3. Risks

3.1. General Risk Management and Control Model

The BBVA Group has an overall risk management and control model (hereinafter 'the model') tailored to its business model, its organization and the geographies in which it operates, This model allows BBVA Group to develop its activity in accordance with the risk strategy and risk controls and management policies defined by the governing bodies of the Bank and to adapt to a changing economic and regulatory environment, tackling risk management globally and adapted to the circumstances at all times. The model establishes a system of appropriate risk management regarding risk profile and strategy of the Group.

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

- Governance and organization
- Risk Appetite Framework
- Decisions and processes
- Assessment, monitoring and reporting
- Infrastructure

The Group promotes the development of a risk culture that ensures consistent application of the risk management and control model in the Group, and that guarantees that the risk function is understood and assimilated at all levels of the organization.

3.1.1. Governance and organization

BBVA Group´s risk governance model is characterized by a special involvement of its corporate bodies, both in setting the risk strategy and in the ongoing monitoring and supervision of its implementation.

Thus, as developed below, the corporate bodies are the ones that approve this risk strategy and corporate policies for the different types of risk. The risk function is responsible at management level for their implementation and development, and reporting to the governing bodies.

The responsibility for the daily management of the risks lies on the businesses which abide in the development of their activity to meet the policies, rules, procedures, infrastructures and controls, which are defined by the function risk on the basis of the framework set by the governing bodies.

To perform this task properly, the risk function in the BBVA Group is configured as a single, global function with an independent role from commercial areas.

3.1.1.1. Corporate bodies

The BBVA Board of Directors (hereinafter also referred to as "the Board") approves the risk strategy and oversees the internal management and control systems. Specifically, in relation to the risk strategy, the Board approves the Group's risk appetite statement, the core metrics (and their statements) 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 budget 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 reason, the processes for defining the Risk Appetite Framework proposals and the strategic and budgetary planning at Group level are coordinated by the executive areas 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 approves the metrics by type of risk in relation to profitability and income recurrence and the Group's basic structure of 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, that assists the Board and the Executive Committee in determining the Group's risk strategy and the risk limits and policies, respectively, analysing and assessing beforehand the proposals submitted to those bodies. In 2018, the Risk Committee has held 21 meetings and 20 meetings are planned for 2019.

The Board of Directors has the exclusive authority to amend the Group's risk strategy and its elements, including the Risk Appetite Framework metrics within its scope of decision, 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 (core 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 (Chief Risk Officer, "CRO") and analysed 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 and to the Executive Committee, after their analysis by the Risk Committee, whose role in this monitoring and control work is particularly relevant.

3.1.1.2. The risk function: CRO. Committees organization and structure

The head of the risk function at executive level is the Group's CRO, who carries out his functions independently and with the necessary authority, rank, experience, knowledge and resources. He is appointed by the Board as a member of its senior management and has direct access to its corporate bodies (Board, Executive Standing Committee and Risk Committee), to whom he reports regularly on the status of risks in the Group.

The CRO is supported in the exercise of his functions by a structure consisting of cross-sectional risk units in the corporate area and the specific risk units in the geographical and/or business areas of the Group. Each of the latter units is headed by a Chief Risk Officer for the geographical and/or business area who, within his/her area of responsibility, carries out risk management and control functions and is responsible for applying the corporate policies and rules approved at Group level in a consistent manner, adapting them if necessary to local requirements and reporting to the local corporate bodies.

The Chief Risk Officers of the geographical and/or business areas report both to the Group's CRO and to the head of their geographical and/or business area. The aim of this dual reporting system is to ensure that the local risk management function is independent from the operating functions and enable its alignment with the Group's corporate risk policies and goals.

As explained above, the risk management function consists of risk units from the corporate area, which carry out cross-sectional functions, and risk units from the geographical and/or business areas.

- The corporate area's risk units develop and submit to the Group CRO the proposal for the Group's Risk Appetite Framework, the corporate policies, rules and global procedures and infrastructures within the framework approved by the corporate bodies; they ensure their application and report either directly or through the 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.
  - Prospective analyses to enable an evaluation of compliance with the risk appetite framework in stress scenarios and the analysis of risk mitigation mechanisms.
  - Management of the technological and methodological developments required for implementing the Model in the Group.
  - Design of the Group's Internal 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 business units develop and present 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. They also ensure that the corporate policies and rules are approved and applied consistently at a Group level, adapting them if necessary to local requirements; that they are provided with appropriate infrastructures for management and control of their risks, within the global risk infrastructure framework defined by the corporate areas; and that they report to their corporate bodies and/or to senior management, as appropriate.

The local risk units thus work with the corporate area risk units in order to adapt to the risk strategy at Group level and share all the information necessary for monitoring the development of their risks.

The risk function has a decision-making process to perform its functions, underpinned by a structure of committees, where the Global Risk Management Committee (GRMC) acts as the top-level committee within the risk function. It proposes, examines and, where applicable, approves, among others, the internal risk regulatory framework and the procedures and infrastructures needed to identify, assess, measure and manage the material risks faced by the Group in carrying out its business, and the determination of risk limits by portfolio. The members of this Committee are the Group's CRO, the Heads of the main Areas of the GRM Front, the Heads of GRM Corporate Discipline Units and the Head of Risk Management Group of GRM.

The GRMC carries out its functions assisted by various support committees which include:

- Global Credit Risk Management Committee: it is responsible for analysing and decision-making related to wholesale credit risk admission.

- Wholesale Credit Risk Management Committee: its purpose is the analysis and decision-making regarding the admission of wholesale credit risk of certain customer segments of the BBVA Group.

- Work Out Committee: its purpose is to be informed about decisions taken under the delegation framework regarding risk proposals concerning clients on Watch List and clients classified as NPL of certain customer segments of the BBVA Group, as well the sanction of proposals regarding entries, exits and changes of Watch List, entries and exits in non-performing unlikely to pay and turns to written off.

- Asset Allocation Committee: the executive authority responsible for analyzing and deciding on credit risk issues related to processes aimed at achieving a portfolios combination and composition that, under the restrictions imposed by the Risk Appetite framework, allows to maximize the risk adjusted return on equity.

- Risk Models Management Committee: it ensures an appropriate decision-making process regarding the planning, development, implementation, use, validation and monitoring of the models required to achieve an appropriate management of the Model Risk in the BBVA Group.

- Global Market Risk Unit Global Committee (CGGMRU): it is responsible for formalizing, supervising and communicating the monitoring of trading desk risk in all the Global Markets business units, as well as coordinating and approving GMRU key decisions activity, and developing and proposing to GRMC the corporate regulation of the unit.

- Corporate Committee on Admission of Operational Risk and Product Governance: it identifies, analyzes and assesses the operational risks associated initiatives related with new business, products or services, outsourcing, process transformation and new systems, prior to its launch. As well, it will verify that Product Governance normative requirements are met and will decide about the insurance scheme (global policies).

- Retail Credit Risk Committee: it ensures for the analysis, discussion and decision support on all issues regarding the retail credit risk management that impact or potentially do in the practices, processes and corporate metrics established in the Policies, Rules and Operating Frameworks.

- Asset Management Global Risk Steering Committee: its purpose is to develop and coordinate the strategies, policies, procedures, and infrastructure necessary to identify, assess, measure and manage the material risks facing the bank in the operation of businesses linked to BBVA Asset Management.

- Global Insurance Risk Committee: its purpose is to guarantee and promote the alignment and the communication between all the Insurance Risk Units in the BBVA Group. It will do this by promoting the application of standardized principles, policies, tools and risk metrics in the different regions with the aim of maintaining proper integration of insurance risk management in the Group.

- Operations Committee (COPOR): its purpose is to analyse and make decision in relation to the operations of the various geographies in which Global Markets is present.

Each geographical and/or business area has its own risk management committee (or committees), with objectives and contents similar to those of the corporate area, which perform their duties consistently and in line with corporate risk policies and rules, whose decisions are reflected in the corresponding minutes.

Under this organizational scheme, the risk management function ensures that the risk strategy, the regulatory framework, and standardized risk infrastructures and controls are integrated and applied across the entire Group. It also benefits from the knowledge and proximity to customers in each geographical and/or business area, and transmits the corporate risk culture to the Group's different levels. Moreover, this organization enables the risks function to conduct and report to the corporate bodies 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 that there is an adequate internal regulatory framework, a process and measures defined for each type of risk identified in the Group (and for those other types of risk that may potentially affect the Group). It controls their application and operation, as well as ensuring integration of the risk strategy into the Group's management. In this regard, the Internal Risk Control unit verifies the performance of their duties by the units that develop the risk models, manage the processes and execute the controls. Its scope of action is global, from the geographical point of view and the type 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 CRO and to the Board's Risks Committee, assisting it in any matters where requested. For these purposes the Internal Risk Control department has a Technical Secretary's Office, which offers the Committee the technical support it needs to better perform its duties.

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 management and control of risks in the Group.

3.1.2. Risk Appetite Framework

The Group's Risk Appetite Framework, approved by the corporate bodies, determines the risks (and their level) that the Group is willing to assume to achieve its business objectives considering an organic evolution of its business. These are expressed in terms of solvency, profitability and liquidity and funding, which are reviewed periodically as well as in case of material changes to the entity's business or relevant corporate transactions. The definition of the risk appetite has the following goals:

- To express the maximum levels of risk it is willing to assume, at both Group and geographical and/or business area level.
- To establish a set of guidelines for action and a management framework for the medium and long term that prevent actions from being taken (at both Group and geographical and/or business area level) that could compromise the future viability of the Group.
- To establish a framework for relations with the geographical and/or business areas that, while preserving their decision-making autonomy, ensures they act consistently, avoiding uneven behavior.
- To establish a common language throughout the organization and develop a compliance-oriented risk culture.
- Alignment with the new regulatory requirements, facilitating communication with regulators, investors and other stakeholders, thanks to an integrated and stable risk management framework.

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 2018 is as follows:

  BBVA Group's Risk Policy is aimed to promote a multichannel and responsible universal banking model, based on principles, targeting sustainable growth, risk adjusted profitability and recurrent value creation. To achieve these objectives, the Risk Management Model is oriented to maintain a moderate risk profile that allows the Group to keep strong financial fundamentals in adverse environments preserving our strategic goals, maintaining a prudent management, an integral view of risks, and a portfolio diversification by geography, asset class and client segment, focusing on keeping a long term relationship with our customers.

- **Core metrics:** based on the risk appetite statement, statements are established to set down the general risk management principles in terms of solvency, liquidity and funding, profitability and income recurrence.

  - 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 the access to the different funding markets, optimizing the costs and preserving a cushion of liquid assets to overcome a liquidity survival period under stress scenarios.
  - Profitability and revenue recurrence: A sound margin-generation capacity supported by a recurrent business model based on the diversification of assets, a stable funding and a customer focus; combined with a moderate risk profile that limits the credit losses even under stress situations; all focused on allowing income stability and maximizing the risk-adjusted profitability.

The core metrics define, in quantitative terms, the principles and the target risk profiles set out in the risk appetite statement and are in line with the strategy of the Group. Each metric has three thresholds (traffic-light approach) ranging from a standard business management to higher deterioration levels: Management reference, Maximum appetite and Maximum capacity. BBVA Group's core metrics in 2018 are those specified in the following chart:

Chart 5: BBVA Group's Core Metrics

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

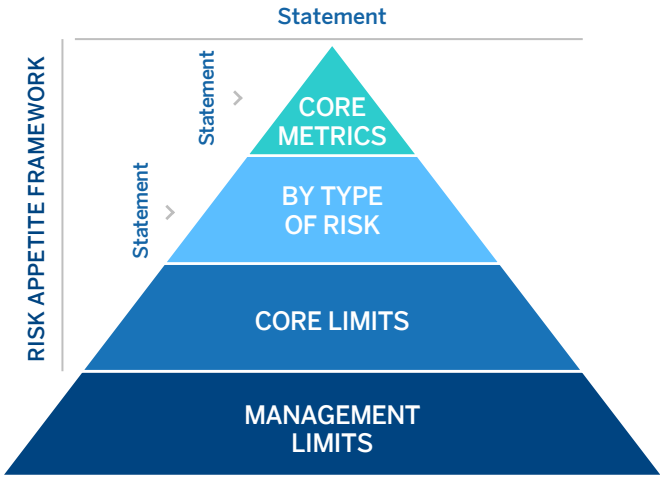
- **Metrics by type of risk:** based on the core metrics, statements are established for each type of risk reflecting the main principles governing the management of that risk and several metrics are calibrated, compliance with which enables compliance with the core metrics and the risk appetite statement of the Group. The metrics by type of risk have a maximum appetite threshold.

- **The basic structure of limits (Core limits):** the purpose of the basic limits structure or core limits is to shape the Risk Appetite Framework at geographical area risk type, asset type and portfolio level, ensuring that the management of risks on an ongoing basis is within the thresholds set forth for by type of risk.

In addition to this framework, there's a level of management limits that is defined and managed by the risk function developing the core limits, in order to ensure that the anticipatory management of risks by subcategories or by subportfolios complies with that core limits and, in general, with the Risk Appetite Framework.

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

Chart 6: Scheme of BBVA Group Risk Appetite Framework



The corporate risk area works with the various geographical and/or business areas to define their risk appetite framework, which will be coordinated with and integrated into the Group's risk appetite to ensure that its profile fits as defined.

The Risk Appetite Framework is integrated into the management and the processes for defining the Risk Appetite Framework proposals and strategic and budgetary planning at Group level are coordinates.

As explained above, the core metrics of BBVA Risk Appetite Framework measure Groups performance in terms of solvency, liquidity and funding, profitability and income recurrence; most of the core metrics are accounting related or regulatory metrics which are published regularly to the market in the BBVA Group annual report and in the quarterly financial reports. During 2018, the Group risk profile evolved in line with the Risk Appetite metrics.

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. Standardized regulatory framework

The corporate risk area is responsible for the definition and proposal of the corporate policies, specific rules, procedures and schemes of delegation based on which risk decisions should be taken within the Group.

This process aims for the following objectives:

- Hierarchy and structure: well-structured information through a clear and simple hierarchy creating relations between documents that depend on each other.

- Simplicity: an appropriate and sufficient number of documents.

- Standardization: a standardized name and content of document.

- Accessibility: ability to search for, and easy access to, documentation through the corporate risk management library.

The approval of corporate policies for all types of risks is the responsibility of the corporate bodies of the Bank, while the corporate risk area endorses the remaining regulations.

Risk units of geographical and / or business areas comply with this set of regulations and, where necessary, adapt it to local requirements for the purpose of having a decision process that is appropriate at local level and aligned with the Group policies. If such adaptation is necessary, the local risk area must inform the corporate area of GRM, who must ensure the consistency of the regulatory body at the Group level and, therefore, if necessary, give prior approval to the modifications proposed by the local risk areas.

3.1.3.2. Risk planning

Risk planning ensures that the risk appetite framework is integrated into management through a cascade process for establishing limits and profitability adjusted to the risk profile, in which the function of the corporate area risk units and the geographical and/or business areas is to guarantee the alignment of this process with the Group's Risk Appetite Framework in terms of solvency, liquidity and funding, profitability and income recurrence.

There are tools in place that allow the Risk Appetite Framework defined at aggregate level to be assigned and monitored by business areas, legal entities, types of risk, concentrations and any other level considered necessary.

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

3.1.3.3. Comprehensive management

All risks must be managed comprehensively during their life cycle, and be treated differently depending on the type.

The risk management cycle is composed of five 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.
- Formalization: includes the risk origination, approval and formalization 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 existing portfolios and new markets, businesses and products.

3.1.4. Assessment, monitoring and reporting

Assessment, monitoring and reporting is a cross-cutting element that ensure the Model has a dynamic and proactive vision to enable compliance with the risk appetite framework approved by the corporate bodies, even in adverse scenarios. The materialization of this process has the following objectives:

- Assess compliance with the risk appetite framework at the present time, through monitoring of the core metrics, metrics by type of risk and the basic structure of limits.
- Assess compliance with the risk appetite framework in the future, through the projection of the risk appetite framework variables, in both a baseline scenario determined by the budget and a risk scenario determined by the stress tests.
- Identify and assess the risk factors and scenarios that could compromise compliance with the risk appetite framework, through the development of a risk repository and an analysis of the impact of those risks.
- Act to mitigate the impact in the Group of the identified risk factors and scenarios, ensuring this impact remains within the target risk profile.
- Supervise the key variables that are not a direct part of the risk appetite framework, but that condition its compliance. These can be either external or internal.

This process is integrated in the activity of the risk units, both of the corporate area and in the business units, and it is carried out during the following phases:

- Identification of the risk factors that can compromise the performance of the Group or of the geographical and/or business areas in relation to the defined risk thresholds.
- Assessment of the impact of the materialization of the risk factors on the metrics that define the Risk Appetite Framework based on different scenarios, including stress scenarios.
- Response to unwanted situations and proposals for readjustment to enable a dynamic management of the situation, even before it takes place.
- Monitoring of the Group's risk profile and of the identified risk factors, through internal, competitor and market indicators, among others, to anticipate their future development.
- Reporting: Complete and reliable information on the development of risks for the corporate bodies and senior management, with the frequency and completeness appropriate to the nature, significance and complexity of the reported risks. The principle of transparency governs al reporting of risk information.

3.1.5. Infrastructure

The infrastructure is an element that must ensure that the Group has the human and technological resources needed for effective management and supervision of risks in order to carry out the functions set out in the Group's risk Model and the achievement of their objectives.

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

With regards to technology, the Group risk function ensures the integrity of management information systems and the provision of the infrastructure needed for supporting risk management, including tools appropriate to the needs arising from the different types of risks for their admission, management, assessment and monitoring.

The principles that govern the Group risk technology are:

- Standardization: the criteria are consistent across the Group, thus ensuring that risk handling is standardized at geographical and/or business area level.
- Integration in 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: provision of adequate information at the right time.

Through the "Risk Analytics" function, the Group has a corporate framework in place for developing the measurement techniques and models. It covers all the types of risks and the different purposes and uses a standard language for all the activities and geographical/business areas and decentralized execution to make the most of the Group's global reach. The aim is to continually evolve the existing risk models and generate others that cover the new areas of the businesses that develop them, so as to reinforce the anticipation and proactiveness that characterize the Group's risk function.

Also the risk units of geographical and / or business areas have sufficient means from the point of view of resources, structures and tools to develop a risk management in line with the corporate model.

3.1.6. Risk culture

The BBVA Group promotes the development of a risk culture based on the observance and understanding of values, attitudes, and behaviors that allow the compliance with the regulations and frameworks that contribute to an appropriate risk management.

At BBVA the Risk Governance Model is characterized by a special involvement of social bodies, as they define the risk culture that permeates the rest of the organization and has the following main elements:

- Our Purpose which defines our reason to be and with our values and behaviors guide the performance of our organization and the people who are part of it.
- The Risk Appetite Framework which determines the risks and levels of risks that the Group is willing to assume in order to fulfill its goals.
- The Code of Conduct establishes the behavior guidelines that we must follow to adjust our behavior to the BBVA values.

The Risk Culture at BBVA is based on these levers:

- Communication: the BBVA Group promotes the dissemination of the principles and values that should govern the conduct and risk management in a comprehensive and consistent manner. To do this, the most appropriate channels of communication are used, to allow for the Risk culture to be integrated into the business activities at all levels of the organization.
- Training: the BBVA Group favors the understanding of the values, risk management model, and the code of conduct in all scenarios, ensuring standards in skills and knowledge.
- Motivation: the BBVA Group aims to define incentives for BBVA employees that support the risk culture at all levels. Among these incentives, the role of the Compensation policy and incentive programs stand out, as well as implementation of risk culture control mechanisms, including the complaint channels and the disciplinary committees.
- Monitoring: the BBVA Group pursues at the highest levels of the organization a continuous evaluation and monitoring of the risk culture to guarantee its implementation and identification of areas for improvement.

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 materialized, 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, analysing 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

The impairment accounting impairment model is applied to financial assets valued at amortized cost and to financial assets measured at fair value with changes in accumulated other comprehensive income, except for investments in equity instruments and contracts for financial guarantees and loan commitments unilaterally revocable by BBVA. Likewise, all financial instruments measured at fair value with change through profit or loss are excluded from the impairment model.

For more information about the accounting impairment model, and other accounting definitions (according to article 442 of CRR), refer to note 2.2.1 of the Group's Consolidated Financial Statements.

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 loans and receivables 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), securitisation credit risk (section 3.2.7), and structural risk in the equity portfolio (section 3.4).

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 standardized and advanced measurement approaches as of December 31, 2018 and December 31, 2017 (including counterparty risk):

Table 11. Credit Risk exposure (Million Euros. 12-31-18)

Exposure Class	Original Exposure (1)	Provisions	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	122,473	(33)	122,440	138,637	4,893	143,530	139,186	30,560	22%
Regional governments or local authorities	10,208	(23)	10,184	6,419	485	6,904	6,649	1,416	21%
Public sector entities	991	(9)	982	1,759	132	1,890	1,810	714	39%
Multilateral development banks	265	()	265	453	24	477	453	10	2%
International organisations	-	-	-	-	-	-	-	-	-
Institutions	35,874	(14)	35,859	17,441	13,618	31,059	19,315	6,203	32%
Corporates	125,314	(1,181)	124,133	75,549	41,762	117,311	91,400	89,481	98%
Retail	86,939	(1,722)	85,217	50,062	30,743	80,805	52,465	36,768	70%
Secured by mortgages on immovable property	40,917	(302)	40,615	40,389	145	40,534	40,458	15,466	38%
Exposures in default	8,609	(4,649)	3,960	3,367	449	3,816	3,612	4,159	115%
Exposures associated with particularly high risk	1,168	(51)	1,117	1,101	1	1,102	1,101	1,652	150%
Covered bonds	-	-	-	-	-	-	-	-	-
Claims on institutions and corporates with a short-term credit assesment	3	()	3	3	-	3	3	2	66%
Collective investments undertakings	76	(1)	75	45	24	69	57	57	100%
Other exposures	18,100	(36)	18,064	27,502	1,727	29,229	28,452	11,229	39%
Securitisation exposures	4,623	-	4,623	4,623	-	4,623	4,623	950	21%
Total standardised approach	**455,561**	**(8,022)**	**447,539**	**367,348**	**94,003**	**461,351**	**389,584**	**198,665**	**51%**
Central governments or central banks	10,698	(5)		12,213	495	12,708	12,459	677	5%
Institutions	100,329	(58)		76,740	5,523	82,263	79,992	5,366	7%
Corporates	135,616	(2,176)		75,295	58,254	133,549	103,991	55,513	53%
Corporates (SMEs)	19,894	(1,103)		14,530	3,766	18,297	16,231	11,877	73%
Corporates: Specialised lending	7,706	(73)		7,304	403	7,706	7,536	6,330	84%
Corporates: Others	108,016	(999)		53,461	54,085	107,545	80,224	37,305	47%
Retail	118,211	(2,660)		97,055	21,065	118,120	101,011	19,667	19%
Of which: garantizados con bienes inmuebles	81,472	(1,330)		76,963	4,484	81,446	77,186	7,385	10%
Of which: Secured by mortgages on immovable property	22,167	(584)		6,525	15,642	22,167	9,682	6,938	72%
Of which: Others	14,571	(745)		13,568	939	14,507	14,142	5,344	38%
Retail: Other SMEs	4,132	(281)		3,240	840	4,079	3,746	1,752	47%
Retail: Other Non-SMEs	10,440	(464)		10,328	100	10,427	10,396	3,592	35%
Securitisation exposures	5,593	-		5,382	-	5,382	5,382	1,673	31%
Total IRB approach	**370,447**	**(4,898)**		**266,685**	**85,336**	**352,021**	**302,834**	**82,895**	**27%**
Total credit risk dilution and delivery	**826,008**	**(12,920)**	**447,539**	**634,033**	**179,340**	**813,373**	**692,418**	**281,560**	**41%**
Equity	6,822	-		6,822	-	6,822	6,822	15,246	223%
Simple Approach	3,238	-		3,238	-	3,238	3,238	8,085	250%
Not listed instruments in sufficiently diversified portfolios	2,974	-		2,974	-	2,974	2,974	7,277	245%
Listed in exchange-traded markets	263	-		263	-	263	263	809	307%
PD/LGD Approach	3,201	-		3,201	-	3,201	3,201	5,989	187%
Intern Models	383	-		383	-	383	383	1,172	306%
Total credit risk	**832,829**	**(12,920)**	**447,539**	**640,855**	**179,340**	**820,194**	**699,240**	**296,805**	**42%**

(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. Equity exposure is presented net of impairment

(4a)(4b) Eligible credit mitigation techniques are included, either on-balance or off-balance, according to Chapter 4 of CRR. For securitization exposures, includes credit risk mitigation by personal waranties

(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. 12-31-17)

Exposure Class	Original Exposure (1)	Provisions	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	-	-
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	-	-	-	-	-	-	-	-	-
Claims on institutions and corporates with a short-term credit assesment	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)	7,798	-		7,798	-	7,798	7,798	16,775	215%
Simple Approach	3,881	-		3,881	-	3,881	3,881	9,562	246%
Not listed instruments in sufficiently diversified portfolios	3,705	-		3,705	-	3,705	3,705	8,989	243%
Listed in exchange-traded markets	176	-		176	-	176	176	573	327%
PD/LGD Approach	3,390	-		3,390	-	3,390	3,390	4,953	146%
Intern Models	527	-		527	-	527	527	2,261	429%
Total credit risk	**833,242**	**(13,884)**	**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 the Standardised approach. Equity exposure is presented net of impairment

(4a)(4b) Eligible credit mitigation techniques are included, either on-balance or off-balance, according to Chapter 4 of CRR. For securitization exposures, includes credit risk mitigation by personal waranties

(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)

(7) Equity exposure as of December, 31, 2017, includes the impairment of Telefónica, S.A. for an amount of 1,123 million euros

3.2.3.2. Average value of the exposures during 2018 and 2017

The table below shows the average value of exposure to credit risk in 2018 and 2017, for both the advanced measurement and standardized approaches for each one of the exposure categories:

Table 12. EU CRB-B – Total and average net amount of exposures (including counterparty credit risk) (Million Euros)

	12-31-18		12-31-17	
	Net value of exposures at the end of the period (4Q) (1)	Average net exposures over the period	Net value of exposures at the end of the period (4Q) (1)	Average net exposures over the period
Central governments or central banks	10,693	7,461	6,813	5,591
Institutions	100,271	96,062	97,056	88,605
Corporates	133,440	131,251	130,564	131,251
Of which: Specialised lending	7,633	8,305	9,216	10,075
Of which: SMEs	18,790	15,952	16,195	16,367
Retail	115,551	115,232	115,408	116,630
Secured by real estate property	80,142	81,180	83,174	84,417
Qualifying revolving	21,583	21,248	20,098	21,090
Other retail	13,826	12,804	12,136	11,123
SMEs	3,851	3,648	3,659	3,325
Non-SMEs	9,975	9,156	8,477	7,797
Equity	6,822	7,068	7,798	8,217
Total IRB approach	**366,777**	**357,074**	**357,639**	**350,294**
Central governments or central banks	122,440	115,638	122,356	122,111
Regional governments or local authorities	10,184	10,289	10,133	7,718
Public sector entities	982	953	1,552	2,849
Multilateral development banks	265	131	93	101
International organisations	0	1	1	2
Institutions	35,859	32,090	22,159	25,831
Corporates	124,133	125,610	130,461	130,715
Of which: SMEs	21,890	20,285	21,002	22,061
Retail	85,217	90,028	91,527	87,309
Of which: SMEs	26,558	29,031	24,258	26,000
Secured by mortgages on immovable property	40,615	44,530	49,545	52,696
Of which: SMEs	3,495	5,983	9,009	9,161
Exposures in default	3,960	3,911	5,108	4,973
Exposures associated with particularly high risk	1,117	2,041	2,489	2,602
Covered bonds	-	-	-	-
Claims on institutions and corporates with a short-term credit assesment	3	8	25	197
Collective investments undertakings	75	72	34	86
Equity exposures	-	-	-	-
Other exposures	18,064	19,844	21,166	22,492
Total standardised approach	**442,917**	**445,143**	**456,649**	**459,681**
Total	**809,694**	**802,217**	**814,288**	**809,976**

(1) The table above shows original exposure net of credit risk adjustments and CCR reported in COREP statements of Credit Risk and Equity excluding securitisation exposures.

3.2.3.3. Distribution by geographic area

The following table shows the distribution by geographic areas of the original exposure net of provisions, by the obligor's country. The distribution includes exposure to credit and counterparty risk, as well as the equity exposures.

Table 13. EU CRB-C – Geographical breakdown of exposures (including counterparty credit risk) (Million Euros. 12-31-18)

	Net OE of provisions [2]							
Exposure Class [1]	Spain	Turkey	Eurasia	Mexico	USA	South America	Other areas	Total
Central governments or central banks	11	0	(0)	130	4,958	447	5,146	10,693
Institutions	41,262	12	51,824	458	3,100	719	2,896	100,271
Corporates	59,773	508	32,082	20,429	12,889	2,008	5,752	133,440
Retail	99,329	2	431	15,526	40	72	152	115,551
Equity	4,804	56	381	800	292	361	127	6,822
Total IRB approach	**205,177**	**577**	**84,718**	**37,344**	**21,280**	**3,607**	**14,073**	**366,777**
Central governments or central banks	64,761	14,408	9,621	18,078	6,968	8,519	85	122,440
Regional governments or local authorities	53	33	103	2,342	7,486	168	-	10,184
Public sector entities	0	35	0	200	0	747	-	982
Multilateral development banks	-	-	169	-	-	96	-	265
International organisations	0	0	0	-	-	-	-	0
Institutions	11,694	2,446	7,718	7,576	2,157	3,580	689	35,859
Corporates	7,259	26,299	5,813	14,024	50,243	19,172	1,323	124,133
Retail	12,989	22,005	2,063	14,197	17,036	16,895	32	85,217
Secured by mortgages on immovable property	3,586	4,738	2,386	9,555	10,719	9,525	107	40,615
Exposures in default	662	1,449	218	342	585	699	5	3,960
Exposures associated with particularly high risk	113	110	0	363	199	332	-	1,117
Covered bonds	-	-	-	-	-	-	-	-
Claims on institutions and corporates with a short-term credit assesment	0	-	-	0	-	3	-	3
Collective investments undertakings	8	-	24	0	32	-	12	75
Equity exposures	-	-	-	-	-	-	-	-
Other exposures	5,990	2,002	383	4,722	2,089	2,879	(0)	18,064
Total standardised approach	**107,115**	**73,525**	**28,499**	**71,399**	**97,513**	**62,614**	**2,253**	**442,917**
Total	**312,292**	**74,102**	**113,217**	**108,743**	**118,793**	**66,221**	**16,326**	**809,694**

(1) Geographical areas have been determined based on the country of the counterparty

(2) The table above shows original exposure net of credit risk adjustments reported in COREP statements of Credit Risk and Equity excluding securitisation exposures

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

	Net OE of provisions [2]							
Exposure Class [1]	Spain	Turkey	Eurasia	Mexico	USA	South America	Other areas	Total
Central governments or central banks	594	-	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
Retail	101,320	1	576	13,371	41	65	34	115,408
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	-	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	-	-	1	-	-	-	-	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
Retail	13,354	25,767	1,928	12,008	14,656	23,790	23	91,527
Secured by mortgages on immovable property	4,751	8,506	2,332	10,685	9,360	13,851	60	49,545
Exposures in default	1,401	1,583	516	471	296	839	2	5,108
Exposures associated with particularly high risk	170	147	-	418	1,055	700	-	2,489
Covered bonds	-	-	-	-	-	-	-	-
Claims on institutions and corporates with a short-term credit assesment	-	-	16	8	-	-	-	25
Collective investments undertakings	1	-	26	-	8	-	-	34
Equity exposures	-	-	-	-	-	-	-	-
Other exposures	9,227	1,988	350	4,846	1,718	3,037	-	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 country of the counterparty

(2) The table above shows original exposure net of credit risk adjustments reported in COREP statements of Credit Risk and Equity excluding securitisation exposures

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.

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:

Chart 7: Distribution by geographical area of credit risk exposure

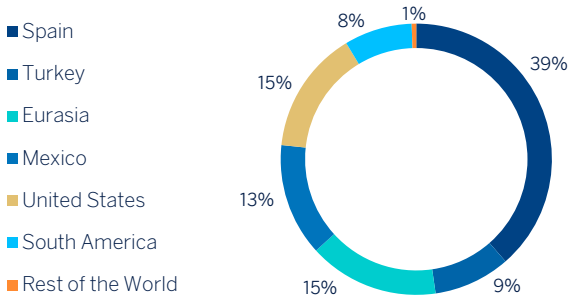


Table 14. EU CR1-C – Credit quality of exposures by geography (including counterparty credit risk) (Million Euros. 12-31-18)

	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	10,280	307,956	(5,943)	24,328	3,019	312,292
Turkey	2,556	73,473	(1,928)	377	(718)	74,102
Eurasia	817	113,179	(779)	304	(96)	113,217
Mexico	1,162	109,226	(1,645)	2,272	(631)	108,743
USA	883	118,455	(545)	3,857	55	118,793
South America	1,885	66,392	(2,056)	1,169	(653)	66,221
Other areas	86	16,263	(23)	49	(11)	16,326
Total	**17,670**	**804,943**	**(12,920)**	**32,355**	**964**	**809,694**

(1) The table above shows original exposure net of credit risk adjustments reported in COREP statements of Credit Risk and Equity excluding securitisation exposures

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

	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**

(*) CCR is included, whose corrections for impairment as of December, 31, 2017 amounted to 10 million euros

(1) The table above shows original exposure net of credit risk adjustments reported in COREP statements of Credit Risk and Equity excluding securitisation exposures

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, 2018: 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 15. EU CR1-A – Credit quality of exposures by exposure class and instrument (excluding counterparty credit risk) (Million Euros. 12-31-18)

	Gross Original exposure [4]					
	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	80	5,786	5	10	1	5,862
Institutions	161	32,477	58	19	(5)	32,581
Corporates	4,017	128,116	2,176	5,402	(1,271)	129,957
Of which: Specialised lending	161	6,510	73	1,635	(36)	6,597
Of which: SMEs	2,006	17,774	1,103	-	(717)	18,677
Of which: Others	1,851	103,832	999	3,767	(518)	104,683
Retail	4,778	113,425	2,660	2,056	321	115,544
Secured by real estate property	3,672	77,800	1,330	1,170	138	80,142
Qualifying revolving	199	21,968	584	51	57	21,583
Other retail	907	13,657	745	835	126	13,819
SMEs	418	3,707	281	142	83	3,844
Non-SMEs	489	9,950	464	692	43	9,975
Equity	-	6,822	-	-	-	6,822
Total IRB approach	**9,037**	**286,627**	**4,898**	**7,487**	**(954)**	**290,765**
Central governments or central banks	8	114,627	33	9	(15)	114,593
Regional governments or local authorities	-	10,203	23	21	16	10,180
Public sector entities	0	990	9	20	4	981
Multilateral development banks	-	265	0	-	(1)	265
International organisations	0	0	-	-	-	0
Institutions	25	28,139	14	11	(2)	28,124
Corporates	3,484	122,816	1,181	16,315	(432)	121,635
Retail	3,486	86,916	1,722	3,596	476	85,194
Secured by mortgages on immovable property	1,416	40,917	302	2,733	(37)	40,615
Exposures in default [1]	8,588	-	4,649	-	4	3,939
Exposures associated with particularly high risk [2]	30	1,138	51	147	(17)	1,117
Covered bonds	-	-	-	-	-	-
Claims on institutions and corporates with a short-term credit assesment	-	3	0	-	0	3
Collective investments undertakings	-	69	1	9	0	69
Equity exposures	-	-	-	-	-	-
Other exposures	170	18,100	36	2,009	3	18,064
Total standardised approach	**8,618**	**424,184**	**8,022**	**24,869**	**(1)**	**424,781**
Total	**17,655**	**710,810**	**12,920**	**32,355**	**(955)**	**715,546**
Of which: Loans	16,647	376,575	12,237	32,355	(1,318)	380,985
Of which: Debt securities	21	70,260	44	-	(3)	70,237
Of which: Off-balance sheet exposures	987	179,061	639	-	366	179,409
Of which: Others		84,914	-	-	-	84,914

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

(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 of Credit Risk and Equity exposures by standardised and IRB approach

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

	Gross Original exposure [4]					
	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	393,252	13,565	30,156	(2,415)	400,020
Of which: Debt securities	76	73,498	47	-	(146)	73,527
Of which: Off-balance sheet exposures	1,276	184,129	263	-	(686)	185,142
Of which: Others	-	69,756	-	-	-	69,756

(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 of Credit Risk and Equity exposures 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 16. EU CRB-D – Concentration of exposures by industry or counterparty types (excluding counterparty credit risk) (Million Euros. 12-31-18)

	Farming, forestry and fishing	Mining and quarrying	Manufacturing Industry	Energy 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 defense, 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	-	-	0	-	-	-	-	-	-	-	2,315	-	-	-	3,547	0	-	-	-	-	0	-	5,862
Institutions	2	-	259	486	284	731	18	1,716	8	27	10,781	425	189	29	17,488	1	79	28	5	-	26	-	32,581
Corporates	1,045	5,249	39,078	15,269	1,426	10,245	15,779	4,342	3,956	5,450	9,049	6,109	5,713	2,813	1,869	250	1,024	693	595	3	0	-	129,957
Retail	616	44	1,970	121	57	1,946	4,033	1,455	1,451	465	231	468	1,721	641	1	234	684	305	6,395	7	-	92,698	115,544
Equity	-	-	-	-	-	809	0	-	-	2,981	2,329	5	0	-	26	-	-	-	672	-	-	-	6,822
Total IRB approach	**1,663**	**5,294**	**41,307**	**15,876**	**1,767**	**13,731**	**19,830**	**7,512**	**5,415**	**8,922**	**24,704**	**7,006**	**7,623**	**3,483**	**22,932**	**486**	**1,787**	**1,025**	**7,667**	**11**	**26**	**92,698**	**290,765**
Central governments or central banks	0	-	0	0	-	0	5	0	0	0	39,188	0	0	0	74,387	0	1	0	1,011	-	0	-	114,593
Regional governments or local authorities	(0)	-	7	32	74	48	4	139	(0)	0	69	36	0	19	7,769	545	1,167	3	267	-	0	-	10,180
Public sector entities	-	-	288	350	25	0	1	2	0	-	78	-	0	0	218	16	0	0	1	-	-	-	981
Multilateral development banks	-	-	-	-	-	-	-	-	-	-	222	-	-	-	44	-	-	-	-	-	-	-	265
International organisations	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	0	-	0	-	0
Institutions	2	0	728	0	-	1,732	92	5,280	2	18	19,073	56	195	46	154	0	176	0	571	-	-	-	28,124
Corporates	3,078	2,624	31,037	7,032	645	4,152	14,993	6,506	3,450	3,416	11,538	13,878	3,038	2,210	204	743	5,085	733	7,229	42	0	-	121,635
Retail	4,166	281	4,729	304	57	2,737	10,539	1,900	1,235	486	738	860	2,434	1,151	299	1,197	1,428	287	4,786	9	-	45,571	85,194
Secured by mortgages on immovable property	801	229	1,970	658	10	941	3,147	541	1,192	200	325	17,649	1,562	944	258	1,072	1,084	120	3,810	2	-	4,101	40,615
Exposures in default (1)	111	58	91	301	7	492	657	183	165	32	41	287	134	70	26	32	63	24	584	0	0	582	3,939
Exposures associated with particularly high risk (2)	1	0	1	0	0	292	14	0	32	0	118	494	3	4	-	0	1	0	25	0	-	131	1,117
Covered bonds	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Claims on institutions and corporates with a short-term credit assesment	-	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-	3
Collective investments undertakings	-	-	-	-	-	-	-	-	-	-	69	-	-	-	-	-	-	-	-	-	-	-	69
Equity exposures	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other exposures	0	-	0	0	-	0	0	0	-	1	10,104	922	56	-	0	0	0	-	6,981	-	-	-	18,064
Total standardised approach	**8,158**	**3,192**	**38,853**	**8,677**	**818**	**10,394**	**29,453**	**14,551**	**6,076**	**4,153**	**81,565**	**34,182**	**7,422**	**4,445**	**83,359**	**3,605**	**9,005**	**1,167**	**25,264**	**53**	**0**	**50,385**	**424,781**
Total	**9,822**	**8,486**	**80,160**	**24,554**	**2,585**	**24,125**	**49,283**	**22,064**	**11,491**	**13,075**	**106,269**	**41,189**	**15,045**	**7,929**	**106,291**	**4,091**	**10,792**	**2,192**	**32,931**	**64**	**26**	**143,083**	**715,546**

(1) The table above shows original exposure net of credit risk adjustments reported in COREP statements of Credit Risk and Equity excluding securitisation exposures

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

	Farming, forestry and fishing	Mining and quarrying	Manufacturing Industry	Energy 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 defense, 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	0	-	-	-	-	0	-	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
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
Equity	0	-	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	0	-	1	8	18	-	1	-	-	-	40,793	-	0	-	74,648	0	1	-	1,076	-	0	-	116,546
Regional governments or local authorities	0	0	50	33	65	49	7	266	0	0	114	48	30	1	7,463	595	1,297	17	65	-	0	-	10,100
Public sector entities	1	65	310	148	51	0	2	13	0	-	-	1	7	0	895	22	1	0	30	-	-	-	1,547
Multilateral development banks	-	-	-	-	-	-	-	-	-	-	44	-	-	-	48	-	-	-	-	-	-	-	93
International organisations	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	0	-	1	-	1
Institutions	9	-	6	7	-	13	31	0	-	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	0	-	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 (1)	79	141	249	42	16	448	347	135	123	20	11	250	274	38	14	18	51	32	1,324	0	0	1,495	5,107
Exposures associated with particularly high risk (2)	1	0	2	0	0	2,158	9	2	2	0	166	88	4	6	0	0	1	0	5	-	-	47	2,489
Covered bonds	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Claims on institutions and corporates with a short-term credit assesment	-	-	-	-	-	-	-	-	-	-	25	-	-	-	-	-	-	-	-	-	-	-	25
Collective investments undertakings	-	-	-	-	-	-	-	-	-	-	34	-	-	0	-	-	-	-	-	-	-	-	34
Equity exposures	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other exposures	1	0	11	-	0	1	10	6	0	0	14,522	1	0	3	0	0	0	-	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 original exposure net of credit risk adjustments reported in COREP statements of Credit Risk and Equity excluding securitisation exposures

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 17. EU CR1-B – Credit quality of exposures by industry or counterparty types (excluding counterparty credit risk) (Million Euros. 12-31-18)

	Gross Original Exposure [1] of		Credit risk adjustment	Credit risk adjustment chargesof the period	Net values
	Defaulted exposures	Non-defaulted exposures			
Agriculture, forestry and fishing	288	9,837	303	119	9,822
Mining and quarrying	140	8,427	81	(54)	8,486
Manufacturing	1,429	80,167	1,437	(78)	80,160
Electricity, gas, steam and air conditioning supply	565	24,433	444	181	24,554
Water supply	27	2,595	37	10	2,585
Construction	1,871	23,509	1,255	(1,127)	24,125
Wholesale and retail trade	2,464	48,416	1,597	106	49,283
Transport and storage	664	21,879	480	29	22,064
Accommodation and food service activities	538	11,267	313	(2)	11,491
Information and communication	985	12,326	235	63	13,075
Financial activities and insurance	338	106,181	250	27	106,269
Real estate activities	960	40,898	669	(149)	41,189
Professional, scientific and technical activities	467	14,926	347	(132)	15,045
Administrative and support service activities	262	7,882	215	35	7,929
Public administration and defence, compulsory social security	259	106,150	118	56	106,291
Education	111	4,141	161	100	4,091
Human health services and social work activities	159	10,809	176	20	10,792
Arts, entertainment and recreation	102	2,148	58	(3)	2,192
Other services	843	32,793	705	(305)	32,931
Household activities as employers of domestic staff; Activities of households as products of goods and services for own use	1	64	1	(0)	64
Extraterritorial organizations activities	0	26	0	0	26
Individuals without business activity	5,183	141,937	4,037	149	143,083
Total	**17,655**	**710,810**	**12,920**	**(955)**	**715,546**

(1) The table above shows original exposure net of credit risk adjustments reported in COREP statements of Credit Risk and Equity excluding securitisation exposures

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

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

(1) The table above shows original exposure net of credit risk adjustments reported in COREP statements of Credit Risk and Equity excluding securitisation exposures

3.2.3.6. Distribution by residual maturity

The following table shows the distribution of original exposure net of credit risk adjustments 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 18. EU CRB-E – Maturity of exposures (excluding counterparty credit risk) (Million Euros. 12-31-18)

	Net exposure value (1)					
	On demand	≤ 1 year	> 1 year ≤ 5 years	> 5 years	No stated maturity	Total
Central governments or central banks	9	319	2,886	303	2,345	5,862
Institutions	205	7,219	8,707	11,098	5,353	32,581
Corporates	246	42,572	55,537	21,199	10,403	129,957
Retail	12	2,200	6,174	85,153	22,005	115,544
Equity	-	-	-	-	6,822	6,822
Total IRB approach	**471**	**52,309**	**73,305**	**117,752**	**46,927**	**290,765**
Central governments or central banks	11,308	37,868	16,741	47,789	887	114,593
Regional governments or local authorities	0	805	1,737	7,631	6	10,180
Public sector entities	7	770	144	17	43	981
Multilateral development banks	211	38	16	-	-	265
International organisations	-	-	-	0	0	0
Institutions	5,113	12,757	5,261	754	4,240	28,124
Corporates	10,635	37,301	50,879	20,520	2,300	121,635
Retail	2,611	28,222	30,134	15,993	8,233	85,194
Secured by mortgages on immovable property	304	4,689	4,517	31,094	12	40,615
Exposures in default	24	893	21	1,877	1,126	3,939
Exposures associated with particularly high risk	-	273	222	622	0	1,117
Covered bonds	-	-	-	-	-	-
Claims on institutions and corporates with a short-term credit assesment	1	1	-	-	1	3
Collective investments undertakings	-	47	20	1	1	69
Equity exposures	-	-	-	-	-	-
Other exposures	1,467	4,654	30	8	11,906	18,064
Total standardised approach	**31,681**	**128,319**	**109,722**	**126,305**	**28,753**	**424,781**
Total	**32,151**	**180,628**	**183,027**	**244,058**	**75,681**	**715,546**

(1) The table above shows original exposure net of credit risk adjustments reported in COREP statements of Credit Risk and Equity excluding securitisation exposures

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

	Net exposure value (1)					
	On demand	≤ 1 year	> 1 year ≤ 5 years	> 5 years	No stated maturity	Total
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
Retail	18	1,801	6,041	86,998	20,541	115,400
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	-	-	-	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	-	1,227	1,080	182	1	2,489
Covered bonds	-	-	-	-	-	-
Claims on institutions and corporates with a short-term credit assesment	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 original exposure net of credit risk adjustments reported in COREP statements of Credit Risk and Equity excluding securitisation exposures

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

Table 19. EU CR1-D – Ageing of past-due exposures (Million Euros. 12-31-18)

	Gross carrying values [1]					
	≤ 30 days	> 30 days ≤ 60 days	> 60 days ≤ 90 days	> 90 days ≤ 180 days	> 180 days ≤ 1 year	> 1 year
Loans [2]	9,737	5,556	-	1,347	1,876	4,207
Debt securities	-	-	-	8	-	-
Total exposures	**9,737**	**5,556**	**-**	**1,355**	**1,876**	**4,207**

(1) Accounting gross carrying values

(2) Includes gross carrying value of reverse repo transactions

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

	Gross carrying values [1]					
	≤ 30 days	> 30 days ≤ 60 days	> 60 days ≤ 90 days	> 90 days ≤ 180 days	> 180 days ≤ 1 year	> 1 year
Loans [2]	3,432	759	503	-	-	-
Debt securities	-	-	-	-	-	-
Total exposures	**3,432**	**759**	**503**	**-**	**-**	**-**

(1) Accounting gross carrying values

(2) Includes gross carrying value of reverse repo transactions

3.2.3.7. 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 2018 and 2017.

Table 20. EU CR2-A - Changes in the stock of credit risk adjustments (Million Euros. 12-31-18)

	Accumulated credit risk adjustment [1]
Opening balance	**13,884**
Increases due to amounts set aside for estimated loan losses during the period	7,040
Decreases due to amounts reversed for estimated loan losses during the period	(4,105)
Decreases due to amounts taken against accumulated credit risk adjustments	(4,461)
Transfers between credit risk adjustments	1,527
Impact of exchange rate differences	(481)
Business combinations, including acquisitions and disposals of subsidiaries	(340)
IFRS9 Impact	1,288
Other adjustments	(1,432)
Closing balance	**12,920**
Recoveries on credit risk adjustments recorded directly to the statement of profit or loss	(573)
Specific credit risk adjustments directly recorded to the statement of profit or loss	3,107

(1) Credit risk adjustments of on balance sheet items (including CCR) and credit risk adjustments of contingent commitments (off balance sheet items)

In addition, a movement in the stock of non-performing exposures in the balance sheet between December 31, 2018 and December 31, 2017 is shown below:

Table 21. EU CR2-B - Changes in the stock of defaulted and impaired loans and debt securities (Million Euros. 12-31-18)

	Gross carrying value defaulted exposures [2]
Opening balance [1]	**19,783**
Loans and debt securities that have defaulted or impaired since the last reporting period	5,569
Returned to non-defaulted status	(3,427)
Amounts written off	(5,076)
Other changes	469
Closing balance	**17,319**

(1) Counterparty credit risk is included, but securitisation exposures are excluded

(2) Accounting gross carrying values

3.2.3.8. 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. 12-31-18)

	Gross carrying values of performing and non-performing exposures [1]						Accumulated impairment and provisions and negative fair value adjustments due to credit risk				Collaterals and financial guarantees received	
		Of which: performing but past due > 30 days and ≤ 90 days	Of which: performing forborne	Of which: non-performing			On performing exposures		On non-performing exposures			
	Total			Of which: defaulted	Of which: impaired	Of which: forborne		Of which: forborne		Of which: forborne	On non-performing exposures	Of which: forborne exposures
Debt Securities	67,757	-	-	36	36	36	-	(48)	-	(16)	-	-
Loans and advance	451,810	4,227	7,165	16,357	16,357	16,357	10,003	(4,451)	(683)	(7,760)	(4,202)	5,570	8,427
Off-Balance Sheet Exposures	170,070	-	138	987	987	-	87	(419)	(5)	(217)	(21)	113	-

(1) Accounting gross carrying values

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

	Gross carrying values of performing and non-performing exposures [1]						Accumulated impairment and provisions and negative fair value adjustments due to credit risk				Collaterals and financial guarantees received	
		Of which: performing but past due > 30 days and ≤ 90 days	Of which: performing forborne	Of which: non-performing			On performing exposures		On non-performing exposures			
	Total			Of which: defaulted	Of which: impaired	Of which: forborne		Of which: forborne		Of which: forborne	On non-performing exposures	Of which: forborne exposures
Debt Securities	70,701	-	-	66	66	66	-	(21)	-	(28)	-	-	-
Loans and advance	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) Accounting gross carrying values

3.2.4. Information on the standardized 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 & Poor's, Moody's, Fitch* and *DBRS*.

The exposures for which the ratings of each *ECAI* are used are those corresponding to the wholesale portfolios, 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 138 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 ECAIs' credit assessment under Article 136(1) and (3) of Regulation (UE) 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 standardized 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. 12-31-18)

	Exposures before CCF and CRM (1)		Exposures post-CCF and CRM (2)		RWA (3) and RWA Density	
Exposure Class	On-balance sheet amount	Off-balance sheet amount	On-balance sheet amount	Off-balance sheet amount	RWA	RWA Density
Central governments or central banks	111,247	3,346	137,615	549	30,247	22%
Regional governments or local authorities	9,683	497	6,414	230	1,415	21%
Public sector entities	824	157	1,757	51	714	39%
Multilateral development banks	242	24	453	-	10	2%
International Organizations	0	0	0	0	-	-
Institutions	14,236	13,888	14,236	1,874	4,991	31%
Corporates	78,195	43,440	74,105	15,851	88,046	98%
Retail	54,130	31,064	50,039	2,403	36,753	70%
Secured by mortgages on immovable property	40,470	146	40,389	68	15,466	38%
Exposures in default	3,487	453	3,346	245	4,127	115%
Exposures associated with particularly high risk	1,116	1	1,101	0	1,652	150%
Covered bonds	-	-	-	-	-	-
Institutions and corporates with a short term credit assessment	3	-	3	-	2	66%
Collective Investment Undertakings	44	24	44	12	57	100%
Equity	-	-	-	-	-	-
Other Items	18,064	-	17,959	950	11,229	59%
Total	**331,743**	**93,038**	**347,461**	**22,236**	**194,707**	**53%**

(1) Net OE: Net Original Exposure of credit risk adjustments

(2) EAD: Net Original Exposure of provisions, value adjustments after CRM and CCF

(3) RWAs: EAD after applying risk-weights

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

	Exposures before CCF and CRM [1]		Exposures post-CCF and CRM [2]		RWA [3] and RWA Density	
Exposure Class	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	-	14	7%
International Organizations	1	-	1	-	-	-
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	-	3,694	150%
Covered bonds	-	-	-	-	-	-
Institutions and corporates with a short term credit assessment	25	-	25	-	5	20%
Collective Investment Undertakings	9	26	9	15	24	100%
Equity	-	-	-	-	-	-
Other Items	21,166	-	20,979	1,376	11,725	52%
Total	**339,425**	**98,817**	**355,080**	**22,750**	**205,493**	**54%**

(1) Net OE: Net Original Exposure of credit risk adjustments

(2) EAD: Net Original Exposure of provisions, value adjustments after CRM and CCF

(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 standardized approach for each exposure class for credit, counterparty and securitisation risk. 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. 12-31-18)

	Risk Weight																Total credit exposures amount	Of which:
Exposure Class	**0%**	**2%**	**4%**	**10%**	**20%**	**35%**	**50%**	**70%**	**75%**	**100%**	**150%**	**250%**	**370%**	**1250%**	**Others**	**Deducted**	**(pre CCF and pre-CRM)**	**unrated (1)**
Central Government or central banks	82,586	-	-	-	4,318	-	4,652	-	-	19,977	56	3,004	-	-	-	-	114,593	48,775
Regional government or local authorities	204	-	-	-	9,836	-	49	-	-	91	-	-	-	-	-	-	10,180	10,180
Public sector entities	1	-	-	-	200	-	454	-	-	325	0	-	-	-	-	-	981	588
Multilateral development banks	222	-	-	-	-	-	20	-	-	24	-	-	-	-	-	-	265	265
International Organizations	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-
Institutions	-	3,192	-	-	19,808	-	2,551	-	-	2,574	0	-	-	-	-	-	28,124	26,702
Corporates	-	-	-	-	102	-	1,237	-	-	119,909	386	-	-	-	-	-	121,635	120,975
Retail	-	-	-	-	-	-	-	-	85,194	-	-	-	-	-	-	-	85,194	77,678
Secured by mortgages on immovable property	-	-	-	-	-	33,035	6,178	-	493	909	-	-	-	-	-	-	40,615	38,246
Exposures in default	-	-	-	-	-	-	-	-	-	2,725	1,215	-	-	-	-	-	3,939	3,400
Exposures associated with particularly high risk	-	-	-	-	-	-	-	-	-	-	1,117	-	-	-	-	-	1,117	632
Covered bonds	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Institutions and corporates with a short-term credit assessment	-	-	-	-	1	-	-	-	-	2	-	-	-	-	-	-	3	1
Collective investment undertakings	-	-	-	-	-	-	-	-	-	69	-	-	-	-	-	-	69	69
Other Items	5,595	-	-	-	-	-	-	-	-	12,469	0	-	-	-	-	-	18,064	17,926
Equity	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	**88,608**	**3,192**	**-**	**-**	**34,265**	**33,035**	**15,142**	**-**	**85,687**	**159,074**	**2,774**	**3,004**	**-**	**-**	**-**	**-**	**424,781**	**345,456**

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

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

	Risk Weight																Total credit exposures amount	Of which:
Exposure Class	**0%**	**2%**	**4%**	**10%**	**20%**	**35%**	**50%**	**70%**	**75%**	**100%**	**150%**	**250%**	**370%**	**1250%**	**Others**	**Deducted**	**(pre CCF and pre-CRM)**	**unrated (1)**
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**

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

Table 25. EU CR5 – Standardised approach (Million Euros. 12-31-18)

	Risk Weight																	
Exposure Class	**0%**	**2%**	**4%**	**10%**	**20%**	**35%**	**50%**	**70%**	**75%**	**100%**	**150%**	**250%**	**370%**	**1250%**	**Others**	**Deducted**	**Total**	**Of which: unrated (1)**
Central Government or central banks	108,890	-	-	-	1,462	-	4,783	-	-	19,969	56	3,004	-	-	-	-	138,164	52,283
Regional government or local authorities	7	-	-	-	6,497	-	49	-	-	91	-	-	-	-	-	-	6,644	6,644
Public sector entities	47	-	-	-	1,084	-	362	-	-	316		-	-	-	-	-	1,809	570
Multilateral development banks	433	-	-	-	-	-	20	-	-	-	-	-	-	-	-	-	453	242
International Organizations	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-
Institutions	-	3,123	-	-	8,782	-	2,066	-	-	2,139		-	-	-	-	-	16,110	15,183
Corporates	-	-	-	-	66	-	1,149	-	-	88,359	381	-	-	-	-	-	89,956	89,294
Retail	-	-	-	-	-	-	-	-	52,442	-	-	-	-	-	-	-	52,442	45,361
Secured by mortgages on immovable property	-	-	-	-	-	33,013	6,077	-	469	899	-	-	-	-	-	-	40,458	38,107
Exposures in default	-	-	-	-	-	-	-	-	-	2,519	1,072	-	-	-	-	-	3,591	3,111
Exposures associated with particularly high risk	-	-	-	-	-	-	-	-	-	-	1,101	-	-	-	-	-	1,101	631
Covered bonds	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Institutions and corporates with a short-term credit assessment	-	-	-	-	1	-	-	-	-	2	-	-	-	-	-	-	3	1
Collective investment undertakings	-	-	-	-	-	-	-	-	-	57	-	-	-	-	-	-	57	57
Other Items	7,680	-	-	-	-	-	-	-	-	11,228		-	-	-	-	-	18,909	18,772
Equity	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	**117,057**	**3,123**	**-**	**-**	**17,892**	**33,013**	**14,506**	**-**	**52,911**	**125,578**	**2,612**	**3,004**	**-**	**-**	**-**	**-**	**369,696**	**270,283**

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

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

	Risk Weight																	
Exposure Class	**0%**	**2%**	**4%**	**10%**	**20%**	**35%**	**50%**	**70%**	**75%**	**100%**	**150%**	**250%**	**370%**	**1250%**	**Others**	**Deducted**	**Total**	**Of which: unrated (1)**
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	-
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**

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

The following table presents the main variations in the period in terms of RWAs for the credit and counterparty credit risk standardised approach:

Table 26. RWA flow statements of credit risk exposures under the standardised approach (Million Euros. 12-31-18)

	Credit Risk		Counterparty Credit Risk	
	RWA amounts	Capital Requirements	RWA amounts	Capital Requirements
RWAs as of December 31, 2017	**205,493**	**16,439**	**3,060**	**245**
Asset size	11,278	902	620	50
Asset quality	454	36	(11)	(1)
Model updates	-	-	-	-
Methodology and policy	-	-	-	-
Acquisitions and disposals	(12,822)	(1,026)	(565)	(45)
Foreign exchange movements	(9,859)	(789)	(97)	(8)
Other	164	13	-	-
RWAs as of December 31, 2018	**194,707**	**15,577**	**3,008**	**241**

Throughout 2018, risk-weighted assets of credit risk measured using the standard method decreased by approximately EUR 10.79 billion, predominantly due to the sale of the Group's stake in BBVA Chile, which was closed in the third quarter of 2018; and the depreciation of various currencies against the euro, primarily, the Turkish lira. Besides, the amount included in the asset size is affected by the inflationary impact on the Group's exposures in Argentina and Venezuela.

3.2.5. Information on the IRB approach

3.2.5.1. General information

3.2.5.1.1. Authorization by the supervisor to use the IRB model

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

Table 27. Models authorised 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
	Credit cards	3	2 Scorings, 1 PD model, 1 LGD model
BBVA Ireland	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)	12	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
	Medium-sized Corporates	5	1 Rating, 1 PD model, 2 LGD models, 1 EAD model
BBVA Group	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.

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 behaviour, credit bureau, etc.

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 that is shown below, enabling a comparison to be made with the scales used by external agencies. This is shown below.

Table 28. Master Scale of BBVA's rating

External rating	Internal rating	Probability of default (basic points)		
Standard & Poor's List	Reduced List (23 groups)	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 recognize 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 Group 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 behaviour, 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, modelling 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 behaviour.

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.

Additionally, the Group has an independent area of the developers of the rating systems and the departments responsible for its monitoring, whose main function is to carry effective contrasts to the internal models, in order to guarantee their accuracy, robustness and stability.

This review process is not restricted at the time of approval, or when updating the models, but rather is framed within such a plan that allows for a periodic evaluation of them, resulting in the issuance of recommendations and mitigating actions for the identified deficiencies.

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:** ffor 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 authorization 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 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 Lending:** 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:

  a. 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.

  b. Consumer Finance Autos Spain: the financing request may enter through the call centre or be directly recorded in web application by our authorized dealers. The necessary information on the customer (personal, financial information, authorization 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.

  c. Retail Revolving (BBVA Bancomer credit cards): the manager or specialist party gathers the necessary information on the customer (personal, financial information and authorization 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.

     Behavioural: every month all the active cards are rated according to their transactional behaviour 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 behaviour 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 behaviour.

- **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 behaviour 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 become defaulted jointly 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 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 regulation, the estimates are made by distinguishing between wholesale and retail exposures.

There is insufficient historical experience to make a robust estimate in low default portfolios 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 own volatility of the LGD.

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 approach1, analysing 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 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, 2018 (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:

1: A cohort is a twelve-month window that has a reference date (end of each month) and contains all delinquent transactions whose date of noncompliance occurs within said cohort. All operations must have a contract date prior to the reference date.

Table 29. EU CR6 – IRB approach – Credit risk exposures by exposure class and PD range (Million Euros)

PD Scale as of 12-31-18 [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 [6]	6,268	403	97.4%	6,500	-	427	-		5,421	83%	140	(73)
Corporate - Specialized lending	**6,268**	**403**	**97.4%**	**6,500**	**-**	**427**	**-**	**-**	**5,421**	**83%**	**140**	**(73)**
Prudential portfolios for AIRB approach	198,988	86,385	42.3%	218,321	4.7%	11,541,170	36.0%		77,733	36%	3,101	(4,825)
Central governments or central banks	**5,729**	**137**	**49.6%**	**7,627**	**0.3%**	**106**	**27.3%**	**61**	**451**	**6%**	**5**	**(5)**
0,00<0,16	5,294	19	49.4%	7,350	0.0%	29	26.7%	64	354	5%	1	()
0,16<0,26	12	13	50.0%	136	0.2%	9	43.6%	62	3	2%	0	()
0,26<0,51	8	0	50.1%	33	0.3%	5	44.0%	41	2	7%	0	(1)
0,51<0,77	-	0	43.1%	0	0.5%	1	12.4%	58	0	18%	-	-
0,77<2,51	128	2	49.1%	5	1.1%	16	34.1%	40	3	62%	0	()
2,51<10,00	213	88	50.1%	83	4.9%	34	49.9%	65	83	100%	2	(2)
10,00<100,00	1	7	50.6%	4	21.2%	2	18.9%	5	4	97%	0	()
100(Default)	73	8	50.0%	16	100.0%	10	10.2%	89	2	13%	2	(1)
Institutions	**25,687**	**6,952**	**58.9%**	**12,482**	**0.5%**	**1,890**	**40.6%**	**38**	**3,576**	**29%**	**26**	**(58)**
0,00<0,16	18,715	5,100	60.6%	9,886	0.1%	1,033	41.2%	40	1,967	20%	3	(17)
0,16<0,26	2,292	785	50.6%	853	0.2%	185	40.7%	48	327	38%	1	(8)
0,26<0,51	3,180	707	56.5%	643	0.3%	194	30.5%	33	251	39%	1	(3)
0,51<0,77	431	125	51.1%	278	0.5%	107	36.3%	25	171	62%	1	(1)
0,77<2,51	719	176	53.6%	653	1.4%	168	42.6%	36	623	95%	4	(2)
2,51<10,00	149	52	75.9%	95	3.2%	138	42.6%	27	129	136%	1	(4)
10,00<100,00	42	6	56.8%	41	20.1%	34	43.9%	44	102	246%	4	(3)
100(Default)	160	2	89.8%	32	100.0%	31	38.1%	49	7	20%	12	(19)
Corporate SMEs	**15,964**	**3,816**	**45.2%**	**16,117**	**13.5%**	**43,270**	**47.1%**	**48**	**11,781**	**73%**	**869**	**(1,103)**
0,00<0,16	1,240	711	44.1%	1,897	0.1%	5,312	51.7%	57	526	28%	1	(5)
0,16<0,26	628	251	43.8%	893	0.2%	2,380	53.6%	47	352	39%	1	(3)
0,26<0,51	1,268	354	45.8%	1,528	0.3%	4,170	51.8%	50	753	49%	2	(5)
0,51<0,77	2,832	591	42.1%	2,845	0.5%	6,032	48.7%	44	2,019	71%	7	(16)
0,77<2,51	3,815	955	47.5%	3,552	1.2%	9,977	46.8%	44	3,067	86%	19	(41)
2,51<10,00	3,769	850	45.4%	3,124	4.3%	10,420	44.5%	44	3,858	123%	59	(179)
10,00<100,00	473	36	46.5%	354	15.3%	1,408	42.8%	55	692	195%	23	(25)
100(Default)	1,938	68	50.1%	1,924	100.0%	3,571	39.3%	51	514	27%	756	(830)
Corporate Non-SMEs	**51,288**	**54,395**	**49.5%**	**77,891**	**2.6%**	**14,120**	**44.4%**	**57**	**36,273**	**47%**	**455**	**(999)**
0,00<0,16	21,005	30,232	49.1%	36,913	0.1%	3,137	44.9%	56	10,353	28%	18	(20)
0,16<0,26	5,722	8,093	48.3%	9,854	0.2%	1,611	45.5%	64	4,342	44%	9	(10)
0,26<0,51	10,836	8,875	52.1%	15,947	0.3%	2,509	45.3%	64	9,016	57%	23	(22)
0,51<0,77	4,438	3,331	48.6%	5,866	0.5%	1,595	46.1%	53	4,152	71%	14	(33)
0,77<2,51	4,897	2,157	48.1%	4,985	1.1%	2,210	42.6%	53	4,500	90%	24	(30)
2,51<10,00	2,612	1,474	51.8%	2,556	3.8%	2,335	45.1%	47	3,545	139%	44	(122)
10,00<100,00	109	51	53.3%	44	15.7%	106	46.3%	43	90	206%	3	(3)
100(Default)	1,669	181	46.8%	1,726	100.0%	617	18.6%	66	275	16%	320	(760)
Retail - Mortgage exposures	**76,986**	**4,487**	**5.0%**	**77,186**	**5.2%**	**1,081,481**	**17.1%**	**-**	**7,385**	**10%**	**579**	**(1,330)**
0,00<0,16	57,198	3,197	5.0%	57,345	0.0%	847,236	15.7%	-	1,290	2%	5	(9)
0,16<0,26	3,448	41	5.0%	3,448	0.2%	40,743	22.0%	-	323	9%	2	(2)
0,26<0,51	2,865	416	5.0%	2,885	0.3%	39,782	26.2%	-	460	16%	2	(3)
0,51<0,77	2,086	251	5.0%	2,098	0.5%	27,413	25.8%	-	450	21%	3	(3)
0,77<2,51	3,762	330	5.0%	3,777	1.1%	45,962	23.0%	-	1,195	32%	9	(53)
2,51<10,00	3,402	209	5.0%	3,409	4.7%	39,564	20.3%	-	2,222	65%	32	(317)
10,00<100,00	553	42	5.0%	555	18.2%	6,854	22.6%	-	703	127%	23	(47)
100(Default)	3,672	0	5.2%	3,670	100.0%	33,927	13.7%	-	742	20%	504	(896)

PD Scale as of 12-31-18 (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
Retail - Other exposures SMEs	**3,278**	**847**	**60.3%**	**3,739**	**13.9%**	**139,374**	**55.8%**	**-**	**1,749**	**47%**	**297**	**(281)**
0,00<0,16	216	197	58.8%	332	0.1%	19,029	56.1%	-	42	13%	0	()
0,16<0,26	109	53	60.0%	141	0.2%	5,659	56.3%	-	27	19%	0	()
0,26<0,51	199	89	59.3%	251	0.3%	9,560	56.9%	-	63	25%	0	()
0,51<0,77	314	117	59.7%	381	0.5%	14,012	55.6%	-	127	33%	1	(1)
0,77<2,51	786	208	61.4%	902	1.2%	29,712	55.5%	-	448	50%	6	(5)
2,51<10,00	1,031	146	63.7%	1,101	4.6%	40,657	55.9%	-	740	67%	28	(32)
10,00<100,00	216	27	56.9%	221	19.5%	8,724	51.2%	-	207	93%	22	(20)
100(Default)	408	10	47.3%	410	100.0%	12,021	58.1%	-	96	23%	238	(221)
Retail - Other exposures Non-SMEs	**10,331**	**109**	**68.6%**	**10,396**	**6.0%**	**903,183**	**54.2%**	**-**	**3,592**	**35%**	**303**	**(464)**
0,00<0,16	4,563	5	38.2%	4,565	0.1%	349,519	53.6%	-	415	9%	1	(2)
0,16<0,26	513	7	22.0%	514	0.2%	55,419	58.4%	-	126	24%	1	(1)
0,26<0,51	895	20	23.2%	899	0.3%	89,487	58.5%	-	313	35%	2	(2)
0,51<0,77	841	25	26.0%	845	0.5%	69,829	56.2%	-	380	45%	3	(3)
0,77<2,51	1,204	8	33.9%	1,206	1.2%	120,718	55.4%	-	751	62%	8	(9)
2,51<10,00	1,678	41	129.1%	1,729	4.5%	156,305	52.6%	-	1,394	81%	41	(89)
10,00<100,00	149	2	23.6%	149	21.8%	15,943	52.8%	-	182	123%	17	(15)
100(Default)	489	0	-	489	100.0%	45,963	47.1%	-	32	6%	230	(344)
Retail - qualifying revolving (QRRE)	**6,525**	**15,642**	**20.2%**	**9,682**	**6.7%**	**9,357,746**	**73.3%**	**-**	**6,938**	**72%**	**537**	**(584)**
0,00<0,16	1,037	4,630	27.1%	2,292	0.0%	3,013,540	47.7%	-	32	1%	0	(1)
0,16<0,26	15	36	31.2%	26	0.2%	48,972	51.2%	-	2	6%	0	()
0,26<0,51	109	143	28.2%	149	0.3%	191,439	50.6%	-	12	8%	0	()
0,51<0,77	399	1,449	13.3%	591	0.5%	458,275	77.3%	-	108	18%	2	(5)
0,77<2,51	1,323	4,355	14.7%	1,965	1.2%	1,406,510	81.2%	-	719	37%	19	(32)
2,51<10,00	2,450	4,507	18.9%	3,303	5.3%	3,074,446	82.9%	-	3,561	108%	146	(173)
10,00<100,00	994	522	31.4%	1,157	21.3%	1,013,184	83.0%	-	2,495	216%	205	(215)
100(Default)	199	0	19.9%	199	100.0%	151,380	82.6%	-	10	5%	164	(159)
Equity	**3,201**	**-**	**-**	**3,201**	**1.1%**	**-**	**88.8%**	**-**	**5,989**	**187%**	**30**	**-**
0,00<0,16	1,966	-	-	1,966	0.1%	-	89.8%	-	2,354	120%	2	-
0,16<0,26	118	-	-	118	0.2%	-	65.0%	-	124	105%	0	-
0,26<0,51	0	-	-	0	0.3%	-	65.0%	-	0	124%	0	-
0,51<0,77	-	-	-	-	0.0%	-	0.0%	-	-	-	-	-
0,77<2,51	508	-	-	508	0.9%	-	90.0%	-	1,287	253%	4	-
2,51<10,00	608	-	-	608	4.4%	-	89.3%	-	2,222	366%	24	-
10,00<100,00	-	-	-	-	0.0%	-	0.0%	-	-	0%	0	-
100(Default)	-	-	-	-	0.0%	-	0.0%	-	-	0%	-	-
Total Advanced Approach	**205,256**	**86,788**	**46.3%**	**224,822**	**4.7%**	**11,541,597**	**36.0%**		**83,154**	**37%**	**3,241**	**(4,898)**

(1) PD intervals recommended by EBA guidelines on Pilar III disclosure requirements (Eighth Part of CRR)

(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

(6) Exposures under the FIRB method correspond to Specialised Lending, for which the Group has opted for the method of supervisory slotting criteria, in line with article 153.5 of CRR

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 [6]	7,190	955	77.6%	7,931	-	500	-		7,021	89%	234	(109)
Corporate - Specialized lending	7,190	955	77.6%	7,931	-	500	-	-	7,021	89%	234	(109)
Prudential portfolios for AIRB approach	206,089	85,560	42.5%	224,504	6.0%	11,479,545	34.8%		83,577	37%	4,635	(6,975)
Central governments or central banks	**5,288**	**376**	**49.9%**	**6,977**	**0.4%**	**134**	**27.9%**	**67**	**409**	**6%**	**5**	**(4)**
0,00<0,16	4,543	136	49.9%	6,466	0.0%	37	26.9%	69	179	3%	1	(2)
0,16<0,26	96	72	50.0%	183	0.2%	20	42.7%	59	18	10%	0	()
0,26<0,51	77	1	39.0%	121	0.3%	6	48.8%	60	48	40%	0	()
0,51<0,77	117	0	0.0%	88	0.6%	6	38.0%	94	35	39%	0	()
0,77<2,51	9	25	50.0%	4	1.5%	9	35.5%	50	3	74%	0	()
2,51<10,00	356	125	50.1%	89	4.7%	40	40.2%	74	121	136%	2	(1)
10,00<100,00	1	9	50.2%	5	21.2%	2	20.0%	5	5	103%	0	()
100(Default)	88	8	50.0%	21	100.0%	14	9.9%	59	0	1%	2	(1)
Institutions	**27,398**	**6,761**	**55.9%**	**12,560**	**1.0%**	**1,869**	**40.8%**	**44**	**3,988**	**32%**	**55**	**(62)**
0,00<0,16	18,770	4,486	55.5%	9,991	0.1%	948	41.4%	47	2,262	23%	3	(7)
0,16<0,26	3,506	908	62.8%	752	0.2%	196	37.0%	44	291	39%	1	(1)
0,26<0,51	3,587	816	54.0%	743	0.3%	200	33.6%	39	324	44%	1	(1)
0,51<0,77	510	158	62.9%	336	0.5%	121	36.6%	33	214	64%	1	()
0,77<2,51	466	346	50.8%	461	1.2%	183	44.2%	40	515	112%	2	(1)
2,51<10,00	326	43	53.2%	147	3.7%	146	48.0%	42	250	170%	3	(4)
10,00<100,00	40	3	50.8%	42	19.7%	28	45.5%	40	107	255%	4	(2)
100(Default)	193	1	86.5%	88	100.0%	47	47.0%	42	26	29%	41	(46)
Corporate SMEs	**14,260**	**3,606**	**43.9%**	**15,502**	**22.7%**	**43,278**	**47.7%**	**48**	**9,935**	**64%**	**1,666**	**(1,821)**
0,00<0,16	1,147	621	43.5%	1,835	0.1%	5,134	51.9%	56	520	28%	1	(4)
0,16<0,26	566	274	42.9%	1,015	0.2%	2,308	47.8%	43	381	37%	1	(2)
0,26<0,51	1,031	362	43.3%	1,402	0.3%	4,106	51.8%	47	704	50%	2	(6)
0,51<0,77	1,331	373	45.2%	1,505	0.5%	5,310	49.7%	46	896	59%	4	(6)
0,77<2,51	3,132	974	45.3%	3,201	1.2%	10,460	47.2%	46	2,623	82%	18	(18)
2,51<10,00	3,344	764	43.5%	2,943	4.2%	10,329	43.5%	42	3,369	114%	53	(194)
10,00<100,00	413	63	42.5%	309	16.1%	1,523	39.9%	62	501	162%	20	(14)
100(Default)	3,296	174	41.0%	3,291	100.0%	4,108	47.6%	63	942	29%	1,568	(1,577)
Corporate Non-SMEs	**50,757**	**53,929**	**50.6%**	**76,577**	**3.5%**	**13,759**	**42.1%**	**55**	**37,614**	**49%**	**800**	**(1,518)**
0,00<0,16	17,194	26,765	49.2%	30,981	0.1%	2,647	43.3%	59	8,885	29%	15	(34)
0,16<0,26	5,071	7,709	48.5%	9,200	0.2%	1,432	43.4%	56	3,687	40%	8	(12)
0,26<0,51	8,859	8,240	51.0%	13,089	0.3%	2,277	43.2%	62	6,927	53%	18	(28)
0,51<0,77	7,693	7,907	57.8%	11,311	0.5%	2,280	41.7%	54	7,395	65%	23	(18)
0,77<2,51	5,567	1,872	45.4%	5,420	1.0%	2,548	40.3%	45	4,806	89%	22	(19)
2,51<10,00	3,539	1,157	55.8%	3,650	3.4%	1,721	40.3%	44	4,486	123%	50	(93)
10,00<100,00	596	126	50.0%	646	13.1%	105	31.4%	23	957	148%	28	(17)
100(Default)	2,239	153	44.5%	2,279	100.0%	749	27.9%	49	470	21%	635	(1,297)
Retail - Mortgage exposures	**79,867**	**4,499**	**5.0%**	**80,073**	**6.1%**	**1,102,494**	**17.7%**	**-**	**8,268**	**10%**	**907**	**(1,192)**
0,00<0,16	58,258	3,219	5.0%	58,412	0.0%	852,045	16.2%	-	1,333	2%	5	(6)
0,16<0,26	3,609	49	5.0%	3,611	0.2%	41,780	22.6%	-	347	10%	2	(2)
0,26<0,51	2,740	410	5.0%	2,760	0.3%	38,939	25.2%	-	423	15%	2	(3)
0,51<0,77	2,097	242	5.0%	2,108	0.5%	28,012	25.3%	-	443	21%	3	(3)
0,77<2,51	4,066	333	5.0%	4,081	1.1%	49,623	23.0%	-	1,305	32%	10	(15)
2,51<10,00	3,981	205	5.0%	3,988	4.8%	45,473	20.6%	-	2,642	66%	38	(240)
10,00<100,00	637	41	5.0%	639	17.9%	7,550	23.1%	-	826	129%	26	(26)
100(Default)	4,478	0	5.1%	4,474	100.0%	39,072	18.4%	-	949	21%	821	(898)

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
Retail - Other exposures SMEs	**3,037**	**812**	**60.8%**	**3,456**	**13.4%**	**121,952**	**54.4%**	**-**	**1,608**	**47%**	**241**	**(198)**
0,00<0,16	196	175	58.9%	299	0.1%	16,665	54.8%	-	37	12%	0	()
0,16<0,26	90	53	61.1%	122	0.2%	5,308	55.9%	-	23	19%	0	()
0,26<0,51	186	80	60.9%	234	0.3%	9,094	56.1%	-	58	25%	0	()
0,51<0,77	284	116	60.4%	350	0.5%	12,120	54.7%	-	116	33%	1	(1)
0,77<2,51	702	200	63.3%	811	1.2%	26,454	54.2%	-	394	49%	5	(3)
2,51<10,00	1,019	151	61.1%	1,073	4.6%	36,181	55.1%	-	713	66%	27	(16)
10,00<100,00	207	25	57.6%	209	19.8%	7,592	51.5%	-	197	94%	21	(13)
100(Default)	354	12	52.5%	359	100.0%	8,538	52.0%	-	70	20%	186	(165)
Retail - Other exposures Non-SMEs	**8,879**	**19**	**53.5%**	**8,885**	**5.7%**	**821,034**	**53.1%**	**-**	**3,017**	**34%**	**209**	**(421)**
0,00<0,16	3,981	10	57.5%	3,987	0.1%	306,838	53.5%	-	358	9%	1	(3)
0,16<0,26	435	1	53.5%	436	0.2%	47,482	56.7%	-	103	24%	0	(1)
0,26<0,51	727	1	57.4%	728	0.3%	76,924	58.6%	-	254	35%	1	(2)
0,51<0,77	581	1	66.5%	581	0.6%	60,010	58.3%	-	273	47%	2	(3)
0,77<2,51	1,039	2	60.1%	1,038	1.2%	115,016	54.8%	-	640	62%	7	(9)
2,51<10,00	1,596	4	44.7%	1,597	4.3%	160,905	49.5%	-	1,204	75%	34	(101)
10,00<100,00	138	0	56.9%	136	21.6%	17,374	50.9%	-	161	118%	15	(14)
100(Default)	383	1	-	383	100.0%	36,485	38.8%	-	25	6%	149	(288)
Retail - qualifying revolving (QRRE)	**6,023**	**14,603**	**21.4%**	**9,154**	**6.6%**	**9,374,525**	**72.9%**	**-**	**6,764**	**74%**	**505**	**(527)**
0,00<0,16	942	4,804	29.3%	2,348	0.0%	3,132,253	48.1%	-	33	1%	0	(1)
0,16<0,26	16	48	34.0%	32	0.2%	67,924	51.6%	-	2	6%	0	()
0,26<0,51	160	355	20.9%	234	0.3%	247,187	63.4%	-	26	11%	1	()
0,51<0,77	376	1,745	11.6%	578	0.5%	542,379	76.8%	-	108	19%	2	(2)
0,77<2,51	989	3,059	15.0%	1,449	1.2%	1,234,690	80.0%	-	540	37%	14	(12)
2,51<10,00	2,414	4,057	20.0%	3,224	5.4%	2,872,090	83.7%	-	3,549	110%	147	(137)
10,00<100,00	959	533	30.3%	1,120	21.6%	1,131,749	83.5%	-	2,498	223%	203	(233)
100(Default)	168	0	17.8%	168	100.0%	146,253	82.0%	-	9	5%	137	(142)
Equity [7]	**3,390**	**-**	**-**	**3,390**	**0.5%**	**-**	**80.9%**	**-**	**4,953**	**146%**	**12**	**(1,123)**
0,00<0,16	2,174	-	-	2,174	0.1%	-	89.9%	-	2,604	120%	3	-
0,16<0,26	86	-	-	86	0.2%	-	65.0%	-	88	103%	0	-
0,26<0,51	1	-	-	1	0.3%	-	65.0%	-	1	124%	0	-
0,51<0,77	4	-	-	4	0.5%	-	65.0%	-	5	152%	0	-
0,77<2,51	1,108	-	-	1,108	1.3%	-	65.0%	-	2,212	200%	9	-
2,51<10,00	18	-	-	18	2.6%	-	65.0%	-	41	236%	0	-
10,00<100,00	-	-	-	-	0.0%	-	-	-	-	-	-	-
100(Default)	-	-	-	-	0.0%	-	-	-	-	-	-	-
Total Advanced Approach	**213,278**	**86,515**	**43.7%**	**232,435**	**6.0%**	**11,480,045**	**34.8%**		**90,598**	**39%**	**4,869**	**(7,084)**

(1) PD intervals recommended by EBA guidelines on Pilar III disclosure requirements (Eighth Part of CRR)

(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

(6) Exposures under the FIRB method correspond to Specialised Lending, for which the Group has opted for the method of supervisory slotting criteria, in line with article 153.5 of CRR

(7) Equity exposure as of December, 31, 2017, includes the impairment of Telefónica, S.A. for an amount of 1,123 million euros

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

Chart 8: Advanced measurement approach: EAD by obligor category

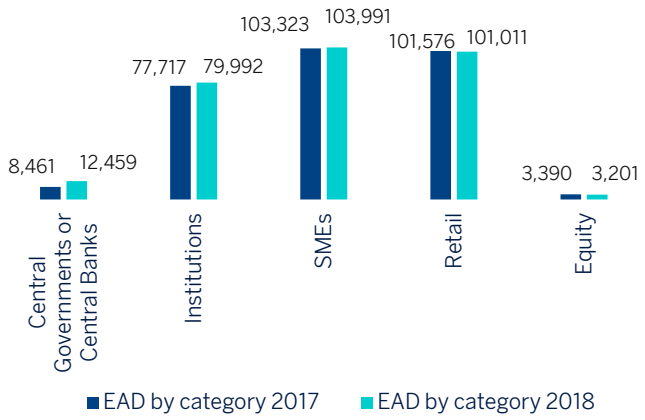


Chart 9: Advanced measurement approach: Average weighted PD by EAD

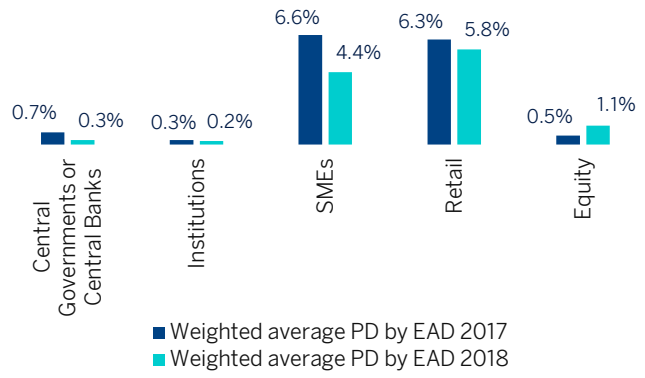


Chart 10: Advanced measurement approach: Average weighted LGD by EAD

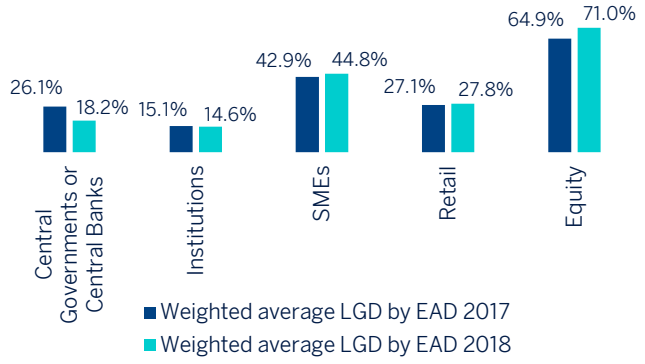
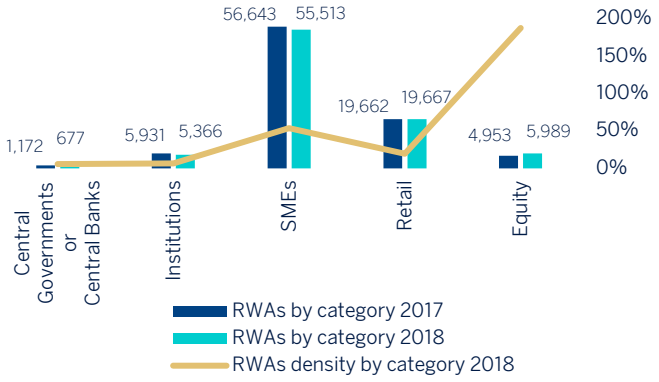


Chart 11: Advanced measurement approach: RWAs by obligor category



The table below shows a comparison of the PDs used in IRB models with the effective default rates of the Group's obligors for credit and counterparty risks. The table aims to provide backtesting data to validate the reliability of PD calculations.

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

Backtesting data is provided in the tables separately by geographies with advanced model approaches and the following are the criteria adopted in order to comply with the EBA standard template:

- 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 30. EU CR9 – IRB approach – Backtesting of PD per exposure class (BBVA S.A. 12-31-18)

PD Range	External rating equivalent	Weighted average PD	Arithmetic average PD by obligors	Number of obligors 12-31-2018	Number of obligors 12-31-2017	Defaulted obligors in the year	Average historical annual default rate
Central governments or central banks							
0.00<0.02	AAA	0.0%	0.0%	3	4	-	0.0%
0.02<0.03	AA+	0.0%	0.0%	2	2	-	0.0%
0.03<0.04	AA	0.0%	0.0%	-	-	-	0.0%
0.04<0.05	AA-	0.0%	0.0%	1	9	-	0.0%
0.05<0.06	A+	0.1%	0.1%	5	6	-	0.0%
0.06<0.09	A	0.1%	0.1%	1	-	-	0.0%
0.09<0.11	A-	0.1%	0.1%	2	8	-	0.0%
0.11<0.17	BBB+	0.1%	0.1%	5	9	-	0.0%
0.17<0.24	BBB	0.2%	0.2%	3	20	-	0.0%
0.29<0.39	BBB-	0.3%	0.3%	4	7	-	0.0%
0.39<0.67	BB+	0.5%	0.5%	1	7	-	0.0%
0.67<1.16	BB	0.9%	0.9%	3	2	-	0.0%
1.16<1.94	BB-	1.5%	1.5%	5	7	-	50.0%
1.94<3.35	B+	2.5%	2.5%	3	13	-	14.3%
3.35<5.81	B	4.4%	4.4%	7	20	-	0.0%
5.81<11.61	B-	6.7%	7.6%	4	8	2	20.0%
11.61<100.00	C	21.2%	21.2%	3	2	-	0.0%
100.00 (default)	D	100.0%	100.0%	5	14	-	0.0%
Institutions							
0.00<0.02	AAA	0.0%	0.0%	8	9	1	0.0%
0.02<0.03	AA+	0.0%	0.0%	11	9	-	0.0%
0.03<0.04	AA	0.0%	0.0%	29	22	-	0.0%
0.04<0.05	AA-	0.0%	0.0%	90	78	-	0.0%
0.05<0.06	A+	0.1%	0.1%	274	244	-	0.0%
0.06<0.09	A	0.1%	0.1%	245	238	-	0.0%
0.09<0.11	A-	0.1%	0.1%	532	479	8	0.1%
0.11<0.17	BBB+	0.1%	0.1%	1,178	1,190	10	0.3%
0.17<0.24	BBB	0.2%	0.2%	634	754	9	0.1%
0.29<0.39	BBB-	0.3%	0.3%	336	360	5	0.5%
0.39<0.67	BB+	0.5%	0.5%	209	226	-	0.9%
0.67<1.16	BB	0.9%	0.9%	88	107	-	2.6%
1.16<1.94	BB-	1.5%	1.5%	186	170	-	0.0%
1.94<3.35	B+	2.5%	2.5%	74	76	2	1.7%
3.35<5.81	B	4.4%	4.4%	36	31	1	4.1%
5.81<11.61	B-	7.9%	7.9%	35	42	2	0.0%
11.61<100.00	C	20.1%	21.0%	24	22	-	0.0%
100.00 (default)	D	100.0%	100.0%	91	91	-	0.0%
Corporate - SMEs							
0.00<0.02	AAA	0.0%	0.0%	85	104	-	0.0%
0.02<0.03	AA+	0.0%	0.0%	24	18	-	0.0%
0.03<0.04	AA	0.0%	0.0%	17	12	-	0.0%
0.04<0.05	AA-	0.0%	0.0%	33	40	-	0.0%
0.05<0.06	A+	0.1%	0.1%	11	13	-	0.0%
0.06<0.09	A	0.1%	0.1%	25	26	-	0.0%
0.09<0.11	A-	0.1%	0.1%	2,361	2,814	5	0.1%
0.11<0.17	BBB+	0.1%	0.1%	1,919	2,469	4	0.2%
0.17<0.24	BBB	0.2%	0.2%	1,812	2,342	3	0.1%
0.29<0.39	BBB-	0.3%	0.3%	2,798	4,029	10	0.3%
0.39<0.67	BB+	0.5%	0.5%	3,427	5,146	18	0.6%
0.67<1.16	BB	0.9%	0.9%	3,253	5,420	49	1.1%
1.16<1.94	BB-	1.5%	1.5%	2,828	4,910	60	1.7%
1.94<3.35	B+	2.6%	2.6%	2,849	4,469	81	2.6%
3.35<5.81	B	4.4%	4.4%	1,807	2,979	91	5.7%
5.81<11.61	B-	8.3%	9.3%	2,330	2,961	102	8.1%
11.61<100.00	C	15.7%	21.7%	1,028	1,553	130	18.1%
100.00 (default)	D	100.0%	100.0%	2,495	4,191	-	0.0%
Corporate - Non-SMEs							
0.00<0.02	AAA	0.0%	0.0%	1	-	-	0.0%
0.02<0.03	AA+	0.0%	0.0%	24	26	-	0.0%
0.03<0.04	AA	0.0%	0.0%	23	30	-	0.0%
0.04<0.05	AA-	0.0%	0.1%	21	21	-	0.0%
0.05<0.06	A+	0.1%	0.1%	41	43	-	0.0%
0.06<0.09	A	0.1%	0.1%	258	296	2	1.0%
0.09<0.11	A-	0.1%	0.1%	797	977	4	0.2%
0.11<0.17	BBB+	0.1%	0.1%	1,121	1,570	5	0.5%
0.17<0.24	BBB	0.2%	0.2%	1,103	1,504	6	0.3%
0.29<0.39	BBB-	0.3%	0.3%	1,465	2,218	5	0.5%
0.39<0.67	BB+	1.0%	0.5%	875	1,991	11	1.2%
0.67<1.16	BB	0.9%	0.9%	647	1,190	4	1.1%
1.16<1.94	BB-	1.5%	1.6%	434	711	11	1.9%
1.94<3.35	B+	2.6%	2.7%	481	678	8	3.3%
3.35<5.81	B	4.4%	4.7%	190	369	17	9.2%
5.81<11.61	B-	8.0%	9.5%	135	185	11	10.3%
11.61<100.00	C	15.9%	17.2%	55	72	10	24.7%
100.00 (default)	D	100.0%	100.0%	360	551	-	0.0%

PD Range	External rating equivalent	Weighted average PD	Arithmetic average PD by obligors	Number of obligors 12-31-2018	Number of obligors 12-31-2017	Defaulted obligors in the year	Average historical annual default rate
Retail - Mortgage exposures							
0.00<0.02	AAA	0.0%	0.0%	424,862	425,773	98	0.0%
0.02<0.03	AA+	0.0%	0.0%	85,594	91,467	82	0.1%
0.03<0.04	AA	0.0%	0.0%	15,557	15,066	25	0.1%
0.04<0.05	AA-	0.0%	0.0%	134,256	137,763	110	0.1%
0.05<0.06	A+	0.1%	0.1%	11,754	12,625	3	0.0%
0.06<0.09	A	0.1%	0.1%	83,183	79,387	135	0.2%
0.09<0.11	A-	0.1%	0.1%	32,424	32,317	63	0.1%
0.11<0.17	BBB+	0.1%	0.1%	59,594	57,647	136	0.2%
0.17<0.24	BBB	0.2%	0.2%	40,742	41,780	168	0.4%
0.29<0.39	BBB-	0.3%	0.3%	39,778	38,939	141	0.4%
0.39<0.67	BB+	0.5%	0.5%	27,410	28,012	146	0.8%
0.67<1.16	BB	0.8%	0.8%	25,358	26,559	239	1.2%
1.16<1.94	BB-	1.7%	1.4%	20,598	23,064	354	2.1%
1.94<3.35	B+	2.7%	2.7%	15,015	16,889	537	4.7%
3.35<5.81	B	4.2%	4.2%	9,750	11,762	767	10.2%
5.81<11.61	B-	7.2%	7.2%	14,798	16,822	1,579	13.6%
11.61<100.00	C	18.2%	18.7%	6,852	7,550	1,296	30.1%
100.00 (default)	D	100.0%	100.0%	33,927	39,072	-	0.0%
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	-	-	-	-	-	-
0.09<0.11	A-	0.1%	0.1%	12,121	11,473	6	0.0%
0.11<0.17	BBB+	0.1%	0.1%	7,017	5,331	2	0.0%
0.17<0.24	BBB	0.2%	0.2%	5,708	5,349	10	0.0%
0.29<0.39	BBB-	0.3%	0.3%	9,379	9,193	36	0.0%
0.39<0.67	BB+	0.5%	0.5%	13,901	12,242	46	0.0%
0.67<1.16	BB	0.9%	0.9%	14,516	13,614	84	0.0%
1.16<1.94	BB-	1.5%	1.5%	15,168	13,238	130	0.0%
1.94<3.35	B+	2.6%	2.6%	15,041	14,627	282	1.7%
3.35<5.81	B	4.4%	4.4%	13,639	12,355	336	0.0%
5.81<11.61	B-	8.1%	8.1%	11,875	9,971	472	0.0%
11.61<100.00	C	19.6%	19.9%	8,742	7,795	946	0.0%
100.00 (default)	D	100.0%	100.0%	11,259	8,653	-	0.0%
Retail - Other exposures Non-SMEs							
0.00<0.02	AAA	0.0%	0.0%	127,422	109,370	41	0.0%
0.02<0.03	AA+	0.0%	0.0%	13,725	12,758	13	0.0%
0.03<0.04	AA	0.0%	0.0%	30,967	30,512	4	0.0%
0.04<0.05	AA-	0.0%	0.0%	938	782	2	0.1%
0.05<0.06	A+	0.1%	0.1%	16,432	14,125	15	0.0%
0.06<0.09	A	0.1%	0.1%	58,448	52,443	49	0.1%
0.09<0.11	A-	0.1%	0.1%	23,608	20,076	39	0.1%
0.11<0.17	BBB+	0.1%	0.1%	77,990	66,777	235	0.2%
0.17<0.24	BBB	0.2%	0.2%	55,305	47,482	246	0.4%
0.29<0.39	BBB-	0.3%	0.3%	86,456	76,925	495	0.4%
0.39<0.67	BB+	0.6%	0.6%	65,409	60,011	614	0.7%
0.67<1.16	BB	0.9%	0.9%	62,770	60,232	867	0.7%
1.16<1.94	BB-	1.5%	1.5%	54,836	54,792	1,113	1.7%
1.94<3.35	B+	2.6%	2.6%	57,172	58,578	1,432	1.1%
3.35<5.81	B	4.5%	4.5%	65,823	72,510	2,622	3.6%
5.81<11.61	B-	7.4%	7.4%	25,615	29,825	1,682	7.5%
11.61<100.00	C	22.0%	22.0%	15,842	17,376	4,107	26.1%
100.00 (default)	D	100.0%	100.0%	45,874	36,485	-	0.0%
Retail - qualifying revolving (QRRE)							
0.00<0.02	AAA	0.0%	0.0%	2,247,434	2,329,553	662	0.0%
0.02<0.03	AA+	0.0%	0.0%	192,205	200,306	211	0.1%
0.03<0.04	AA	0.0%	0.0%	76,175	74,047	124	0.1%
0.04<0.05	AA-	0.0%	0.0%	94,398	103,172	131	0.1%
0.05<0.06	A+	0.1%	0.1%	58,936	62,530	113	0.1%
0.06<0.09	A	0.1%	0.1%	122,460	126,848	340	0.2%
0.09<0.11	A-	0.1%	0.1%	69,750	64,513	146	0.2%
0.11<0.17	BBB+	0.1%	0.1%	152,190	171,283	760	0.3%
0.17<0.24	BBB	0.2%	0.2%	48,987	67,924	248	0.3%
0.29<0.39	BBB-	0.3%	0.3%	191,447	195,989	1,266	0.5%
0.39<0.67	BB+	0.5%	0.5%	130,075	137,800	1,377	0.9%
0.67<1.16	BB	0.9%	0.9%	155,087	168,930	2,651	1.2%
1.16<1.94	BB-	1.6%	1.5%	69,194	71,915	1,530	1.9%
1.94<3.35	B+	2.6%	2.6%	120,340	121,293	4,030	2.5%
3.35<5.81	B	4.4%	4.4%	63,878	64,420	2,662	3.7%
5.81<11.61	B-	7.3%	7.3%	46,252	46,855	2,963	5.3%
11.61<100.00	C	15.0%	15.5%	30,412	33,622	4,056	10.1%
100.00 (default)	D	100.0%	100.0%	52,908	33,994	-	0.0%
Corporate - Specialized lending							

EU CR9 – IRB approach – Backtesting of PD per exposure class (Bancomer. 12-31-18)

PD Range	External rating equivalent	Weighted average PD	Arithmetic average PD by obligors	Number of obligors 12-31-2018	Number of obligors 12-31-2017	Defaulted obligors in the year	Average historical annual default rate
Corporate - SMEs							
0.00<0.02	AAA	-	-	1	-	-	-
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+	0.1%	0.1%	1	-	-	0.0%
0.17<0.24	BBB	0.2%	0.2%	35	138	-	0.0%
0.29<0.39	BBB-	0.3%	0.3%	675	358	-	0.0%
0.39<0.67	BB+	0.5%	0.5%	1,448	517	-	0.0%
0.67<1.16	BB	0.9%	0.9%	591	492	-	0.0%
1.16<1.94	BB-	1.5%	1.4%	391	338	-	0.0%
1.94<3.35	B+	2.6%	2.5%	302	249	-	0.0%
3.35<5.81	B	4.2%	4.0%	192	111	-	0.0%
5.81<11.61	B-	7.3%	8.1%	481	63	-	0.0%
11.61<100.00	C	14.8%	14.1%	135	30	-	0.0%
100.00 (default)	D	100.0%	100.0%	880	-	-	0.0%
Corporate - Non-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+	0.1%	0.0%	6	2	-	0.0%
0.06<0.09	A	0.1%	0.0%	29	15	-	0.0%
0.09<0.11	A-	0.1%	0.1%	16	14	-	0.0%
0.11<0.17	BBB+	0.0%	0.1%	87	66	-	0.0%
0.17<0.24	BBB	0.2%	0.2%	209	124	-	0.0%
0.29<0.39	BBB-	0.3%	0.3%	3,374	348	3	0.0%
0.39<0.67	BB+	0.5%	0.5%	4,683	513	5	0.9%
0.67<1.16	BB	0.9%	0.9%	1,784	439	10	2.0%
1.16<1.94	BB-	1.5%	1.5%	1,808	393	13	1.5%
1.94<3.35	B+	2.6%	2.6%	1,100	301	12	1.2%
3.35<5.81	B	4.3%	4.3%	431	172	15	3.1%
5.81<11.61	B-	7.8%	8.0%	7,356	95	17	1.2%
11.61<100.00	C	17.2%	15.4%	135	36	2	1.7%
100.00 (default)	D	100.0%	100.0%	143	216	14	47.1%
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+	-	-	-	1	-	-
0.17<0.24	BBB	-	-	-	-	-	-
0.29<0.39	BBB-	-	-	-	51,198	-	0.1%
0.39<0.67	BB+	0.5%	0.5%	328,226	404,579	777	0.2%
0.67<1.16	BB	0.9%	0.9%	684,538	452,764	2,292	0.4%
1.16<1.94	BB-	1.6%	1.6%	497,696	541,081	4,149	0.8%
1.94<3.35	B+	2.6%	2.6%	635,913	692,988	8,682	1.2%
3.35<5.81	B	4.5%	4.5%	800,168	803,451	14,869	1.7%
5.81<11.61	B-	7.9%	8.1%	1,408,862	1,143,083	25,300	1.9%
11.61<100.00	C	21.4%	20.4%	982,794	1,098,127	42,675	3.4%
100.00 (default)	D	100.0%	100.0%	98,562	112,259	13,610	1.7%

EU CR9 – IRB approach – Backtesting of PD per exposure class (BBVA Ireland. 12-31-18)

PD Range	External rating equivalent	Weighted average PD	Arithmetic average PD by obligors	Number of obligors 12-31-2018	Number of obligors 12-31-2017	Defaulted obligors in the year	Average historical annual default rate
Institutions							
0.11<0.17	BBB+	0.1%	0.1%	1	-	0	0.0%
Corporate - Non-SMEs							
0.11<0.17	BBB+	0.1%	0.1%	1	5	0	0.0%
0.24<0.39	BBB-	0.3%	0.3%	1	5	0	0.0%

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

Table 31. EU CR8 – RWA flow statements of credit and counterparty 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, 2017	**78,624**	**6,290**	**4,784**	**383**
Asset size	(999)	(80)	258	21
Asset quality	(365)	(29)	(1,024)	(82)
Model updates	(1,430)	(114)	-	-
Methodology and policy	-	-	-	-
Acquisitions and disposals	-	-	-	-
Foreign exchange movements	1,319	105	38	3
Other	17	1	-	-
RWAs as of December 31, 2018	**77,166**	**6,173**	**4,056**	**325**

Of particular note in the evolution of credit risk-weighted assets measured using internal models in 2018 were:

- The update to some of the model's parameters. In this regard, the PD parameter was re-estimated in the BBVA SA Corporates portfolio (introducing three additional years of defaults in the historical series), reducing RWAs by EUR 2.16 billion.

  In addition, a more restrictive downturn LGD was used for the Large Corporates portfolio at BBVA Bancomer, resulting in an increase of approximately EUR 1.20 billion in RWAs. By comparison, it improved the model's discriminatory capacity in the ratings, which reduced RWAs by approximately EUR 470 million.

- The deleveraging occurring in the portfolios under the IRB model in Spain, and the effect of releasing RWAs—which caused the new securitizations that took place in 2018, and an improvement to the bank's risk profile—reduced RWAs by EUR 1.36 billion.

- In regard to the exchange rate, it should be noted that exposures in US dollars and Mexican pesos increased due to the appreciation of these currencies against the euro.

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 2018. They also present the average effective loss between 2001 and 2018 in accordance with the following:

- **Expected loss:** expected regulatory loss calculated with the internal estimates based on calibrations in force as of 2018, 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 severity[2].

- **Average:** effective average loss (2001-2018), 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.

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.

The comparison has been made for the portfolios of Mortgages, Consumer Finance, Credit Cards (2004-2018 window) and Autos (retail), and SMEs and Developers (2008-2018 window), all of them in Spain and Portugal. In Mexico, the comparison has been carried out for the Credit Card portfolio (2006-2018 window), SMEs, and Large Companies (2006-2018 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

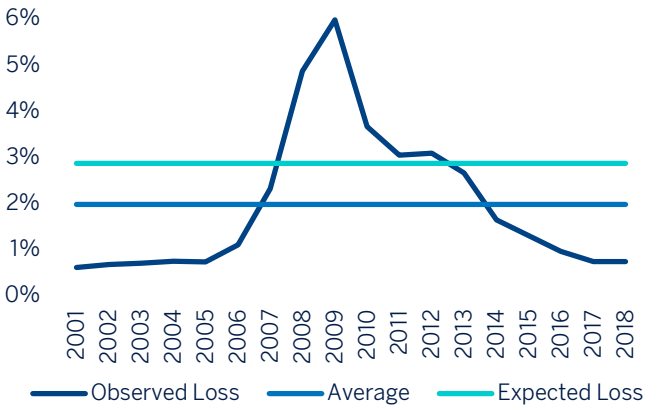
Starting in 2007, the effective losses are above the expected loss adjusted to the cycle, as they are losses incurred in years of crisis. The effective losses are in line with that adjusted to the cycle.

Chart 12: 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.

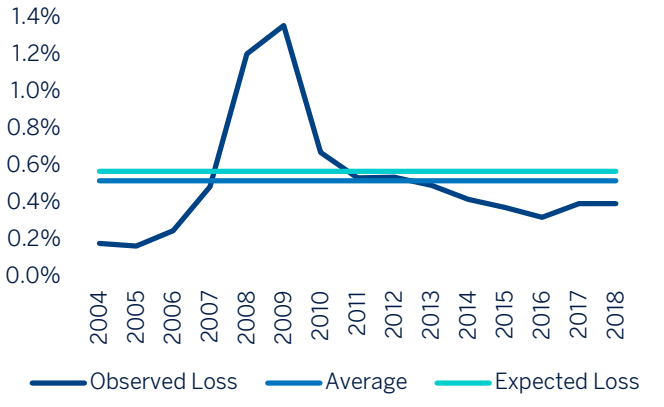
Chart 13: Comparative analysis of expected loss: Consumer finance



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.

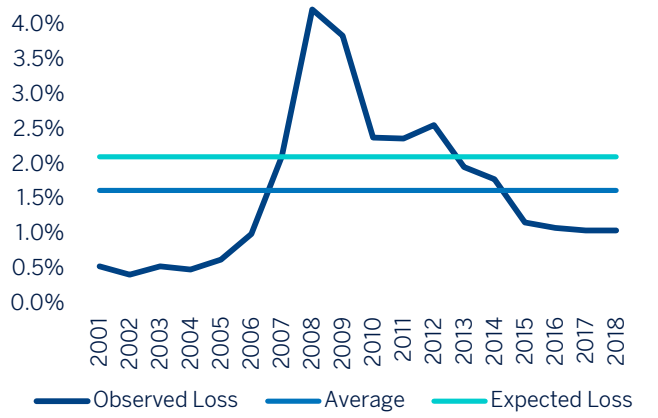
Chart 14: Comparative analysis of expected loss: Credit cards



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.

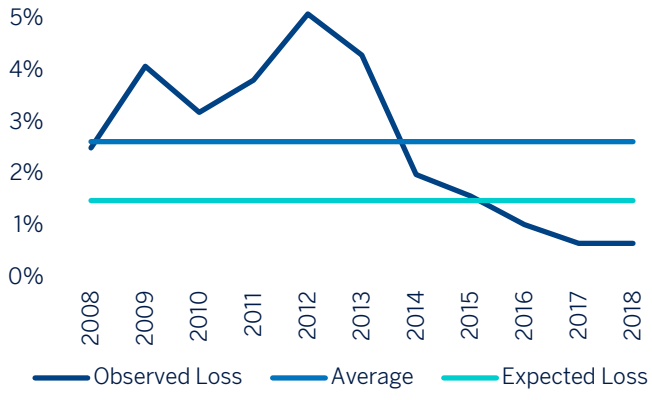
Chart 15: Comparative analysis of expected loss: Automobiles



SMEs and Developers

Due to a methodological change in the estimate of LGD, only the expected loss for the 2008-2018 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).

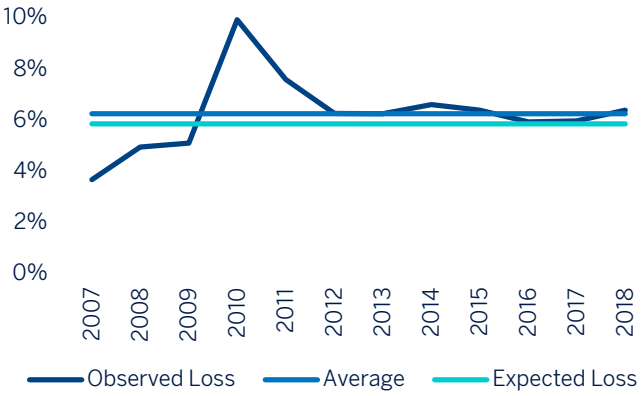
Chart 16: Comparative analysis of expected loss: SMEs and Developers



Mexico Credit Cards

In the case of the main Bancomer card portfolio the average Expected Loss of the cycle is slightly in line with the average of observed losses.

Chart 17: Comparative analysis of expected loss: Mexico Credit Cards



Mexico Corporates

As with the credit cards 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 18: Comparative analysis of expected loss: Mexico Corporates

3.2.5.4 Risk weightings of specialized lending exposures

The solvency regulation stipulates that the consideration of specialized 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, 2018.

Table 32. EU CR10 (1) – IRB: specialised lending (Million Euros. 12-31-18)

		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	2,994	709	70%	3,664	2,565	15
Category 2	Less than 2.5 years	315	52	70%	351	246	1
Category 2	Equal to or more than 2.5 years	1,791	434	90%	2,128	1,915	17
Category 3	Less than 2.5 years	243	15	115%	251	288	7
Category 3	Equal to or more than 2.5 years	681	175	115%	851	979	24
Category 4	Less than 2.5 years	12	1	250%	14	34	1
Category 4	Equal to or more than 2.5 years	83	39	250%	122	304	10
Category 5	Less than 2.5 years	110	6	-	113	-	57
Category 5	Equal to or more than 2.5 years	39	8	-	44	-	22
Total	**Less than 2.5 years**	**680**	**74**		**728**	**568**	**66**
Total	**Equal to or more than 2.5 years**	**5,588**	**1,364**		**6,808**	**5,763**	**87**

(1) Corresponds to the amount of the exposures net of provisions

(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. 12-31-17)

		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	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	-	153	-	77
Category 5	Equal to or more than 2.5 years	109	58	-	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 exposures net of provisions

(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

3.2.5.5. Equity exposures by calculation method

The following table presents equity exposures by internal, PD/LGD and simple method (in this case, broken down by risk weighting) methods as of December 31, 2018 and December 31, 2017.

Table 33. EU CR10 (2) – IRB: Equity (Million Euros. 12-31-18)

	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	343	-	190%	343	651	52
Simple method - Exchange-traded equity exposures	309	-	290%	309	897	72
Simple method - Other Equity Exposures	61	-	370%	61	224	18
Exposures subject to 261% risk weight	2,525	-	250%	2,525	6,314	505
Internal model	383			383	1,172	94
PD/LGD method	3,201	-		3,201	5,989	479
Total	**6,822**	**-**		**6,822**	**15,246**	**1,220**

(1) Corresponds to the amount of the exposures net of provisions

(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 (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 261% risk weight	3,098	-	250%	3,099	7,747	620
Internal 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 exposures net of provisions

(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

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.

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 estimate the credit exposures for each of the counterparties for which the entity operates.

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 by 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.

The capital by 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 authorized 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 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 recognized, 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.

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 2018, in addition, with the entry into force of the regulatory requirements for the exchange of margins for derivatives not offset in clearing house, all signed collateral annexes are adequate to the characteristics required by the regulation, including the establishment of 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, standardized 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 34. Positions subject to counterparty credit risk in terms of OE, EAD and RWAs (Million Euros. 12-31-18)

	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	7,616	746	299	3	3	3	227	272	11	7,846	1,022	313
Regional governments or local authorities	-	-	-	3	3	1	1	1	0	5	5	1
Public sector entities	-	-	-	1	1		-	-	-	1	1	0
Multilateral Development Banks	-	-	-	-	-	-	-	-	-	-	-	-
Institutions	4,364	834	178	1,694	1,382	485	1,676	989	549	7,735	3,205	1,212
Corporates	1,237	208	208	769	769	767	493	468	460	2,498	1,444	1,435
Retail	0	0	0	16	16	11	7	7	4	23	23	15
Secured by mortgages on immovable property	-	-	-	-	-	-	-	-	-	-	-	-
Exposures in default	-	-	-	21	21	31	0	0	0	21	21	31
Exposures associated with particularly high risk	-	-	-	-	-	-	-	-	-	-	-	-
Covered bonds	-	-	-	-	-	-	-	-	-	-	-	-
Short-term claims on institutions and corporate	-	-	-	-	-	-	-	-	-	-	-	-
Collective investments undertakings	7	0	0	0	0	0	-	-	-	7	0	0
Other exposures	-	8,517	-	-	312	-	-	714	-	-	9,543	-
Total credit risk by standardised approach	**13,224**	**10,306**	**685**	**2,508**	**2,508**	**1,298**	**2,404**	**2,451**	**1,025**	**18,136**	**15,265**	**3,008**
Central governments or central banks	4,814	4,814	217	18	18	9	-	-	-	4,831	4,831	226
Institutions	50,179	50,179	425	1,926	1,926	453	15,585	15,405	913	67,690	67,510	1,790
Corporates	17	17	0	795	795	548	2,671	2,671	1,489	3,483	3,483	2,037
Of which: SMEs	-	-	-	36	36	30	78	78	66	114	114	96
Of which: companies of specialized finance	-	-	-	266	266	201	770	770	708	1,036	1,036	909
Of which: other	17	17	0	494	494	317	1,823	1,823	715	2,333	2,333	1,032
Retail	-	-	-	3	3	1	4	4	2	7	7	3
Of which: Secured by real estate collateral	-	-	-	-	-	-	-	-	-	-	-	-
Of which: Qualifying revolving retail	-	-	-	-	-	-	-	-	-	-	-	-
Of which: Other retail assets	-	-	-	3	3	1	4	4	2	7	7	3
Other corporates: SMEs	-	-	-	3	3	1	4	4	2	7	7	3
Other corporates: No SMEs	-	-	-	0	0	0	0	0	0	0	0	0
Total credit risk by IRB approach	**55,010**	**55,010**	**643**	**2,742**	**2,742**	**1,011**	**18,260**	**18,080**	**2,403**	**76,012**	**75,832**	**4,056**
Total credit risk	**68,234**	**65,316**	**1,327**	**5,250**	**5,250**	**2,309**	**20,664**	**20,530**	**3,428**	**94,148**	**91,096**	**7,065**

Positions subject to counterparty credit risk in terms of OE, EAD and RWAs (Million Euros. 12-31-17)

	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	-	-	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	-	-	-	-	-	-	-	-	-	-	-	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	-	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	-	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	-	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	-	-	-	-	-	-	-	-	-	-	-	-
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**

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

Table 35. Amounts of counterparty risk in the trading book (Million Euros)

Counterparty Risk Trading Book Activities	2018		2017	
	Mtm Method	Internal Models (IMM)	Mtm Method	Internal Models (IMM)
Standardised Approach	193		194	
Advanced Approach	323		296	
Total	**516**		**490**	

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, 2018 and December 31, 2017:

Table 36. EU CCR5-A – Impact of netting and collateral held on exposure values [1] (Million Euros. 12-31-18)

	Gross positive fair value or net carrying amount	Netting benefits	Netted current credit exposure	Collateral held	Net credit exposure
Derivatives [2]	35,349	(23,940)	11,409	(6,219)	5,190
SFTs [3]	27,758	(35)	27,723	(25,359)	2,364
Cross-product netting	-	-	-	-	-
Total	**63,108**	**(23,941)**	**39,167**	**(31,578)**	**7,554**

(1) SFTs include 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

(3) Inludes solely the amount of reverse repo transactions

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	(6,028)	6,770
SFTs [3]	25,979	(644)	25,335	(26,219)	(884)
Cross-product netting	-	-	-	-	-
Total	**68,104**	**(29,972)**	**38,133**	**(32,247)**	**5,886**

(1) SFTs include both relative amount of recognized 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 included

(3) Includes solely the amount of reverse repo transactions

Below, there 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 37. EU CCR1 – Analysis of CCR exposure by approach (Million Euros)

	12-31-2018				12-31-2017			
	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	11,082	11,020	20,278	5,569	12,514	10,254	21,213	6,001
Internal Model Method (for derivatives and SFTs)	-	-	-	-			-	-
Simple Approach for credit risk mitigation (for SFTs)	-	-	-	-	-	-	-	-
Comprehensive Approach for credit risk mitigation (for SFTs)	-	-	61,331	1,180	-	-	56,937	1,643
VaR for SFTs	-	-	-	-	-	-	-	-
Total	**11,082**	**11,020**	**81,609**	**6,749**	**12,514**	**10,254**	**78,150**	**7,644**

3.2.6.2.1. Counterparty risk by standardized approach

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

Table 38. EU CCR3 – Standardised approach – CCR exposures by regulatory portfolio and risk (Million Euros. 12-31-18)

	Risk weight												
Exposure Class	**0%**	**2%**	**4%**	**10%**	**20%**	**50%**	**70%**	**75%**	**100%**	**150%**	**Others**	**Total**	**Of which: unrated (1)**
Central governments or central banks	649	-	-	-	71	8	-	-	295	-	-	1,022	193
Regional government or local authorities	-	-	-	-	4	-	-	-		-	-	5	5
Public sector entities	-	-	-	-	1	-	-	-		-	-	1	1
Multilateral development banks	-	-	-	-	-	-	-	-	-	-	-	-	-
International organisations	-	-	-	-	-	-	-	-	-	-	-	-	-
Institutions	-	275	98	-	1,622	664	-	-	546	-	-	3,205	3,170
Corporates	-	-	-	-	1	12	-	-	1,428	2	-	1,444	1,423
Retail	-	-	-	-	-	-	-	23	-	-	-	23	23
Institutions and corporates with a short term credit assessment	-	-	-	-	-	-	-	-	-	-	-	-	-
Other items	9,543	-	-	-	-	-	-	-		21	-	9,564	9,564
Total	**10,192**	**275**	**98**	**-**	**1,699**	**685**	**-**	**23**	**2,269**	**23**	**-**	**15,265**	**14,380**

(1) Of which: Unrated refers to exposures for which no credit rating from a designated ECAIs is available

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

	Risk weight												
Exposure Class	**0%**	**2%**	**4%**	**10%**	**20%**	**50%**	**70%**	**75%**	**100%**	**150%**	**Others**	**Total**	**Of which: unrated (1)**
Central governments or central banks	4,058	-	-	-	-	226	-	-	75	-	-	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	-	-	-	-	-	-	-	-	-	-	6,918	6,918
Total	**10,976**	**1,099**	**72**	**-**	**1,816**	**594**	**-**	**50**	**2,345**	**5**	**-**	**16,955**	**16,043**

(1) Of which: Unrated refers to exposures for which no credit rating from a designated ECAIs is available

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, 2018:

Table 39. EU CCR4 – IRB approach – CCR exposures by portfolio and PD scale (Million Euros)

PD scale as of 12-31-18 (1)	EAD post-CRM	Average PD (2)	Number of Obligors	Average LGD (3)	Average Maturity (days) (4)	RWAs	RWA Density
Prudential Portfolio- FIRB method (5)	1,036	-	331	-		909	88%
Corporate - Specialized lending	**1,036**	**-**	**331**	**-**	**-**	**909**	**88%**
Prudential Portfolio- AIRB method	74,796	0.2%	6,946	10.4%		3,147	4%
Central governments or central banks	**4,831**	**0.2%**	**6**	**3.8%**	**38**	**226**	**5%**
0.00 to <0.16	4,643	0.1%	2	2.3%	1	14	0%
0.16 to <0.26	17	0.2%	1	40.0%	115	8	46%
0.26 to <0.51	-	-	-	-	-	-	-
0.51 to <0.77	-	-	-	-	-	-	-
0.77 to <2.5	-	-	-	-	-	-	-
2.51 to <10,00	172	4.4%	3	40.0%	37	204	119%
10,00 to <100,00	-	-	-	-	-	-	-
100,00 (Default)	-	-	-	-	-	-	-
Institutions	**67,510**	**0.2%**	**2,362**	**9.8%**	**22**	**1,790**	**3%**
0.00 to <0.16	54,373	0.1%	1,879	11.5%	23	1,422	3%
0.16 to <0.26	4,514	0.2%	184	2.8%	23	86	2%
0.26 to <0.51	4,786	0.3%	90	2.0%	15	85	2%
0.51 to <0.77	1175	0.5%	33	5.3%	29	74	6%
0.77 to <2.5	2199	1.3%	157	2.4%	16	90	4%
2.51 to <10,00	460	2.7%	14	3.1%	11	33	7%
10,00 to <100,00	2	21.2%	5	20.0%	59	1	42%
100,00 (Default)	-	-	-	-	-	-	-
Corporate - SMEs	**114**	**15.7%**	**1,814**	**41.2%**	**64**	**96**	**84%**
0.00 to <0.16	9	0.1%	313	40.1%	47	2	19%
0.16 to <0.26	5	0.2%	139	42.4%	61	1	27%
0.26 to <0.51	4	0.3%	190	40.6%	68	1	35%
0.51 to <0.77	5	0.5%	276	40.5%	69	3	54%
0.77 to <2.5	39	1.3%	444	41.4%	59	41	104%
2.51 to <10,00	36	4.5%	340	41.2%	75	43	120%
10,00 to <100,00	0	18.6%	33	40.3%	83	0	168%
100,00 (Default)	16	100.0%	79	41.3%	79	5	31%
Corporate - Non-SMEs	**2,333**	**0.3%**	**1,591**	**40.2%**	**66**	**1,032**	**44%**
0.00 to <0.16	1,290	0.1%	589	38.8%	62	343	27%
0.16 to <0.26	228	0.2%	259	41.0%	58	87	38%
0.26 to <0.51	331	0.3%	357	43.9%	82	237	72%
0.51 to <0.77	407	0.5%	139	40.8%	51	284	70%
0.77 to <2.5	47	1.1%	166	43.0%	70	45	97%
2.51 to <10,00	30	2.9%	60	43.9%	77	35	116%
10,00 to <100,00	0	11.9%	3	42.7%	81	0	208%
100,00 (Default)	1	100.0%	18	44.0%	84	0	14%
Retail - Other SMEs	**7**	**33.3%**	**1,135**	**40.4%**	**-**	**3**	**39%**
0.00 to <0.16	0	0.1%	116	40.0%	-	-	9%
0.16 to <0.26	0	0.2%	55	40.0%	-	-	13%
0.26 to <0.51	0	0.3%	57	40.0%	-	-	18%
0.51 to <0.77	0	0.5%	139	40.0%	-	-	24%
0.77 to <2.5	0	1.2%	232	40.0%	-	-	35%
2.51 to <10,00	2	5.9%	345	40.0%	-	1	47%
10,00 to <100,00	2	20.6%	104	40.0%	-	1	66%
100,00 (Default)	2	100.0%	87	41.6%	-	-	14%
Retail - Other Non-SMEs	**0**	**4.5%**	**38**	**40.0%**	**-**	**-**	**56%**
0.00 to <0.16	0	0.1%	16	40.0%	-	-	7%
0.16 to <0.26	-	-	-	-	-	-	-
0.26 to <0.51	-	-	-	-	-	-	-
0.51 to <0.77	-	-	-	-	-	-	-
0.77 to <2.5	0	0.9%	11	40.0%	-	-	50%
2.51 to <10,00	0	5.2%	9	40.0%	-	-	63%
10,00 to <100,00	-	-	2	-	-	-	-
100,00 (Default)	-	-	-	-	-	-	-
Total Advanced Approach	75,832	0.2%	7,277	10.4%		4,056	5%

(1) PD intervals recommended by EBA guidelines on Pilar III disclosure requirements (Eighth Part of CRR)

(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

(5) Exposures under the FIRB method correspond to Specialised Lending, for which the Group has opted for the method of supervisory slotting criteria, in line with article 153.5 of CRR

EU CCR4 – IRB approach – CCR exposures by portfolio and PD scale (Million Euros)

PD scale as of 12-31-18 (1)	EAD post-CRM	Average PD (2)	Number of Obligors	Average LGD (3)	Average Maturity (days) (4)	RWAs	RWA Density
Prudential Portfolio- FIRB method (5)	1,180	-	361	-		1,056	89%
Corporate - Specialized lending	**1,180**	**-**	**361**	**-**	**-**	**1,056**	**89%**
Prudential Portfolio- AIRB method	66,049	0.2%	7,958	26.0%		3,728	6%
Central governments or central banks	**1,154**	**2.6%**	**4**	**15.3%**	**48**	**763**	**66%**
0,00 to <0,15	59	0.0%	1	1.2%	1	0	0%
0,15 to <0,25	-	-	-	-	-	-	-
0,25 to <0,50	19	0.3%	1	40.0%	150	13	66%
0,50 to <0,75	446	0.5%	1	0.0%	37	-	0%
0,75 to <2,50	-	-	-	0.0%	-	-	0%
2,50 a <10,00	630	4.4%	1	26.7%	4	750	119%
10,00 to <100,00	-	-	-	-	-	-	-
100,00 (Default)	-	-	-	-	-	-	-
Institutions	**62,754**	**0.2%**	**2,082**	**26.2%**	**31**	**1,943**	**3%**
0,00 to <0,15	52,512	0.1%	1,651	26.6%	32	1,572	3%
0,15 to <0,25	2,698	0.2%	145	24.4%	23	90	3%
0,25 to <0,50	5,620	0.3%	77	25.4%	21	87	2%
0,50 to <0,75	206	0.5%	28	16.4%	32	30	14%
0,75 to <2,50	800	1.1%	154	23.7%	30	85	11%
2,50 a <10,00	913	3.9%	22	22.1%	45	77	8%
10,00 to <100,00	5	21.2%	4	22.3%	71	3	68%
100,00 (Default)	-	100.0%	1	-	-	-	-
Corporate - SMEs	**149**	**12.3%**	**2,514**	**39.6%**	**547**	**121**	**81%**
0,00 to <0,15	10	0.1%	362	36.1%	54	2	18%
0,15 to <0,25	9	0.2%	172	40.3%	42	2	26%
0,25 to <0,50	8	0.3%	281	40.4%	67	3	34%
0,50 to <0,75	11	0.5%	353	40.4%	52	5	47%
0,75 to <2,50	48	1.1%	700	38.9%	72	44	91%
2,50 a <10,00	46	4.7%	503	40.4%	80	58	126%
10,00 to <100,00	2	16.0%	60	35.2%	94	2	148%
100,00 (Default)	15	100.0%	83	40.5%	85	5	33%
Corporate - Non-SMEs	**1,985**	**0.3%**	**1,444**	**41.3%**	**73**	**897**	**45%**
0,00 to <0,15	1,072	0.1%	434	40.1%	68	286	27%
0,15 to <0,25	231	0.2%	199	39.8%	66	82	35%
0,25 to <0,50	203	0.3%	301	44.0%	75	111	55%
0,50 to <0,75	404	0.5%	225	43.9%	83	338	84%
0,75 to <2,50	56	1.1%	185	43.5%	95	54	96%
2,50 a <10,00	17	4.3%	79	41.4%	70	25	148%
10,00 to <100,00	0	20.5%	3	44.0%	85	1	230%
100,00 (Default)	1	100.0%	18	43.3%	66	0	37%
Retail - Other SMEs	**8**	**14.3%**	**1,889**	**38.1%**	**-**	**4**	**47%**
0,00 to <0,15	0	0.1%	139	36.0%	-	0	9%
0,15 to <0,25	0	0.2%	41	40.0%	-	0	11%
0,25 to <0,50	0	0.3%	99	40.0%	-	0	17%
0,50 to <0,75	0	0.4%	122	28.6%	-	0	23%
0,75 to <2,50	1	1.2%	398	40.0%	-	1	35%
2,50 a <10,00	2	4.6%	772	37.8%	-	1	47%
10,00 to <100,00	3	16.9%	203	40.0%	-	2	67%
100,00 (Default)	1	100.0%	115	26.7%	-	0	13%
Retail - Other Non-SMEs	**0**	**1.6%**	**25**	**26.2%**	**-**	**0**	**55%**
0,00 to <0,15	0	0.1%	5	26.7%	-	-	0%
0,15 to <0,25	-	-	-	-	-	-	0%
0,25 to <0,50	-	-	1	-	-	-	0%
0,50 to <0,75	-	-	1	-	-	-	0%
0,75 to <2,50	0	0.7%	8	20.0%	-	0	50%
2,50 a <10,00	0	1.7%	8	26.7%	-	0	57%
10,00 to <100,00	-	-	2	-	-	-	0%
100,00 (Default)	-	-	-	-	-	-	0%
Total Advanced Approach	67,229	0.2%	8,319	26.0%		4,784	7%

(1) PD intervals recommended by EBA guidelines on Pilar III disclosure requirements (Eighth Part of CRR)

(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

(5) Exposures under the FIRB method correspond to Specialised Lending, for which the Group has opted for the method of supervisory slotting criteria, in line with article 153.5 of CRR

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 derivate transactions and securities financing transactions as of December 31, 2018 and December 31, 2017 is presented below:

Table 40. EU CCR5-B – Composition of collateral for exposures to CCR (Million Euros. 12-31-18)

	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 (2)	Unsegregated (3)	Segregated (2)	Unsegregated (3)		
Cash- domestic currency	5	2,707	10	1	24,690	25,882
Cash- other currencies	0	1,146	12	88	13,900	1,841
Domestic sovereign debt	-	-	-	-	6,950	14,996
Other sovereign debt	-	6	-	-	8,760	16,301
Government agency debt	-	-	-	-	267	162
Corporate bonds	-	710	-	-	2,106	4,647
Equity securities	-	-	-	-	-	1,807
Other collateral	-	1,645	-	-	7,276	886
Total	**5**	**6,214**	**21**	**88**		

(1) Credit risk mitigation techniques are considered eligible according to title II, chapter 4, section 2 of CRR

(2) Refers to collateral that is held in a bankruptcy-remote manner.

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

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 (2)	Unsegregated (3)	Segregated (2)	Unsegregated (3)		
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) Credit risk mitigation techniques are considered eligible according to title II, chapter 4, section 2 of CRR

(2) Refers to collateral that is held in a bankruptcy-remote manner

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

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 41. EU CCR6 – Credit derivatives exposures (Million Euros. 12-31-18)

	Credit derivative hedges		Other credit derivatives
	Protection Bought	Protection Sold	
Notionals	**11,248**	**14,204**	**-**
Single-name credit default swaps	4,925	5,622	-
Index credit default swaps	5,824	6,421	-
Total return swaps	-	2,161	-
Credit options	500	-	-
Other credit derivatives	-	-	-
Fair Values	**(118)**	**(59)**	**-**
Positive fair value (asset)	68	164	-
Negative fair value (liability)	(186)	(223)	-

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

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

As of year-end 2018 and 2017, 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, 2018 and December 31, 2017, 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, 2018 and December 31, 2017 are below:

Table 42. EU CCR2 – CVA capital charge (Million Euros. 12-31-18)

	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	7,445	1,377
Total subject to the CVA capital charge	**7,445**	**1,377**

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**

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

Table 43. Variations in terms of RWAs of CVA (Million Euros)

CVA		
RWAs as of December 31, 2127		1,566
Effects	Asset size	(189)
RWAs as of December 31, 2018		1,377

As of December 2018, CVA's risk-weighted assets remain stable compared to December 2017.

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 44. EU CCR8 – Exposures to CCPs (Million Euros)

	12-31-2018		12-31-2017	
	EAD post CRM	RWA	EAD post CRM	RWA
Exposures to QCCPs (total)		191		186
Exposures for trades at QCCPs (excluding initial margin and default fund contributions); of which	6,219	146	5,903	119
(i) OTC Derivatives	98	4	482	11
(ii) Exchange-traded derivatives	275	5	689	14
(iii) Securities financing transactions (SFTs)	754	15	824	16
(iv) Netting sets where cross-product netting has been approved	5,092	122	3,909	78
Segregated initial margin	959		1,558	
Non-segregated initial margin	169	3	155	18
Pre-funded default fund contributions	71	41	87	49
Alternative calculation of own funds requirements for exposures		-		-
Exposures to non-QCCPs (total)		174		84
Exposures for trades at non-QCCPs (excluding initial margin and default to contributions; of which	484	169	132	80
(i) OTC Derivatives	30	30	17	17
(ii) Exchange-traded derivatives	7	7	6	3
(iii) Securities financing transactions (SFTs)	448	132	109	60
(iv) Netting sets where cross-product netting has been approved	-	-	-	-
Segregated initial margin	108		110	
Non-segregated initial margin	100	4	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, are 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 is another objectives associated with the use of securitisation instruments, such as freeing up of regulatory capital by transferring risks of a third party portfolio, as well as, freeing of potential excess over the expected loss, provided it is allowed by the volume of the first-loss tranche and risk transfer.

The main risks inherent to securitisation operations are detailed below:

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 instalments).

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 analysing 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 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 favour 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.

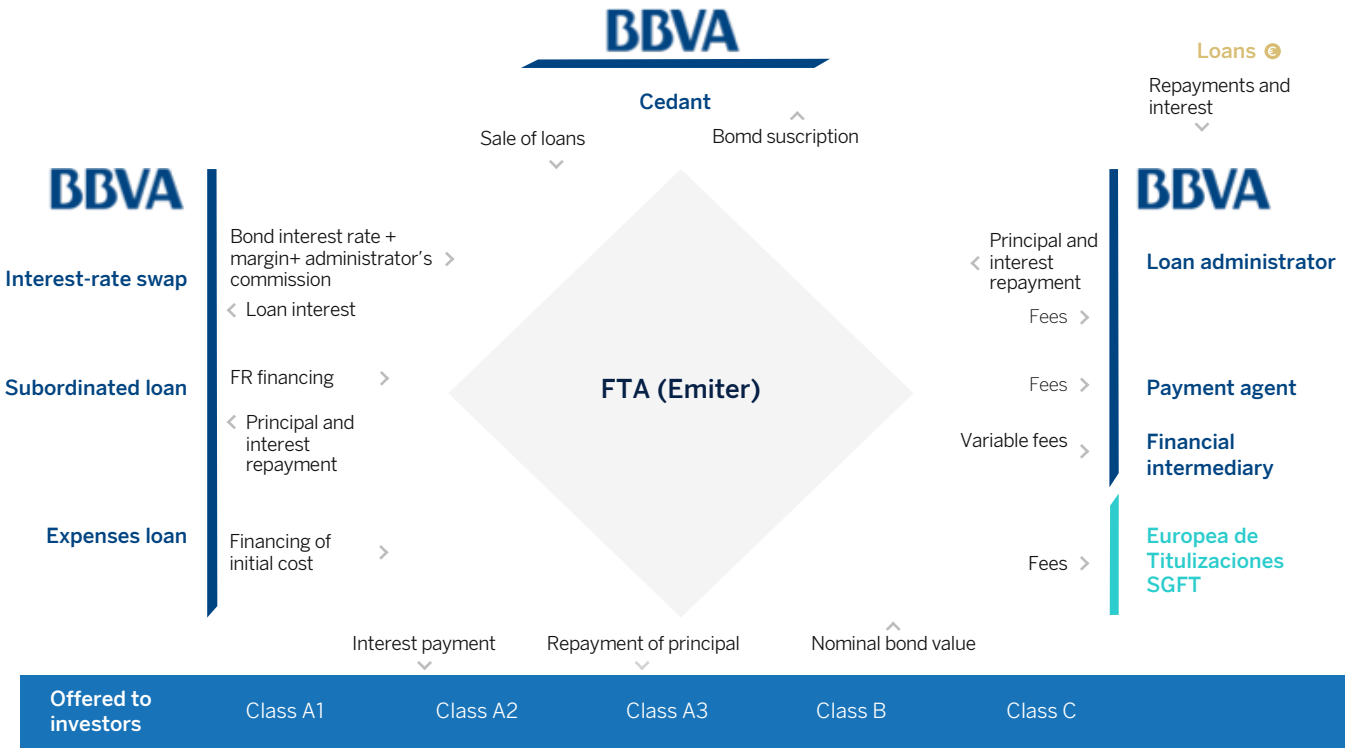
Although it is true that an entity may not undertake to contract in the secondary market one of the bonds issued by the Securitisation Fund, and thus provide liquidity to the funds, the securitisation process itself consists of converting illiquid assets that form part of the Bank's balance sheet into 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 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.

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 performed three Synthetic Securitisations to date, introducing this new operation as an additional source of regulatory capital release.

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 securitised exposures, in full or in a predominant manner if it involves a mixed portfolio.
- The IRB securitisation approach: when internal models are used for securitised exposures, in full or in a predominant manner. Within the alternatives of the IRB approach, the model based on external rating is used.

3.2.7.2. Accounting treatment of traditional 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 analysing 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.

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

In order for the Group to recognize the result generated on the sale of financial instruments, the sale has to involve the corresponding removal from the accounts, which requires the fulfilment 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 fulfils 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. Accounting treatment of synthetic securitisation

Unlike traditional securitisations, synthetic securitisations are treated either as financial guarantees or as credit derivatives. Both instruments protect the holder against credit risk.

In the particular case of the synthetic securitisations performed by the Group to date, both of these meet the requirements of the accounting regulations for their recognition as collateral. These contracts require the issuer to make specific payments to reimburse the holder for any losses incurred when a specific debtor breaches its payment obligation, in accordance with the conditions of a debt instrument, either original or amended.

In this regard, it should be noted that there are three characteristics that are evaluated to determine whether a contract should be considered a financial guarantee; a) reference obligation is a debt instrument, b) the holder is compensated for a loss incurred and c) the holder is not compensated for an amount greater than the loss incurred.

The consideration as a financial guarantee entails accrual of the commission paid for it during the term of it.

3.2.7.5. 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 45. SEC1: Securitisation exposures in the banking book (Million Euros. 12-31-18)

	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	**789**	**-**	**789**	**-**	**-**	**-**	**4,912**	**-**	**4,912**
Residential mortgage	-	-	-	-	-	-	4,748	-	4,748
Credit card	-	-	-	-	-	-	165	-	165
Other retail exposures	789	-	789	-	-	-	-	-	-
Re-Securitisation	-	-	-	-	-	-	-	-	-
Wholesale (total)- of which	**95**	**3,917**	**4,012**				**291**	**-**	**291**
Loans to corporates	53	3,917	3,970	-	-	-	49	-	49
Commercial mortgage	-	-	-	-	-	-	1	-	1
Lease and receivables	42	-	42	-	-	-	-	-	-
Other wholesale	-	-	-	-	-	-	241	-	241
Re-Securitisation	-	-	-	-	-	-	-	-	-

SEC1: Securitisation exposures in the banking book (Million Euros. 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	-	-	-	-	-	-	-	-	-

As of December 31, 2018 and December 31, 2017, the Group has no securitisation exposure in the held for trading portfolio.

3.2.7.6. Investment 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, 2018 and December 31, 2017.

Table 46. SEC4: Securitisation exposures in the banking book and associated capital requirements (Bank acting as investor) (Million Euros. 12-31-18)

	Exposure values (by RW bands)					Exposure values (by regulatory approach)				RWA (by regulatory approach)				Capital requirement after cap			
	≤20% RW	>20% to 50% RW	>50% to 100% RW	>100% to <1250% RW	1250% RW	IRB RBA (including IAA)	IRB SFA	SA/SSFA	1250%	IRB RBA (including IAA)	IRB SFA	SA/SSFA	1250%	IRB RBA (including IAA)	IRB SFA	SA/SSFA	1250%
Total Exposures	4,983	179	6	1	34	577	-	4,592	34	66	-	950	-	5	-	76	-
Traditional Securitisation	**4,983**	**179**	**6**	**1**	**34**	**577**	**0**	**4,592**	**34**	**66**	**-**	**950**	**-**	**5**	**-**	**76**	**-**
Of which Securitisation	4,983	179	6	1	34	577	-	4,592	34	66	-	950	-	5	-	76	-
Of which retail underlying	4,783	88	6	1	34	519	-	4,359	34	55	-	889	-	4	-	71	-
Of which wholesale	200	91	-	-	-	58	-	233	-	11	-	61	-	1	-	5	-
Of which re-Securitisation	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Of which senior	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Of which non-senior	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Synthetic Securitisation	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Of which Securitisation	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Of which retail underlying	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Of which wholesale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Of which re-Securitisation	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Of which senior	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Of which non-senior	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

SEC4: Securitisation exposures in the banking book and associated capital requirements (Bank acting as investor) (Million Euros. 12-31-17)

	Exposure values (by RW bands)					Exposure values (by regulatory approach)				RWA (by regulatory approach)				Capital requirement after cap			
	≤20% RW	>20% to 50% RW	>50% to 100% RW	>100% to <1250% RW	1250% RW	IRB RBA (including IAA)	IRB SFA	SA/SSFA	1250%	IRB RBA (including IAA)	IRB SFA	SA/SSFA	1250%	IRB RBA (including IAA)	IRB SFA	SA/SSFA	1250%
Exposición total	4,475	432	20	6	39	655	-	4,279	39	146	-	924	-	12	-	74	-
Traditional Securitisation	**4,475**	**432**	**20**	**6**	**39**	**655**	**-**	**4,279**	**39**	**146**	**-**	**924**	**-**	**12**	**-**	**74**	**-**
Of which Securitisation	4,475	432	20	6	39	655	-	4,279	39	146	-	924	-	12	-	74	-
Of which retail underlying	4,247	328	15	6	39	574	-	4,022	39	124	-	856	-	10	-	68	-
Of which wholesale	228	105	5	-	1	81	-	256	1	23	-	68	-	2	-	6	-
Of which re-Securitisation	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Of which senior	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Of which non-senior	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Synthetic Securitisation	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Of which Securitisation	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Of which retail underlying	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Of which wholesale	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Of which re-Securitisation	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Of which senior	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Of which non-senior	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

3.2.7.7. Originated securitisations

3.2.7.7.1. 3.2.7.7.1. Rating agencies used

TThe external credit assessment institutions (ECAI) that have been involved in the Group's issues that fulfil 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.

3.2.7.7.2. Positions on originated securitisations

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, 2018 and December 31, 2017.

Table 47. SEC3: Securitisation exposures in the banking book and associated regulatory capital requirements (Bank acting as originator or as sponsor) (Million Euros. 12-31-18)

	Exposure values (by RW bands)					Exposure values (by regulatory approach)				RWA (by regulatory approach)				Capital requirement after cap			
	≤20% RW	>20% to 50% RW	>50% to 100% RW	>100% to <1250% RW	1250% RW	IRB RBA (including IAA)	IRB SFA	SA/SSFA	1250%	IRB RBA (including IAA)	IRB SFA	SA/SSFA	1250% [1]	IRB RBA (including IAA)	IRB SFA	SA/SSFA	1250%
Total Exposures	**4,573**	**33**	**0**	**1**	**195**	**785**	**3,821**	**-**	**195**	**86**	**267**	**-**	**1,253**	**7**	**21**	**-**	**100**
Traditional Securitisation	**752**	**33**	**0**	**1**	**99**	**785**	**-**	**-**	**99**	**86**	**-**	**-**	**56**	**7**	**-**	**-**	**4**
Of which Securitisation	752	33	0	1	99	785	-	-	99	86	-	-	56	7	-	-	4
Of which retail underlying	752	33	-	1	4	785	-	-	4	86	-	-	10	7	-	-	1
Of which wholesale	-	-	0	-	95	0	-	-	95	0	-	-	46		-	-	4
Of which re-Securitisation	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Of which senior	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Of which non-senior	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Synthetic Securitisation	**3,821**	**-**	**-**	**-**	**96**	**-**	**3,821**	**-**	**96**	**-**	**267**	**-**	**1,197**	**-**	**21**	**-**	**96**
Of which Securitisation	3,821	-	-	-	96	-	3,821	-	96	-	267	-	1,197	-	21	-	96
Of which retail underlying	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Of which wholesale	3,821	-	-	-	96	-	3,821	-	96	-	267	-	1,197	-	21	-	96
Of which re-Securitisation	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Of which senior	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Of which non-senior	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

(1) As of December 31st, 2018, securitisation exposures with a RW of 1250% are calculated under the IRB RBA method

SEC3: Securitisation exposures in the banking book and associated regulatory capital requirements (Bank acting as originator or as sponsor) (Million Euros. 12-31-17)

	Exposure values (by RW bands)					Exposure values (by regulatory approach)				RWA (by regulatory approach)				Capital requirement after cap			
	≤20% RW	>20% to 50% RW	>50% to 100% RW	>100% to <1250% RW	1250% RW	IRB RBA (including IAA)	IRB SFA	SA/SSFA	1250%	IRB RBA (including IAA)	IRB SFA	SA/SSFA	1250% (1)	IRB RBA (including IAA)	IRB SFA	SA/SSFA	1250%
Total Exposures	2,343	-	2	-	143	2,346	-	-	143	132	-	-	549	-	11	-	44
Traditional Securitisation	-	-	2	-	95	2	-	-	95	-	-	-	72	-	-	-	6
Of which Securitisation	-	-	2	-	95	2	-	-	95	-	-	-	72	-	-	-	6
Of which retail underlying	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Of which wholesale	-	-	2	-	95	2			95	-			72	-	-	-	6
Of which re-Securitisation	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Of which senior	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Of which non-senior	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Synthetic Securitisation	2,343	-	-	-	48	-	2,343	-	48	-	132	-	477	-	11	-	38
Of which Securitisation	2,343	-	-	-	48	-	2,343	-	48	-	132	-	477	-	11	-	38
Of which retail underlying	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Of which wholesale	2,343	-	-	-	48	-	2,343	-	48	-	132		477	-	11	-	38
Of which re-Securitisation	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Of which senior	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Of which non-senior	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

(1) As of December 31st, 2017, securitisation exposures with a RW of 1250% are calculated under the IRB RBA method

The Group carried out three securitisations in 2018, including a traditional one in June, a portfolio of self-employed consumer finance for EUR 0.80 billion and two synthetic ones in March and December, amounting to EUR 1.95 billion and EUR 1 billion, respectively (in terms of exposure), in relation to which the European Investment Fund (EIF) granted a financial guarantee on the mezzanine tranche. These operations played a role in the risk-weighted asset release of EUR 0.97 million (+0.89 billion of assets weighted by securitisation risk net of -1.86 billion due to a reduction in consumption of the underlying loans).

3.2.7.7.3. Breakdown of securitised balances by type of asset

The table below shows the outstanding exposure, impaired and past due exposures and impairment losses registered during the period, related to underlying assets of originated securitisations in which the risk transfer criteria are met, broken down by asset type as at 31 December 2018 and 31 December 2017.

Table 48. Breakdown of securitized balances by type of asset (Million Euros. 12-31-18)

Type of asset	Current balance	Of which: Non-performing Exposures (1)	Total impairment losses for the period
Commercial and residential mortgages	-	-	-
Credit cards	-	-	-
Financial leasing	43	5	4
Lending to corporates and SMEs	3,647	19	2
Consumer finance	746	2	3
Receivables	-	-	-
Securitisation balances	-	-	-
Others	-	-	-
Total	**4,435**	**26**	**9**

(1) Includes the total amount of non-performing exposures

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 amount of non-performing exposures

BBVA structured all operations initiated since 2006 (not including the operations of the merged companies, Unnim and Catalunya Banc).

The following is the outstanding balance corresponding to the underlying assets of securitisations initiated by the Group, in which the risk transfer criteria are not met and which, therefore, do not fall within the solvency framework for securitisations, but rather for which the Capital calculation of the exposures is carried out as if it had not been securitised:

Table 49. Outstanding balance corresponding to the underlying assets of the Group's originated Securitisations, in which risk transfer criteria are not fulfilled (Million Euros)

	Current Balance	
Type of asset	2018	2017
Commercial and residential mortgages	26,277	28,576
Credit cards	-	-
Financial leasing	-	3
Lending to corporates and SMEs	261	357
Consumer finance	2,356	3,036
Receivables	-	-
Securitisation balances	-	-
Mortgage-covered bonds	-	-
Others	-	-
Total	**28,894**	**31,971**

3.2.8. 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 amortization of the risk incurred under the agreed terms.

The policy of accepting risks is therefore, organized into two 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.
- When applicable, analysis of the guarantees to determine its capacity to mitigate the risk and the constitution of adequate guarantees to mitigate the risks, in any of the generally accepted forms: monetary, secured, personal or hedge guarantees.

This is carried out through a prudent risk policy that consists in the analysis of the financial risk, based on the capacity of reimbursement or generation of resources of the borrower, the analysis of the guarantee assessing, among others, the efficiency, the robustness and the risk, the adequacy of the guarantee with the operation and other aspects such as the location, currency, concentration or the existence of limitations. Additionally, the necessary tasks for the constitution of guarantees must be carried out - in any of the generally accepted forms (collaterals, personal guarantees and financial hedge instruments) - appropriate to the risk assumed.

The procedures for the management and valuation of collateral are set out in the Credit Risk Management Policies 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, standardized 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 in the official formats and legal organizations.

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 (mainly personal guarantees).
- Derivatives and hedge accounting derivatives: in derivatives, credit risk is minimized 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 the counterparty's solvency and the nature of the transaction (mainly collaterals).
- 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 (mainly personal guarantees).
- 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.

3.2.9. Information on credit risk mitigation techniques

3.2.9.1. 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 recognized, and the intention to settle the net amount or to divest the asset and pay the liability at the same time.

3.2.9.2. Hedging based on collateral

3.2.9.2.1. Management and valuation policies and procedures

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

These Policies 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 and thoroughness, carried out with the necessary information to determine it and prudential extreme in the use of appraisal valuation, assessments of independent experts, 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 some associated control processes. These valuations will be updated by statistical methods, indices or appraisals of goods, inquiries to internal or external sources, etc., which shall be carried out under the generally accepted standards in each market and in accordance with local regulations.

All collateral assigned must be recorded in the associated contracts, properly instrumented and recorded in the corresponding official register under the applicable formats.

3.2.9.2.2. 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 favour of the latter.
  - Life insurance policies pledged in favour 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 standardized and advanced approaches, and the counterparty risk, is as follows:

Table 50. Exposure covered with financial guarantees and other collateral calculated using the standardised and advanced approaches (Million Euros)

	2018		2017	
Exposures Classes	Exposure covered by financial guarantees	Exposure covered by other elligible collateral	Exposure covered by financial guarantees	Exposure covered by other elligible collateral
Central governments or central banks	7,199	-	2,662	-
Regional governments or local authorities	24	-	91	-
Public sector entities	2	-	15	29
Multilateral Development Banks	-	-	-	-
International Organizations	-	-	-	-
Institutions	4,594	114	4,097	106
Corporates	3,626	824	9,165	1,388
Retail	880	1,157	870	1,287
Secured by mortgages on inmovable property	29	26	518	58
Exposures in default	19	1	16	-
Exposures associated with particularly high risk	1	-	1	-
Covered bonds	-	-	-	-
Short-term claims on institutions and corporate	-	-	-	-
Collective investments undertakins	6	-	-	-
Other exposures	-	-	-	-
Total guarantees value under standardised approach	**16,382**	**2,121**	**17,435**	**2,867**
Central governments or central banks	4,377	-	713	-
Institutions	52,714	97	48,818	141
Retail	71	822	77	854
Corporates	997	6,789	1,296	8,397
Total guarantees value under IRB approach	**58,159**	**7,708**	**50,904**	**9,392**
Total	**74,541**	**9,829**	**68,340**	**12,259**

3.2.9.3. 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 51. Exposure covered by personal guarantees. Standardised and advanced approach (Million Euros)

	Exposure covered by personal guarantees	
Exposure Classes	2018	2017
Central governments or central banks	-	-
Regional governments or local authorities	3,260	3,247
Public sector entities	62	12
Multilateral Development Banks	-	-
International organizations	-	-
Institutions	388	508
Corporates	3,305	3,100
Retail	2,394	2,537
Secured by mortgages on immovable property	26	42
Exposures in default	124	172
Exposures associated with particularly high risk	14	24
Covered bonds	-	-
Short-term claims on institutions and corporate	-	-
Collective investments undertakings	-	-
Other exposures	1,242	4,069
Total personal guarantees value under standardised approach	**10,818**	**13,710**
Central governments or central banks	486	621
Institutions	18,450	20,091
Retail	93	106
Corporates	10,726	8,058
Of which: SMEs	2,923	2,057
Of which: SMEs subject to corrector factor	-	-
Of which: others	7,803	6,002
Total personal guarantees value under IRB approach	**29,755**	**28,876**
Total	**40,572**	**42,586**

An overview of the level of use of each of the credit risk mitigation techniques employed by the Group as of December 31, 2018 is presented below:

Table 52. EU CR3 – CRM techniques – Overview [1] (Million Euros. 12-31-18)

	Exposures unsecured - carrying amount	Exposures secured - Carrying amount	Exposures secured by collateral	Exposures secured by financial guarantees	Exposures secured by credit derivatives
Total Loans	306,244	106,712	40,717	24,552	-
Total debt securities	54,463	15,780	8,517	6,584	-
Total exposures	**360,707**	**122,492**	**49,234**	**31,137**	**-**
Of which: defaulted	**6,964**	**1,613**	**850**	**349**	**-**

(1) Includes reverse repo transactions and excludes securitization exposures

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) Includes reverse repo transactions and excludes securitization exposures

3.2.9.4. 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.

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 CET1; 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 favour 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.

3.2.10. 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 Group's risk profile in terms of RWAs.

Table 53. Breakdown of RWA density by geographical area and approach (Million Euros. 12-31-18)

	RWA density [1] [2]							
Category of exposure	Total	Spain [3]	Turkey	Eurasia	Mexico	USA	South America	Rest of the World
Central governments or central banks	22%	16%	53%	4%	14%	4%	66%	-
Regional governments or local authorities	21%	-	70%	20%	26%	20%	56%	-
Public sector entities	39%	-	39%	-	48%	20%	66%	-
Multilateral Development Banks	2%	-	-	-	-	-	14%	-
International organizations	-	-	-	-	-	-	-	-
Institutions	32%	20%	55%	24%	43%	17%	34%	70%
Corporates	98%	92%	100%	95%	92%	99%	97%	100%
Retail	70%	66%	67%	72%	70%	73%	72%	71%
Secured by mortgages on immovable property	38%	31%	43%	37%	38%	37%	40%	42%
Exposures in default	115%	124%	110%	116%	100%	133%	104%	101%
Exposures associated with particularly high risk	150%	150%	150%	150%	150%	150%	150%	150%
Covered bonds	-	-	-	-	-	-	-	-
Short-term claims on institutions and corporate	66%	-	-	-	20%	-	68%	-
Collective investments undertakings	100%	100%	-	100%	100%	100%	-	100%
Other exposures	39%	70%	43%	136%	18%	55%	35%	1%
Securitisation exposures	21%	-	-	-	50%	20%	-	-
Total credit risk by standardised approach	**51%**	**28%**	**73%**	**43%**	**37%**	**64%**	**69%**	**74%**
Central governments or central banks	5%	5%	1%	3%	10%	3%	37%	24%
Institutions	7%	10%	109%	5%	23%	11%	19%	22%
Corporates	53%	54%	75%	43%	74%	35%	49%	52%
Retail	19%	13%	29%	28%	96%	21%	25%	30%
Securitisation exposures	31%	31%	-	-	-	-	-	-
Total credit risk by IRB approach	**27%**	**25%**	**55%**	**16%**	**79%**	**21%**	**37%**	**37%**
Total credit risk dilution and delivery	**41%**	**26%**	**73%**	**22%**	**50%**	**57%**	**67%**	**46%**

(1) Does not include equity exposures

(2) Calculated as RWAs/EAD

(3) In Spain, Central Governments or Central Banks exposures include deferred tax assets net of deferred tax laiabilities

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

	RWA density (1) (2)							
Category of exposure	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%	-
Regional governments or local authorities	19%	1%	22%	20%	10%	20%	63%	-
Public sector entities	38%	-	55%	1%	20%	19%	67%	-
Multilateral Development Banks	7%	-	-	-	-	-	50%	-
International organizations	-	-	-	-	-	-	-	-
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%	-
Covered bonds	-	-	-	-	-	-	-	-
Short-term claims on institutions and corporate	20%	20%	-	18%	25%	-	-	-
Collective investments undertakings	100%	100%	-	100%	-	100%	-	-
Other exposures	40%	89%	30%	31%	17%	71%	29%	2%
Securitisation exposures	21%	-	-	-	50%	21%	-	-
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%	-	-	-	-	-	-
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 exposures include deferred tax assets net of deferred tax laiabilities

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. 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 Group'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 portfolio, 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 definition of the accounting negotiation portfolio is included in Note 2.2.1. of the Group's Consolidated Annual Accounts.

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 market risk weighted assets.

The amounts in terms of RWAs and capital requirements by market risk calculated under the standardized approach as of December 31, 2018 and December 31, 2017 are presented below:

Table 54. EU MR1 – Market risk under the standardised approach (Million Euros. 12-31-18)

	RWAs	Capital Requirements
Outright Products		
Interest Rate Risk	1,940	155
Equity Risk	136	11
Foreign Exchange Risk	2,271	182
Commodity Risk	18	1
Options		
Simplified approach	-	-
Delta-plus method	-	-
Scenario approach	-	-
Securitisation	**13**	**1**
Correlation trading portfolio	**670**	**54**
Total	**5,048**	**404**

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**

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, 2018 and as of December 31, 2017 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 62% of the market risk of the Group's trading book.

BBVA users 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 fulfil 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:

- 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 matrixes

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 & Poor's 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: securitizations and Correlation Portfolios. Capital charge for the securitizations and the correlation portfolio for potential losses associated with the rating level of a given credit structure (rating). Both are calculated using the standardized 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.

In addition, for all instruments measured at a fair value, the Group calculates Prudent Valuation Adjustments, (PVAs).

The table below shows a breakdown of elements for the calculation of PVA.

Table 55. Prudent Valuation Adjustments [1] (Million Euros. 12-31-18)

	Equity	Interest Rates	FX	Credit	Commodities	Diversification Adjustment	Total	Of which: in the trading book	Of which: in the banking book
Close-out uncertainty, of which:	130	349	29	7	-	(197)	317	174	143
Mid-market value	41	155	5	2	-	(104)	100	56	45
Close-out cost	41	104	23	5	-	(93)	80	66	14
Concentration	48	90	-	-	-	-	137	53	85
Early termination	-	1	-	-	-	-	1	1	-
Model risk	11	5	-	2	-	(12)	6	12	(7)
Operational risk	-	6	-	-	-	-	6	-	6
Investing and funding costs	-						18	-	-
Unearned credit spreads	-						6	-	-
Future administrative costs	-	3	-	-	-	-	3	3	3
Other	-	-	-	-	-	-	-	-	-
Total Adjustment	**141**	**363**	**29**	**9**	**-**	**(210)**	**356**	**191**	**144**

(1) Template based on Technical Regulation EBA/RTS/2014/06, breaking down the composition of the Prudent Valuation Adjustments which is aligned with BCBS PV1 Template

3.3.4.2.2. Market risk in 2018

During 2018, the average VaR was 21 million euros, lower than in 2017, with a peak during the year of 26 million euros on March 16.

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

IMA values for trading portfolios (2018)[1]		
VaR (10 day 99%)		
1	Maximum value	84
2	Average value	55
3	Minimum value	38
4	Period value	56
SVaR (10 day 99%)		
5	Maximum value	202
6	Average value	139
7	Minimum value	87
8	Period value	136
Incremental Risk Charge (99.9%)		
9	Maximum value	127
10	Average value	92
11	Minimum value	61
12	Period value	91

(1) Data as of second semester of 2018

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

IMA values for trading portfolios (2017) [1]		
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

(1) Data as of second semester of 2017

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

Chart 20: Trading Book. VaR without smoothing

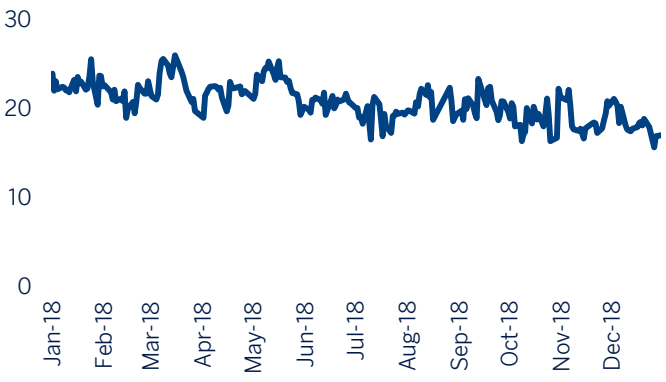


Table 57. Trading Book. VaR without smoothing by risk factors (Million Euros)

VaR by risk factors	Interest-rate and spread risk	Exchange - rate risk	Equity risk	Vega / correlation risk	Diversification effect (1)	Total
December2018						
Average VaR for the period	20	6	4	9	(20)	21
Maximum VaR for the period	23	7	6	11	(21)	26
Minimum VaR for the period	17	6	4	7	(18)	16
VaR at the end of the period	**19**	**5**	**3**	**7**	**(17)**	**17**
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

(1) 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 portfolio, the main risk factor in the Group continues to be that linked to interest rates, with a weight of 55% of the total at the end of 2018 (this figure includes the spread risk), increasing the relative weight compared to the close of 2017 (48%). On the other hand, the foreign exchange risk represents 14%, maintaining the same proportion with respect to December 2017 (14%), while equity risk and volatility and correlation risk decreased, with a weight of 31% at the end of 2018 (vs. 38% at the end of 2017).

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 58. EU MR2-A – Market risk under the IMA (Million Euros. 12-31-18)

	RWAs	Capital Requirements
VaR	**2,015**	**161**
Previous day's VaR	705	56
Average of the daily VaR on each of the preceding sixty business days (VaRavg) x multiplication factor	2,015	161
SVaR	**5,112**	**409**
Latest SVaR	1,704	136
Average of the SVaR during the preceding sixty business days (sVaRavg) x multiplication factor (mc)	5,112	409
Incremental risk charge - IRC	**1,141**	**91**
Most recent IRC value	1,141	91
Average of the IRC number over the preceding 13 weeks	1,121	90
Comprehensive Risk Measure- CRM	**-**	**-**
Most recent risk number for the correlation trading portfolio over the preceding 13 weeks	-	-
Average of the risk number for the correlation trading portfolio over the preceding 13 weeks	-	-
8% of the own funds requirement in SA on most recent risk number for the correlation trading portfolio	-	-
Others	**-**	**-**
Total	**8,268**	**661**

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 13 weeks	1,240	99
Comprehensive Risk Measure- CRM	**-**	**-**
Most recent risk number for the correlation trading portfolio over the preceding 13 weeks	-	-
Average of the risk number for the correlation trading portfolio over the preceding 13 weeks	-	-
8% of the own funds requirement in SA on most recent risk number for the correlation trading portfolio	-	-
Others	**-**	**-**
Total	**8,611**	**689**

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

Table 59. 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, 2017	**2,232**	**5,138**	**1,240**	**-**	**-**	**8,611**	**689**
Movement in risk levels	(254)	(152)	(116)	-	-	(523)	(42)
Model updates/changes	-	-	-	-	-	-	-
Methodology and policy	-	-	-	-	-	-	-
Acquisitions and disposals	-	-	-	-	-	-	-
Foreign Exchange movements	38	126	17	-	-	180	14
Other	-	-	-	-	-	-	-
RWAs as of December 31, 2018	**2,015**	**5,112**	**1,141**	**-**	**-**	**8,268**	**661**

Slight decrease in Market Risk Regulatory Capital in BBVA Group (-4% vs dec'17) with decrease in BBVA S.A. offset by increase in BBVA Bancomer S.A.:

- Decrease in Market Risk Regulatory Capital in BBVA S.A. (-18% vs dec'17) mainly driven by the drop in VaR and Stress VaR Capital, because of the reduction in equity and credit position.

- Increase in Market Risk Regulatory Capital in BBVA Bancomer S.A. (+17.5% vs dec'17) mainly in Stress VaR Capital, due to the increase in fixed income positions.

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 behaviour 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 behaviour 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 60. Trading Book. Impact on earnings in Lehman scenario (Million Euros)

Impact on earnings in Lehman scenario		
	12-31-2018	12-31-2017
GM Europe, NY & Asia	(28)	(38)
GM Bancomer	(2)	(5)
GM Argentina	(1)	(6)
GM Chile	-	(3)
GM Colombia	(2)	(3)
GM Peru	(4)	(2)
GM Venezuela	-	-

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 61. Trading Book. Stress resampling (Million Euros)

	Europe	Bancomer	Peru	Venezuela	Argentina	Colombia	Chile	Turkey
Expected impact	(99)	(33)	(11)	-	(5)	(6)	(1)	-

2018	Stress VaR 95 20 D	Expected Shortfall 95 20 D	Stress Period	Stress VaR 1D 99% Resampling
Total				
GM Europe, NY and Asia	(67)	(99)	02/01/2008 - 02/12/2009	(26)
GM Bancomer	(33)	(22)	09/05/2008 - 06/05/2010	(8)

3.3.4.2.4. Backtesting

Introduction

The ex-post or Backtesting validation is based on the comparison of the periodic results of the portfolio with the market risk measures from the established measurement system. The validity of a VaR model is particularly dependent on whether the empirical reality of the results does not enter into direct contradiction with what is expected in the model. If the observed results were sufficiently adjusted to that predicted by the model, it would be rated as good, and if the discrepancy was notable, revisions would be required in order to correct possible errors or modifications and to improve quality.

In order to determine whether the results have been sufficiently adjusted to the risk measurements, it is necessary to establish objective criteria, which are specified in a series of validation tests performed with a given methodology. In establishing the most appropriate methodology, the criteria recommended by Basel have been largely followed as they are considered appropriate.

Validation test

In the comparison between results and risk measurements, a key element of interest is the confidence that the losses do not exceed the VaR risk measurements made more than a number of times determined by the level of confidence adopted in the model. The validation test presented below, which focuses on contrasting this aspect, emphasises on rejecting that the risk measurement model is underestimating the risk that is actually being borne.

For the establishment of a hypothesis test, we start from the observed results and try to infer whether there is enough evidence to reject the model (the null hypothesis that the trust of the model is established is not met).

In cases where the model functions properly, the VaR measurement indicates that a portfolio value variation in a given time horizon will not exceed the value obtained in a percentage of times determined by the level of confidence. In other words, the probability of having a loss that is higher than the VaR measurement –what we will call an exception– will be 1%, and the probability that the exception will not occur will be 99%.

GREEN Zone: model acceptance zone	It is characterised as being an area where there is a high probability of accepting an appropriate model and a low probability of accepting an inappropriate model It is defined by the set for which the cumulative probability being true the null hypothesis is less than 95%. It covers a number between zero and four exceptions.
YELLOW zone: ambiguous zone	Possible results for both an appropriate and an inappropriate model. It begins from when the cumulative probability being true the null hypothesis is greater or equal to 95% (it must be less than 99.99%). It covers a number between five and nine exceptions.
RED zone: model rejection zone	High probability that the model is inappropriate and unlikely to reject if appropriate. It is defined by having the level of significance less than 0.1% or, in other words, the cumulative probability being true the null hypothesis is greater than or equal to 99.99%. It corresponds to a number of exceptions greater or equal than ten.

Having at least a one-year historical series of both results and risk estimates on a daily basis is advisable to perform this test.

The used criterion perfectly adapts to the supervisory authorities' priority, which is avoiding situations where excessive risks for which the entity is not prepared would jeopardise its survival. However, the use of risk measurements as a tool for managing positions entails a concern that the risk measurements are adjusted to the real risk from both sides: there is concern not only that the risk is being underestimated, but also that it may be overestimating.

At the close of December 31, 2018, the model is in the green zone of acceptance of the model.

Backtesting results

Regulatory backtesting is comprised of two types: Hypothetical Backtesting and Actual Backtesting:

- Hypothetical Backtesting is defined as the contrast of the Hypothetical P&L on the estimated VaR, the day before the performance of said result. Actual Backtesting is defined as the contrast with the Actual P&L on the same estimated VaR, the day before the performance of said result.

- Actual Backtesting was implemented and entered into force on January 1, 2013, as a result of the transposition in the national legal order through the CBE 4/2011 of November 30, of the CRD III that introduces Basel 2.5 in the European Union. The results that are used for the construction of both types of Backtesting are based on the actual results of the management tools.

According to Article 369 of the CRB of the ECB, the P&L used in Backtesting should have a sufficient level of granularity in order to be shown at the "top-of-house" level, differentiating between Hypothetical and Actual P&L. In addition to the above, the historical Backtesting series will include a minimum of one year.

Actual P&L

The Actual P&L contains the complete management results, including the intraday operation and the daily and non-daily valuation adjustments, discounting the results of the franchises and commissions of each day of each table.

The valuation functions and the parameters of the valuation models used in the calculation of the Actual P&L are the same as those used in the calculation of the Economic P&L.

At the close of December 31, 2018, the actual negative P&L of May/29/2018 exceeded the VaR within the last 250 top-of-house level observations in BBVA S.A., thus presenting an Exception in the BBVA S.A Actual Backtesting.

At the close of December 31, 2018, the actual negative P&L of Oct/04/2018 exceeded the VaR within the last 250 observations at the top-of-house level at BANCOMER, thus presenting an Exception in the Actual BANCOMER Backtesting.

Hypothetical P&L

The Hypothetical P&L contains the management results without the P&L of the daily activity, namely, excluding intraday operations, premiums, and commissions. The data is provided by the management systems and are broken down by table, in adherence with the Volcker Rule on table distribution.

The valuation functions and the parameters assigned to the valuation models used in the calculation of the Hypothetical P&L are the same as those used in the calculation of the Actual P & L.

The P&L figures used in both Backtesting types exclude Credit Valuation Adjustments (CVA), Debt Valuation Adjustments (DVA) and Additional Valuation Adjustments (AVA). As well as any change in value resulting from migrations from rating to default, except those reflected in prices by the market itself, since the changes in value due to migration from rating to default are included in the Counterparty Credit Risk metrics.

At the close of December 31, 2018, the Hypothetical P&L negative of May/29/2018 exceeded the VaR within the last 250 top-of-house level observations in BBVA SA, thereby presenting an Exception in the BBVA S.A. Hypothetical Backtesting.

At the close of December 31, 2018, the Hypothetical P&L negative of Oct/04/2018 exceeded the VaR within the last 250 observations at the top-of-house level in BBVA BANCOMER, thus presenting an Exception in the BBVA BANCOMER Hypothetical Backtesting.

Backtesting perimeter and internal model exceptions

The calculation scope of VaR and P&L (Hypothetical and Actual) is limited to the totality of the Trading Book portfolios of the Global Markets Internal Model of BBVA SA and BBVA Bancomer.

All the positions belonging to the Banking Book, the portfolios under the Standard Model and the trading activity with Hedge Funds (this activity was excluded from the Internal Model in its original approval) are thus excluded from this scope of application.

It is considered that there is an exception at the Top of House level, where the following two circumstances are present in the same internal model and date:

- The Hypothetical P&L and/or the Actual P&L are negative
- With an amount equal to or greater than the maximum between VaR without smoothing and VaR with smoothing as calculated on the previous day

For the purposes of computing the number of exceptions of the Regulatory Backtesting, only exceptions will be taken into account within a moving window of 250 consecutive Business Days at the Top of House level in each respective internal model.

At the close of December 31, 2018, there is an exception in Actual Backtesting and in Hypothetical Backtesting in the last 250 BBVA S.A. observations.

At the close of December 31, 2018, there is an exception in Actual Backtesting and in Hypothetical Backtesting in the last 250 BBVA BANCOMER observations.

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

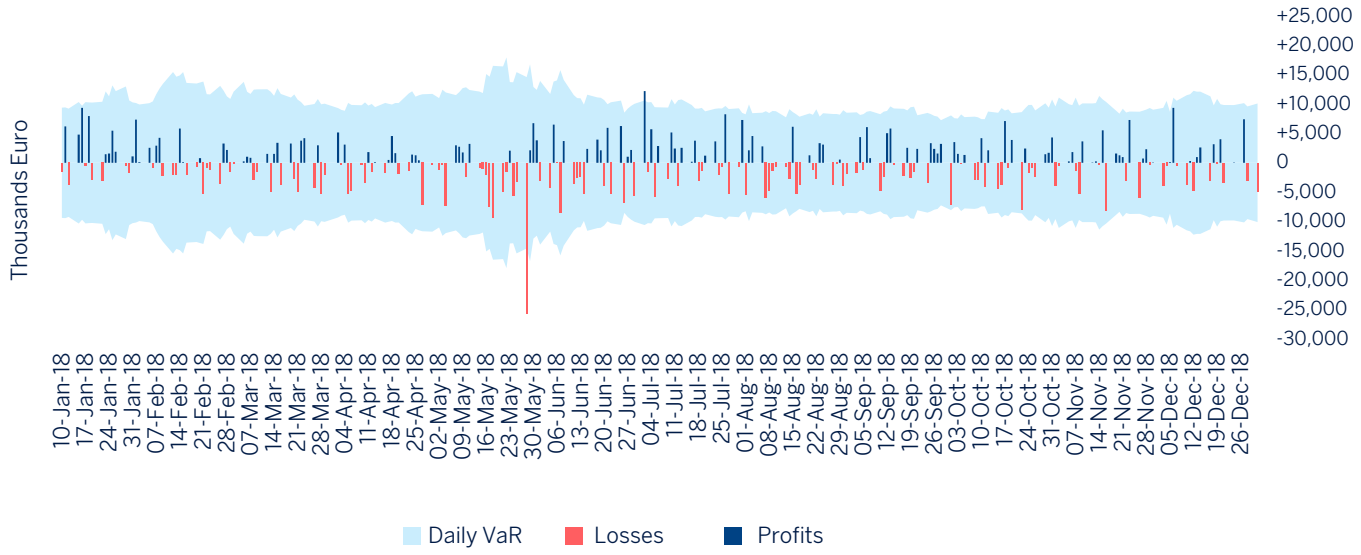


Chart 22: Trading Book. Validation of the Market Risk Measurement model for BBVA S.A. Real backtesting (EU MR4)

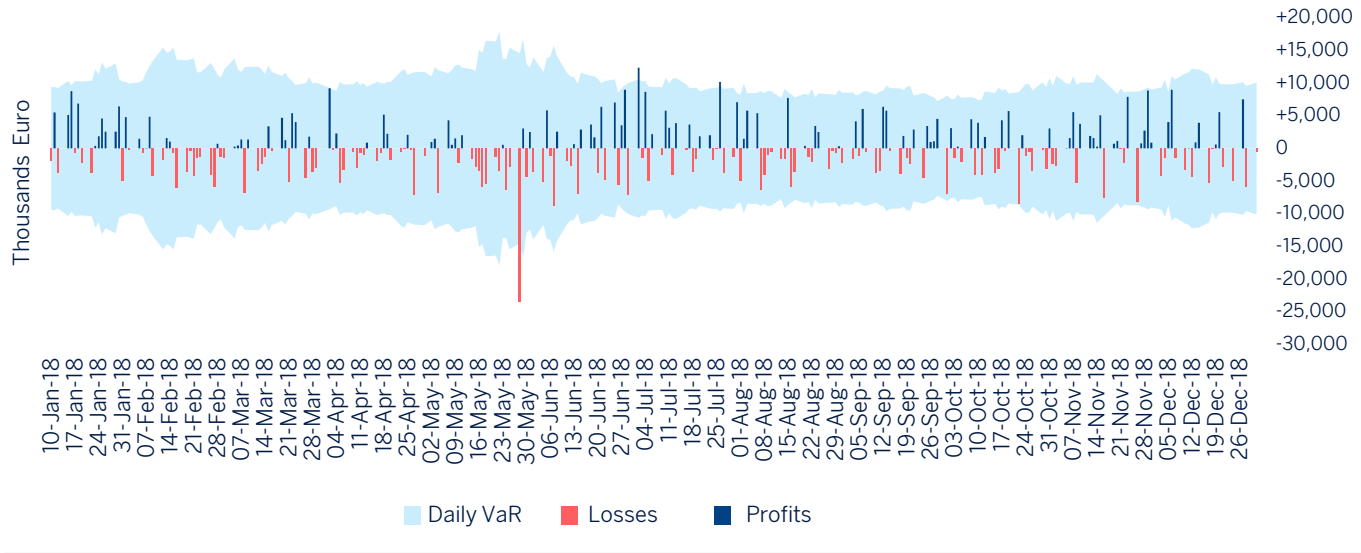


Chart 23: Trading Book. Validation of the Market Risk Measurement model for BBVA Bancomer. Hypothetical backtesting (EU MR4)

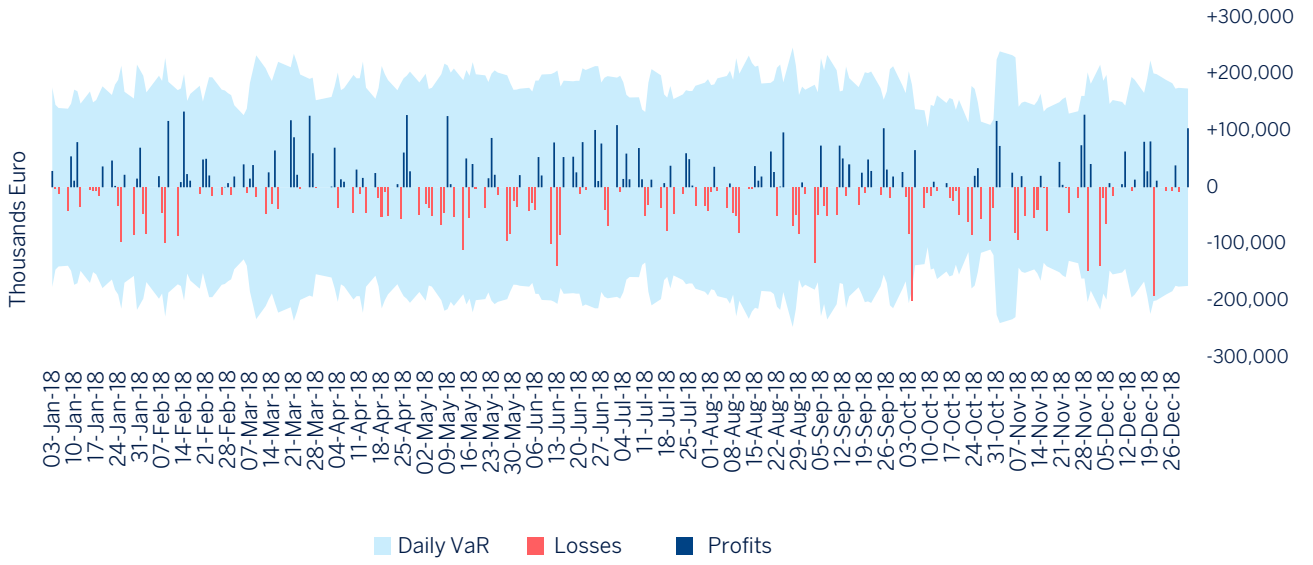
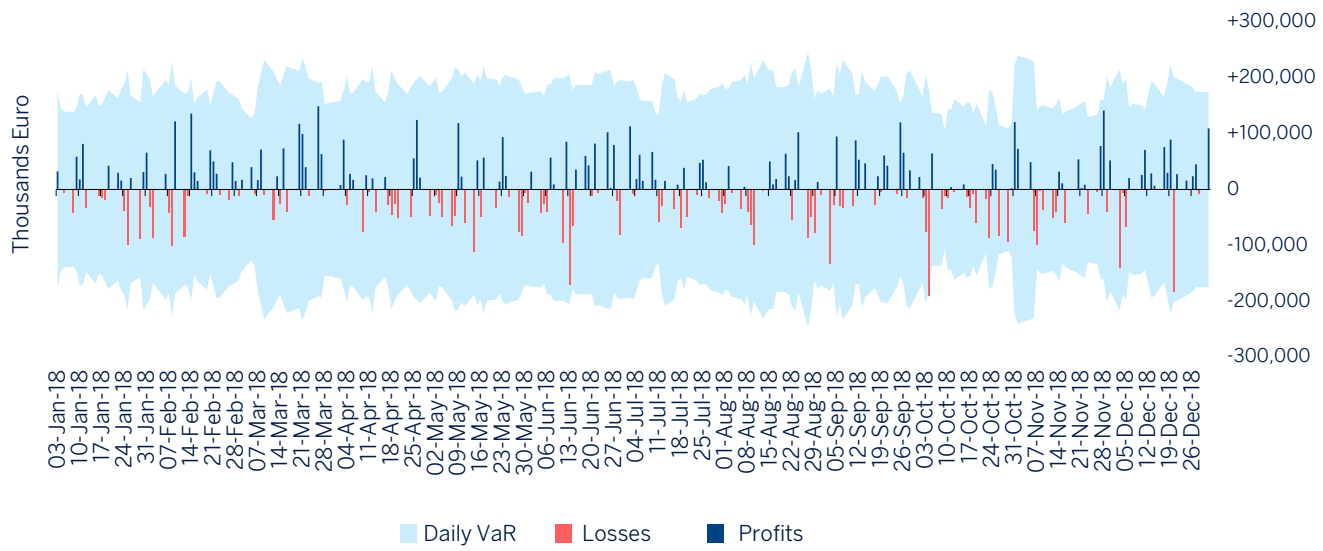


Chart 24: Trading Book. Validation of the Market Risk Measurement model for BBVA Bancomer. Real backtesting (EU MR4)



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 organization (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 stakes held in industrial and financial companies, with medium/long-term investment horizons. It includes staked held that the Group consolidates, 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 those positions as 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 analysing 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 behaviour 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 s accounted, mainly, in the entry "Financial assets at fair value through other comprehensive income". 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 Investments in joint ventures and associates. 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 to collect and sale portfolios and portfolios held for strategic purposes:

Table 62. Breakdown of book value, EAD and RWAs of equity investments and capital instruments (Million Euros)

	Equity investments and capital instruments [1]							
	2018				2017			
	Book value	OE	EAD	RWAs	Book value	OE	EAD	RWAs
Portfolio available for sale	2,850	2,850	2,850	4,910	3,084	3,084	3,084	5,779
Portfolio held for strategic purposes	3,972	3,972	3,972	10,336	4,715	4,715	4,715	10,996
Total	**6,822**	**6,822**	**6,822**	**15,246**	**7,798**	**7,798**	**7,798**	**16,775**

(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 63. Exposure in equity investments and capital instruments (Million Euros)

	Nature of Exposure [1]			
	2018		2017	
Item	Non-derivatives	Derivatives	Non-derivatives	Derivatives
Exchange-traded instruments	2,850	231	2,403	428
Non-exchange traded instruments	3,741		4,967	-
Included in sufficiently diversified portfolios	3,741		4,967	-
Other instruments	-	-	-	-
Total	**6,590**	**231**	**7,370**	**428**

(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, 2018 and December 31, 2017:

Table 64. Breakdown of RWAs, equity investments and capital instruments by applicable approach (Million Euros)

		RWA´s (Million Euros)			
Concept		Internal Models	Simple method	PD/LGD method	Total
12/31/2018	Portfolio available for sale	1,172	1,395	2,343	4,910
	Portfolio held for strategic purposes	-	6,691	3,646	10,336
12/31/2017	Portfolio available for sale	2,261	924	2,594	5,779
	Portfolio held for strategic purposes	-	8,637	2,359	10,996

Described below are the trend and main changes in capital use for the positions subject to Equity Credit Risk as of December 31, 2018:

Table 65. Variation in RWAs for Equity Risk (Million Euros)

Equity Risk		
RWAs as of December 31, 2017		**16,775**
Effects	Asset size	(2,034)
	Acquisitions and disposals	455
	Foreign exchange movements	50
	Other	-
RWAs as of December 31, 2018		**15,246**

During 2018, BBVA Group's equity risk-weighted assets have reduced by EUR 1.53 billion compared to December 2017 (reduction of 9.1%).

This variation can essentially be explained by the reduced exposure in insurance companies as a result of the distribution of benefits through dividends incurred by these companies over the course of the year. In this respect, it should be taken into account that investments in the Group's insurance companies consolidate within the prudential perimeter using the equity method.

Apart from that, the Group has continued to manage its portfolio of equity holdings with the sale of its stakes in Merlin

Properties Socimi, S.A., Testa Residencial Socimi S.A.U. and Chilean companies that the Group maintained through BBVA Chile, which, jointly, has resulted in a reduction of approximately EUR 1.70 billion risk-weighted assets.

In addition, within the framework of the transfer of the Group's real estate business in Spain to Cerberus Capital Management, L.P., BBVA maintains 20% of the capital of the joint company Divarian Propiedad S.A., which represents an increase in risk-weighted assets of approximately EUR 2.20 billion (see section 1.1.4).

3.4.5. Profit and loss and adjustments for valuation of equity investments and capital instruments

Below is a breakdown as of December 31, 2018 and December 31, 2017 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 66. Realized profit and loss from sales and settlements of equity investments and capital instruments (Million Euros)

	2018			2017		
	Losses	Gains	Net	Losses	Gains	Net
Portfolio available for sale	1,796	1,560	(236)	758	1,601	843
Portfolio held for strategic purposes	23	35	13	32	35	3

Table 67. Valuation adjustments for latent revaluation of equity investments and capital instruments (Million Euros)

	Valuation adjustments for latent revaluation
	FVOCI
Balance Dec 2017	85
Transactions	(240)
Balance Dec 2018	(155)

3.5. Structural exchange-rate risk

3.5.1. Scope and nature of the exchange-rate risk measurement and reporting systems

In the 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 centralized in order to optimize 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 analysing 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 excess or tension in the levels of risk assumed.

The corporate unit of ALM Global Management (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 attributed 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 2017. 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 in 2018 amounted to 82%, 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: +1.1 bps; Mexican peso -0.2 bps; Turkish lira -0.2 bps; remaining currencies: -0.2 bps.

FX risk under the standardized model has been reduced by EUR 2.307 billion RWA, mainly due to the updating of the methodology for calculating capital requirements, once it has received authorization from the European Central Bank.

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. Therefore 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 centralizes 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 characterize the balance sheet more accurately. Interest-rate risk measurement includes probabilistic metrics as well as calculations of the sensitivity to different parallel shifts in the market interest-rate curves.

There is regular measurement of the Entity'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 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 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, the indexation to different 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 hypotheses that characterize these balance sheet items, which differ from their contractual conditions, must be understandable for the areas and bodies involved in risk management and control, and must be duly justified and documented. The modelling of these assumptions must be conceptually reasonable and consistent with the evidence based on historical experience.

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 analysing 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 favouring 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 behaviour 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 behaviour linked to these variables.

The approval and updating of structural interest risk behaviour models are subject to corporate governance under the scope of GRM-Analytics. Along these lines, they must be properly inventoried and catalogued, and comply

with the requirements for their development, updating and management of the changes included in the internal procedures. Likewise, they are subject to the corresponding internal validations based on their relevance and the established monitoring requirements.

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 2018.

Table 68. Variations in interest rates. Impact on net interest income and economic value

	Impact on net interest income (1)		Impact on economic value (2)	
Interest rate sensitivity analyses at December 2018	Increase of 100 basis points	Decrease of 100 basis points	Increase of 100 basis points	Decrease of 100 basis points
Europe (3)	+ (5% - 10%)	- (5% - 10%)	+ (0% - 5%)	- (0% - 5%)
Mexico	+ (0% - 5%)	- (0% - 5%)	+ (0% - 5%)	- (0% - 5%)
USA	+ (5% - 10%)	- (5% - 10%)	- (5% - 10%)	+ (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%)**

(1) Percentage of the projected "1 year" interest margin of each unit

(2) Percentage of Core Capital per unit

(3) 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 hold as positive and moderate exposure to rise in interest rates caused primarily by the euro and USD balance sheets. However, in Europe, the decline in rates is still as a result of interest rate levels very close or even below zero 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 decentralized 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 organized into eleven 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.

Finance & Accounting (F&A), 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 analysing 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 table 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 behaviour 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, as well as their validity as collateral in collateralized 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 2018:

"From the self-assessment conducted as part of this process, it can be concluded that the liquidity and funding management model is robust, with a medium-low liquidity risk profile and no significant gaps that could prompt a need to take measures or utilize liquid resources other than those that are already considered within the approved Risk Appetite Framework for 2018 and within the liquidity and funding plan."

3.7.3. Liquidity and funding performance in 2018

During 2018, 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 2018, in the sense that all LMUs held self-funding levels with stable customer resources above the requirements.

Table 69. Loan to Stable Customer Deposits (LtSCD)

	LtSCD by LMU	
	December 2018	December 2017
Group (Weighted average)	**106%**	**110%**
Eurozone	101%	108%
Bancomer	114%	109%
Compass	119%	109%
Garanti	110%	122%
Other LMUs	99%	108%

With respect to LCR, the Group has maintained a liquidity buffer at both consolidated and individual level in 2018. This has maintained the ratio easily above 100%, with the consolidated ratio as of December 2018 standing at 127%.

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 154%, or +27% above the required level.

Table 70. LCR main LMU

LCR main LMU	December 2018	December 2017
Group (Weighted average)	**127%**	**128%**
Eurozone	145%	151%
Bancomer	154%	148%
Compass (1)	143%	144%
Garanti	209%	134%
Other LMU	Broadly>100%	Broadly>100%

(1) 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, 2018:

Table 71. Liquidity inflows. Residual maturities by contractual periods (Million Euros. 12-31-18)

	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	9,550	40,599	-	-	-	-	-	-	-	-	50,149
Deposits in credit entities	801	3,211	216	141	83	152	133	178	27	1,269	6,211
Deposits in other financial institutions	1	1,408	750	664	647	375	1,724	896	1,286	2,764	10,515
Reverse repo, securities borrowing and margin lending	-	21,266	1,655	1,158	805	498	205	1,352	390	210	27,539
Loans and Advances	132	19,825	25,939	23,265	15,347	16,433	42,100	32,336	53,386	120,571	349,334
Securities' portfolio settlement	-	1,875	4,379	5,990	2,148	6,823	8,592	12,423	11,533	42,738	96,501

Table 72. Liquidity outflows. Residual maturities by contractual periods (Million Euros. 12-31-18)

	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	1	2,678	1,652	2,160	2,425	2,736	7,225	8,578	16,040	26,363	69,858
Deposits in financial institutions	7,107	5,599	751	1,992	377	1,240	1,149	229	196	904	19,544
Deposits in other financial institutions	10,680	4,327	1,580	458	302	309	781	304	825	1,692	21,258
Customer deposits	252,630	44,866	18,514	10,625	6,217	7,345	5,667	2,137	1,207	1,310	350,518
Security pledge funding	40	46,489	2,219	2,274	114	97	22,911	526	218	1,627	76,515
Derivatives (net)	-	(75)	(523)	(68)	(5)	(117)	498	(91)	(67)	(392)	(840)

The financing structure shows that the loan portfolio is mostly financed by customer deposits, mostly retail (66%). The demand tranche of outflows mainly contains the current accounts of retail customers whose performance has historically shown high stability and low concentration. On the basis of an annual behavioural analysis carried out at each of the Group entities, this type of account is considered stable in the long term and, for liquidity risk purposes, 78% with residual behavioural maturity over a period of more than 5 years.

In the Liquidity Management Unit (LMU) Euro, there is a solid liquidity and financing situation, where activity has continued to generate liquidity through a narrowing of the Credit Gap. In addition, in 2018 the LMU Euro made 3 public issues amounting to €3.5 billion: Senior Non Preferred (SNP) for 5 years for €1.5 billion, inaugural 7-year SNP Green Bond for €1.0 billion and AT for €1.0 billion, which has made it possible to obtain long-term financing at favourable price conditions. These public operations have been complemented by a private issue of T2 amounting to $300 million.

In Mexico, the liquidity position continues to be solid despite market volatility. The credit gap widened in 2018 as a result of lower growth in deposits, mainly due to outflows in unprofitable USD. In 2018 BBVA Mexico made a Tier II issue on the international market for USD 1Bn, as well as a local market issue for MXN 7.0 billion in two tranches: 3 and 5 years, the 3-year tranche being in Green Bond format (the first Green Bond issued by a private bank).

In the United States, the containment of the cost of liabilities has led to a slight increase in the credit gap. In 2018, BBVA Compass has successfully issued 3-year senior debt in the amount of $1.15 billion.

In Turkey we closed the year with an adequate liquidity situation, after a beginning of the second half affected by currency volatility, but with BBVA showing a good performance renewing wholesale funding maturities in 2018. The main operations of the year were two syndicated loans for $2.3 billion, the first green bond for $75 million over 6 years and securitizations of collection rights (DPR) for $375 million over 7 years.

Argentina was affected by market volatility, but with no significant impact on the entity's liquidity situation. BBVA Frances maintains a solid liquidity position characterized by a high volume of reserve requirements.

The liquidity situation is comfortable in the other geographic areas with full access to local capital markets.

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 2019 with a comfortable liquidity status across its entire global footprint. The funding structure, based on stable deposits, and slanting toward the long term as well as proven access capacity to capital markets enables to comfortably meet the moderate volume of maturities expected for the upcoming quarters.

A breakdown of wholesale issues maturities of the most significant units of the Group by the nature of the issues.

Table 73. Maturity of wholesale issuance of Balance Euro by nature (Million Euros. 12-31-18)

Type of issuance	2019	2020	2021	After 2021	Total
Senior debt	1,540	1,155	1,924	9,681	14,300
Mortgage-covered bonds	380	2,264	3,169	9,394	15,207
Public-covered bonds	-	-	-	500	500
Regulatory capital instruments (1)	3,327	1,500	1,000	4,712	10,539
Other long term financial instruments	-	-	-	-	-
Total	**5,247**	**4,919**	**6,093**	**24,287**	**40,546**

(1) Regulatory capital instruments are classified in this table by terms according to their contractual maturity or nearest amortization option

Table 74. Maturity of wholesale issuance of Bancomer by nature (Million Euros. 12-31-18)

Type of issuance	2019	2020	2021	After 2021	Total
Senior debt	178	579	200	1,558	2,515
Mortgage-covered bonds	-	-	-	-	-
Public-covered bonds	-	-	-	-	-
Regulatory capital instruments (1)	-	873	1,092	2,358	4,323
Other long term financial instruments	-	-	-	49	49
Total	**178**	**1,452**	**1,292**	**3,965**	**6,887**

(1) Regulatory capital instruments are classified in this table by terms according to their contractual maturity or nearest amortization option

Table 75. Maturity of wholesale issuance of Compass by nature (Million Euros. 12-31-18)

Type of issuance	2019	2020	2021	After 2021	Total
Senior debt	524	-	1,004	655	2,183
Mortgage-covered bonds	-	-	-	-	-
Public-covered bonds	-	-	-	-	-
Regulatory capital instruments (1)	-	199	18	673	891
Other long term financial instruments	-	-	-	-	-
Total	**524**	**199**	**1,023**	**1,328**	**3,074**

(1) Regulatory capital instruments are classified in this table by terms according to their contractual maturity or nearest amortization option

Table 76. Maturity of wholesale issuance of Garanti by nature (Million Euros. 12-31-18)

Type of issuance	2019	2020	2021	After 2021	Total
Senior debt	1,274	-	446	1,052	2,772
Mortgage-covered bonds	-	-	-	302	302
Public-covered bonds	-	-	-	-	-
Regulatory capital instruments (1)	-	-	-	655	655
Other long term financial instruments	350	376	366	2,131	3,223
Total	**1,624**	**376**	**812**	**4,140**	**6,952**

(1) Regulatory capital instruments are classified in this table by terms according to their contractual maturity or nearest amortization option

Table 77. Maturity of wholesale issuance of South America by nature (Million Euros. 12-31-18)

Type of issuance	2019	2020	2021	After 2021	Total
Senior debt	361	364	311	1,110	2,145
Mortgage-covered bonds	-	-	-	-	-
Public-covered bonds	-	-	-	-	-
Regulatory capital instruments (1)	-	-	46	973	1,019
Other long term financial instruments	-	-	-	-	-
Total	**361**	**364**	**356**	**2,082**	**3,164**

(1) Regulatory capital instruments are classified in this table by terms according to their contractual maturity

For 2019, 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, 2018, 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 2017. 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 78. EU LIQ1: LCR disclosure template (Million Euros. 12-31-18)

	Total unweighted value (average)				Total weighted value (average)			
	March	June	September	December	March	June	September	December
End of the quarter	**03-31-18**	**06-30-18**	**09-31-18**	**12-31-18**	**03-31-18**	**06-30-18**	**09-31-18**	**12-31-18**
Number of data points used in the calculation of averages								
High-quality liquid assets								
Total high-quality liquid assets (HQLA)					89,330	88,139	87,426	87,252
Cash-outflows								
Retail deposits and deposits from small business customers, of which:	201,452	201,731	201,501	202,627	14,909	14,823	14,674	14,695
Stable deposits	130,678	132,178	134,053	135,983	6,534	6,609	6,703	6,799
Less stable deposits	70,774	69,553	67,448	66,644	8,375	8,214	7,972	7,896
Unsecured wholesale funding	122,158	122,777	123,549	124,685	53,038	53,064	53,272	53,415
Operational deposits (all counterparties) and deposits in networks of cooperative banks	49,363	50,449	51,221	52,009	10,997	11,238	11,474	11,714
Non-operational deposits (all counterparties)	70,496	69,776	69,861	70,519	39,742	39,274	39,331	39,544
Unsecured debt	2,299	2,552	2,467	2,157	2,299	2,552	2,467	2,157
Secured wholesale funding					3,381	3,593	3,736	3,761
Additional requirements	114,387	111,320	109,935	108,673	17,941	17,180	16,772	16,235
Outflows related to derivative exposures and other collateral requirements (1)	8,702	8,318	8,010	7,717	8,610	8,240	7,931	7,639
Outflows related to loss of funding on debt products	405	230	224	90	405	230	224	90
Credit and liquidity facilities	105,280	102,772	101,701	100,866	8,926	8,710	8,617	8,506
Other contractual funding obligations	10,826	11,717	12,080	12,441	2,004	2,135	2,045	1,840
Other contingent funding obligations	1,603	1,635	1,744	1,835	1,603	1,635	1,744	1,835
Total cash outflows					**92,876**	**92,430**	**92,243**	**91,781**
Cash - inflows								
Secured lending (e.g. reverse repos)	11,776	12,429	12,987	13,584	509	612	630	697
Inflows from fully performing exposures	27,611	28,713	29,917	30,625	16,473	17,406	18,615	19,433
Other cash inflows	5,076	4,776	4,196	3,645	5,076	4,776	4,196	3,645
(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	**44,463**	**45,918**	**47,100**	**47,854**	**22,058**	**22,794**	**23,441**	**23,775**
Fully exempt inflows								
Inflows subject to 90% cap								
Inflows subject to 75% cap	44,463	45,918	47,100	47,853	22,059	22,794	23,441	23,775
Total adjusted value								
Liquidity buffer					**89,330**	**88,139**	**87,426**	**87,252**
Total net cash outflows					**70,819**	**69,637**	**68,802**	**68,005**
Liquidity coverage ratio (%)					**126%**	**127%**	**127%**	**128%**

(1) Includes the value of collaterals that the entity should contribute in case of acredit downgrade in accordance to article 449. 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 dollarized economies (Argentina, Peru, Bancomer and Turkey) that limit the level of risk of each subsidiary.

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, 2018, 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 assets[3], 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, 2018 is:

Table 79. Committed assets over total assets rate.

	12-31-2018
BBVA Group	**19%**
LMU Euro	25%
LMU Mexico	13%
LMU Compass	12%
LMU Garanti	7%

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 internationalization 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 case, the consideration of a committed asset is not based on an explicit legal definition, such as the transfer of a title, but rather on an economic criterion so that any asset that is subject to any given restriction against use or replacement with another asset is considered as pledged.

The projects subject to overcollateralisation are:

- Mortgage-covered bonds.

  These are mortgage bonds issued with first-rank mortgage loan collateral constituted in favour 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) is Garanti Bank.

- 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, 2018..

Table 80. Mortgage-covered bonds. (Million Euros. 12-31-18)

Withheld	**9,093**
Withheld applied	7,010
Withheld not applied	2,083
Issued to Market	**15,207**
Total mortgage-covered bonds issued	**24,301**
Eligible collateral to consider	**44,424**
Maximum to issue	35,539
Capacity to issue	**11,239**

Table 81. Public-covered bonds (Million Euros. 12-31-18)

Withheld	**7,040**
Withheld applied	4,790
Withheld not applied	2,250
Issued to Market	**500**
Total public-covered bonds issued	**7,540**
Eligible collateral to consider	**15,145**
Maximum to issue	10,602
Capacity to issue	**3,062**

Table 82. Internationalization-covered bonds. (Million Euros. 12-31-18)

Withheld	**1,500**
Withheld applied	750
Withheld not applied	750
Issued to Market	**-**
Total internationalization-covered bonds issued	**1,500**
Eligible collateral to consider	**3,365**
Maximum to issue	2,356
Capacity to issue	**856**

The collateral received that, as of December 31, 2018, is 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 83. Encumbered and unencumbered Assets (Million Euros. 12-31-18)

	Carrying value of encumbered assets	Fair value of encumbered assets	Carrying value of unencumbered assets	Fair value of unencumbered assets
Institution's assets	**108,134**		**555,065**	
Equity instruments	2,115		6,064	
Debt securities	31,212	31,288	64,913	64,947
Of which: covered bonds	9	9	527	517
Of which: ABSs	17	17	1,011	9,998
Of which: issued by general governments	27,200	27,295	51,778	51,777
Of which: issued by financial corporations	3,502	3,475	7,725	7,752
Of which: issued by non- financial corporations	1,549	1,542	2,759	2,766
Other assets	75,187		482,148	

Table 84. Collateral received (Million Euros. 12-31-18)

	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	**23,734**	**7,232**
Loans on demand	-	5
Equity instruments	165	105
Debt securities	23,384	7,078
Of which: covered bonds	177	325
Of which: ABSs	-	-
Of which: issued by general governments	21,863	4,543
Of which: issued by financial corporations	983	2,312
Of which: issued by non- financial corporations	657	135
Loans and advances other than loans on demand	149	7
Other collateral received	-	11
Own debt securities issued other than own mortgage-covered bonds or ABSs	11	94
Own mortgage-covered bonds and ABSs issued and not yet pledged	-	15,636
Total assets, collateral received and own debt securities issued	**131,738**	-

The sources of pledges as of December 31, 2018 are as follows:

Table 85. Sources of encumbrance (Million Euros. 12-31-18)

	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	**112,875**	**128,142**
Derivatives	9,026	9,454
Repos and other collateralized deposits	85,633	96,253
Debt securities	19,035	23,315
Other sources of encumbrance	2,346	3,060

The assets without an associated liability reflected in the table below 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 defines operational risk ("OR") as that which may cause losses due to human error, inadequate or defective internal processes, inadequate conduct towards customers or markets, failures, interruptions, or deficiencies of systems or communications, inadequate management of data, legal risks and, finally, as a consequence of external events, including cyberattacks, fraud committed by third parties, natural disasters, and poor service provided by suppliers.

Operational risk management is oriented to the identification of its root causes, preventing its occurrence and mitigating the possible consequences, through the establishment of control frameworks and mitigation plans, in order to minimize the losses deriving from it and its impact on the Group's recurrent revenue generation and profit. Operational risk management is integrated into the global risk management structure of the BBVA Group.

Operational Risk Management Principles

The BBVA Group prefers to apply advanced models of operational risk management, independently of the regulatory capital calculation model that it applies at any given time. The management of operational risk in the BBVA Group must:

- Be aligned with the Risk Appetite Framework approved by the Management Board.

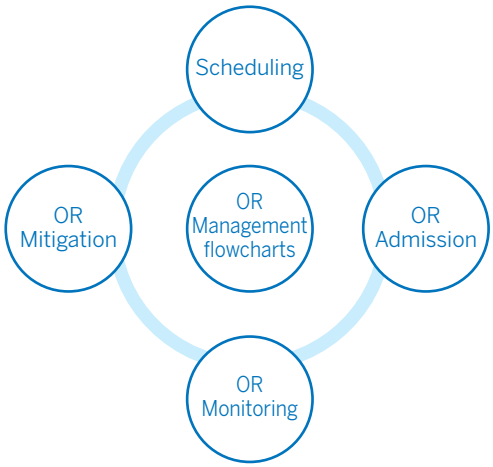
- Cover all management needs that BBVA may have arising as a result of compliance with regulations, norms, or industry standards, as well as decisions or positions of the governing bodies of the Group.
- Anticipate the potential operational risks to which the Group would be exposed as a result of the appearance or modification of new products, activities, processes or systems and decisions of outsourcing or contracting services.
- Establish the methodologies, procedures and indicators that allow periodically monitoring and re-evaluating the relevant operational risks to which the Group is exposed in order to adopt the appropriate mitigation measures in each case, once the risk identified and the cost of the mitigation have been considered (cost/profit analysis), preserving the solvency of the Group all the time.
- Investigate the causes of operational events suffered by the Group, from the analysis of operational losses that may cause them and establish measures for their reduction.
- Analyse the relevant public events for operational risk in other entities of the financial sector, or other sectors, and promote, where appropriate, the implementation of the necessary measures to avoid their occurrence in the Group.
- Identify, analyse and try to quantify events of low probability of occurrence and high impact in order to assess potential mitigation measures.
- Have effective governance, in which the functions and responsibilities of the Areas and Bodies that intervene in the management of the OR are clearly defined.

Regardless of the adoption of measures and controls to avoid or reduce both the frequency and the severity of OR events, BBVA always allocates sufficient capital to address any expected or unexpected losses that may occur.

3.8.2. Operational Risk management model

The operational risk management cycle at BBVA is similar to that adopted for similar risks, and contains the following elements:

Chart 25: Operational Risk Management Processes



3.8.2.1 Planning

Operational risk is part of the risk appetite framework of the Group and involves metrics of three classes:

- Economic Capital calculated from the database of operational losses of the Group and the industry, including the corresponding effects of diversification, and the complementary estimation of potential and emerging risks through stress scenarios designed for the main types of risks. The economic capital is calculated for the main banks of the group periodically and simulation capabilities are available to foresee the impact of changes in the risk profile or new potential events.
- IRO metrics (losses for operational risk versus gross margin) with breakdown by geography, business areas and types of risks. The estimation of the IRO limits is based on the analysis of expected/unexpected loss, based on long-term statistical series, and is complemented by the potential events identified in the watch list.
- Additionally, work is being done on the implementation of a more granular common scheme of metrics that covers the main typologies of operational risks in the whole group.

3.8.2.2 Operational risk admission

The main objectives of the operational risk admission are:

- To anticipate any potential operational risks to which the Group would be exposed as a result of the appearance of new initiatives or modifications of legislation in force;

- To ensure that its implementation is performed once the appropriate mitigation measures have been adopted in each case, among which the assurance of risks will be considered, when so determined.

The admission process covers any initiative (new business, product, outsourcing, process transformation, new systems, etc.) that incorporates a significant level of operational risk that could significantly modify the Group's risk profile. These operational risks must, therefore, be managed within the framework of the Group's risk appetite.

The Corporate Policy for Management and Control of Operational Risk establishes the specific framework for the admission of Operational Risk that is specified in different Committees, both at corporate level and in various Business Areas, which follow a multi-tiered structure based on the risk level of the proposed initiatives. These committees are composed of representatives of the second line of defense (specialists of each type of non-financial risks, who validate the proposed mitigation and control framework) and first line of defense (proponent units), who are responsible for this admission process.

This process is supported by corporate workflow tools that allow the participation of the first line of defense to be documented, as a proponent of the initiatives and the control framework associated with them, and of the second line of defense, to make any challenges or penalties related to them.

3.8.2.3 Operational risk monitoring

The objective in this phase is to control that the objective operational risk profile of the group remains within the authorized limits. Operational risk monitoring is differentiated into two independent areas:

- Monitoring of the admission process of the operational risk, with the purpose of verifying that the admitted risk levels are kept within authorized limits, and that the control methods indicated are effective.

- Monitoring of the "stock" of operational risk associated with processes, aimed at performing a periodic reassessment to confirm that the residual risks and the target risk are reasonably aligned, or, alternatively, to implement action plans to redirect the gaps to the desired level. The "stock" must be updated with a minimum annual periodicity.

The methodology applied in this stage is the following:

- Establishment of the perimeter of the management model, which identifies the companies and activities that may give rise to significant operational risks.

- Identification of potential and actual operational risks based on the review of the processes and the current rules and regulations.

- Prioritization of operational risks, with the objective of separating critical risks from non-critical risks.

- For critical risks, the identification, documentation and testing of the mitigating and controlling factors that contribute to their reduction are performed, and, based on their effectiveness, the residual risk is calculated, a level of objective risk is established and action plans are established in the cases in which the residual risk exceeds it.

- Additionally, there is a set of indicators that are used to measure the evolution over time of both operational risks and the effectiveness of mitigating factors and controls, which facilitate the preventive management of those.

- OR management will be performed in a coordinated manner with other risks considering those credit or market events that may have an operational origin.

This process is supported by a Corporate Governance, Risk & Compliance tool that allows local tracking of the OR as well as aggregation at the corporate level of the same.

Additionally, in line with the best practices and recommendations of BIS, BBVA has collection procedures for operational losses that have occurred both in the different entities of the Group and in other financial groups, with the appropriate level of detail to enable an effective analysis that provides information useful for management. For this, a corporate tool implemented in all the countries of the Group is used.

3.8.2.4 Mitigation of the operational risk

In the last two years, a series of transversal plans have been promoted in terms of operational risk for the BBVA Group as a whole, in order to promote the anticipatory management of these risks.

To this end, attention focuses have been identified from events, self-evaluations and recommendations from auditors and supervisors in different geographies, both within the Group and the industry, analysing best practices in these areas and promoting comprehensive action plans to reinforce and homogenize the control environment.

One of the main plans has been the outsourcing management, as it is an item of increasing importance in the Group, both within the sector and in the current regulatory environment. Various initiatives have been launched within this plan, which can be summarized as:

- Reinforcement of the admission process of these initiatives,

their control frameworks and their monitoring;

- New internal regulations incorporating the best practices of the industry;
- Integration in the control model of three lines of defense: roles and responsibilities in each of the phases of its life cycle;
- Risk management of both the service and the provider;
- Review of governance, which is integrated into the operational risk, and scaling criteria;
- Adaptation of the management tool to the new requirements;
- Process of internal communication and training between the externalizing units and senior management, including these issues within the agenda of the main control committees of the Group.

This plan will continue to be promoted in 2019 with a focus on reviewing the most significant outsourcing stock.

3.8.2.4.1 Operational risk assurance

Assurance is one of the possible options for the management of operational risk to which the Group is exposed, and has two different purposes in particular:

- Coverage of extreme situations linked to recurring events, whose mitigation is difficult or partial by other means.
- Coverage of non-recurring events that, if they occur, could have a high economic impact.

In 2018, a specific corporate procedure was approved for insurance management aimed at mitigating the Group's operational risks. This provides a general framework that regulates these activities in the group and allows the systematization of risk assurance decisions, better align coverage with the risks covered and strengthen governance in the decision making of insurance policies.

3.8.3. Governance of the Operational risk

The governance model for operational risk in BBVA group is based on two components:

- Control model of three lines of defense, in accordance with the best industry practices, and through which compliance with the most advanced standards in terms of internal control of operational risks is guaranteed.
- Scheme of Corporate Assurance Committees and Committees of Internal Control and Operational Risk at the level of the different business areas.

The Corporate Assurance establishes a committee structure, both at the local and corporate level, which provides Senior Management with a comprehensive and homogeneous view of the most relevant operational risks. The objective is to facilitate agile and anticipatory decision-making for the mitigation or assumption of the main risks, both locally as well as in the consolidated Group.

Chart 26: Corporate Assurance Governance Structure

Each geography has a Corporate Assurance Committee chaired by the Country Manager and whose main functions are:

- Monitoring the evolution of risks and their degree of alignment to the defined strategies and policies and to overall risk appetite;
- Analysing and assess the controls and measures planned to mitigate the impact of the identified risks, in the event they materialize;
- Taking decisions on risk assumption proposals that are transferred by the working groups or that arise in the Committee itself;
- Promoting transparency, encouraging the proactive participation of the three lines of defense in the exercise of their responsibilities and the rest of the organization in this matter

At the Holding level, there is a Global Corporate Assurance Committee, chaired by the Group CEO, whose main functions are similar to those previously described, but which are applicable to the most relevant matters pertaining to certain locations holding areas.

The business and support areas have an Internal Control and Operational Risk Committee, whose objective is to ensure the correct implementation of the operational risk management model in their area and to promote the active management of this risk, taking decisions of mitigation in case of identification of control weaknesses and monitoring them.

Additionally, the Non-Financial Risk unit periodically reports to the Risk Committee of the Board of Directors on the operational risk management situation in the Group.

3.8.4. Methods used to calculate capital

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[4]. Specifically, this method is used in Spain and Mexico, which accumulate most of the Group's assets.

Except for the cases of Garanti and Bolivia, for which the basic approach is applied, the standardized approach is used to calculate capital in the rest of the geographic areas

3.8.4.1. 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 as well as operational risk scenarios.

Table 86. Regulatory capital for Operational Risk (Million Euros)

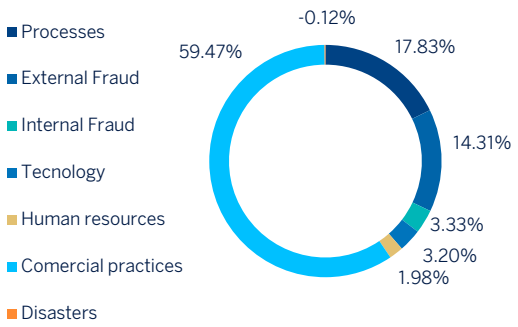
	Capital requirements		RWAs	
Regulatory capital for operational risk	**2018**	**2017**	**2018**	**2017**
Advanced	1,718	1,476	21,475	18,449
Spain	1,364	1,181	17,050	14,767
Mexico	354	295	4,425	3,682
Standardised	765	808	9,563	10,102
Basic	473	496	5,913	6,204
BBVA Group total	**2,956**	**2,780**	**36,950**	**34,755**

The main variations in the capital requirements for operational risk are due to:

- Advanced approaches: Increase of 183 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. Increase of 59 million in Mexico as a result of the exchange rate difference and the increase in the trend in the sanctions imposed by the regulators in effect for the last three years.
- Basic and standard approaches: Declines in the standard and basic approaches produced by the exchange-rate variations and by the sale of Chile, as well as the Portugal merger.

3.8.5. The Group's Operational Risk profile

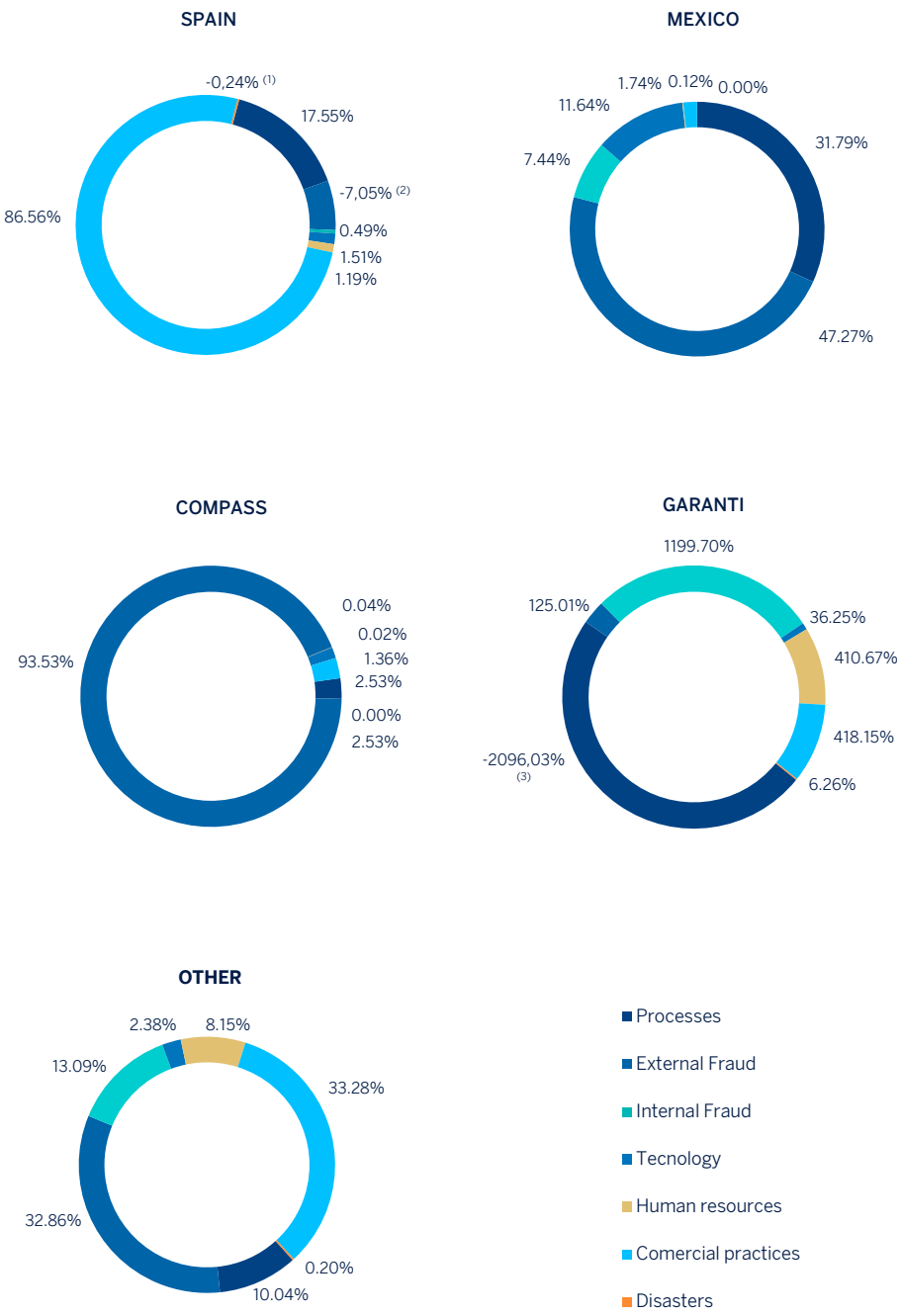
Chart 27: BBVA Group's Operational Risk profile



BBVA's operational risk profile is shown below by class of risk after assessing the risks, resulting in the following distribution.

4: In March 2010, BBVA Group received authorization from the supervisor to apply advanced approaches for calculating regulatory capital by operational Risk in Spain and Mexico.

Chart 28: Operational Risk profile by risk and country



1: An amount greater than the loss that occurred this year has been recovered by insurance of events of previous years.
2: Recovery of 25 million EUR from the Madoff event that exceeds the total losses due to external fraud that has occurred this year.
3: Provisions recorded in previous years have been released for two relevant events (RUSF and Arbitration Committee) for an amount greater than the loss that occurring during this year.