the level of risk considered acceptable. In those risks in which the residual risk is higher than the target risk there is a gap between both that requires that the risk be mitigated through a mitigation plan.

The aim is to have an evolving and dynamic OR management model that reflects the essential aspects of this risk's situation at any given time.

OR management is coordinated with other risks, considering the credit or market consequences that may have an operational origin.

3.8.4.2.2. Operational Risk indicators

Dynamic management of OR requires not only a regular self-assessment of OR, but also the definition of a set of indicators to enable the changes in both the risk factors and the effectiveness of the controls to be measured over time, in order to have available information on unexpected changes and enable preventive management of Operational Risk.

The Group has a set of indicators in the different business and support areas that allow it to carry out an anticipatory management of risk.

3.8.4.2.3. Operational losses database

In line with the best practices and recommendations of the BIS, BBVA has procedures in place for collecting operational losses that occur both in the different Group entities and in other financial groups (ORX losses database, ORX News service, etc).

Internal operational losses database - SIRO

This tool collects the accounting losses associated with OR events, through automatic interfaces with accounting and applications for expenses and manual capture procedures. The losses are captured with no amount limit and constitute an input for calculating the capital use for OR in advanced measurement approaches and a reference for the Risk and Control Self Assessment, and are analysed on a regular basis in terms of trends and monitoring of expected losses.

External operational losses database - ORX

The Bank, together with other leading entities worldwide, subscribed with the ORX consortium, as a founding partner, the creation of an external database for anonymously exchanging information related to operational events.

This consortium provides both quantitative and qualitative information on the operational events experienced by the member entities. The information obtained through this means is used both to identify potential ORs and analyse

whether appropriate mitigation measures are available, and for the purpose of calculating capital using advanced measurement approaches.

3.8.4.2.4. Operational Risk scenarios

These reflect the exposure to a limited number of situations that may give rise to very significant losses with a reduced estimated frequency of occurrence. The scenarios feed the capital calculation in those Group areas that operate under advanced measurement approaches, and also constitute a reference for OR management.

3.8.4.3. Mitigation plans

Mitigation means reducing the level of exposure to OR. Even though there is always the option of eliminating OR by exiting a given activity, the Group's policy is to attempt to mitigate the risk first by improving the control environment or applying other measures, conducting a rigorous cost-benefit analysis. The different forms of mitigation always have associated costs. It is therefore essential to assess the cost of the OR properly before making a decision.

As long as the residual risk exceeds the defined target risk level, mitigation measures will need to be established to keep it within the level. The area responsible for OR will drive its implementation through the Operational Risk Management Committee.

3.8.5. Methods used

As set out in Regulation (EU) 575/2013 of the European Parliament and of the Council, for calculating the regulatory capital for operational risk under Basel I, Advanced Measurement Approaches (AMA) are used for a very significant part of the banking perimeter. Specifically, this method is used in Spain and Mexico, which accumulate most of the Group's assets.

In March 2010, BBVA Group received authorisation from the supervisor to apply advanced approaches for calculating regulatory capital by operational risk in Spain and Mexico.

Except for the cases of Garanti and Bolivia, for which the basic approach is applied, the standardised approach is used to calculate capital in the rest of the geographic areas.

3.8.5.1. Description of the Advanced Measurement Approaches

The advanced internal model quantifies capital at a confidence level of 99.9% following the LDA (Loss Distribution

Approach) methodology. This methodology estimates the distribution of losses by operational event by convoluting the frequency distribution and the loss given default distribution of these events.

The calculations are made using internal data on the Group's historic losses as its main source of information. To enrich the data from this internal database and to take into account the impact of possible events not yet considered therein, external databases (ORX consortium) are used and the scenarios indicated in point 3.8.5.2.4 are included.

The distribution of losses is constructed for each of the different types of operational risk, which are defined as per Basel Accord cells; i.e. a cross between business line and risk type. In those cases in which there is not sufficient data for a sound analysis, it becomes necessary to undertake cell aggregations, and to do so the business line is chosen as the axis.

In certain cases, a greater disaggregation of the Basel cell has been selected. The objective consists of identifying statistically homogenous groups and a sufficient amount of data for proper modeling. The definition of these groupings is regularly reviewed and updated.

Solvency regulations establish that regulatory capital for operational risk is determined as the sum of individual estimates by type of risk, but allowing the option of incorporating the effect of the correlation among them. This impact has been taken into consideration in BBVA estimates with a conservative approach.

The model of calculating capital in both Spain and Mexico incorporates factors that reflect the business environment and situation of internal control systems. Thus the calculation obtained is higher or lower according to how these factors change in anticipating the result.

The Group has insurance policies that basically cover the risk of cyberattacks, natural and/or provoked disasters and external and internal fraud. For the purpose of calculating capital by the AMA the mitigating effect of the insurance contracted is not included.

The following table below shows the operational risk capital requirements broken down according to the calculation models used and by geographic area, to provide a global vision of capital consumption for this type of risk:

Table 91. Regulatory capital for Operational Risk (Million Euros)

Regulatory capital for operational risk	Capital requirements		RWAs	
	2017	2016	2017	2016
Advanced	1,476	1,368	18,449	17,098
Spain	1,181	1,040	14,767	12,998
Mexico	295	328	3,682	4,100
Standardised	808	862	10,102	10,775
Basic	496	516	6,204	6,450
BBVA Group total	2,780	2,746	34,755	34,323

The main variations in the capital requirements for operational risk are due to:

- Advanced approaches: Increase of 181 million in Spain, basically due to the greater impact of the losses registered following the judgment in 2016 of the Court of Justice of the European Union referring to the application of floor clauses in mortgage loans. Reduction of 34 million in Mexico resulting from exchange-rate variations.
- Non-advanced approaches: Declines in the standard and basic approaches produced by the exchange-rate variations.

3.8.6. The Group's Operational Risk profile

BBVA's operational risk profile is shown below by class of risk after assessing the risks, resulting in the following distribution:

Chart 26: BBVA Group's Operational Risk profile



The following charts illustrate the distribution of historical operational losses by risk class and country.

Chart 27: Operational Risk profile by risk and country

